

THE GARDENER'S MAGAZINE



EDITED BY SHIRLEY HIBBERD ESQ. F.R.H.S.

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THE

GARDENER'S MAGAZINE,

FOR AMATEUR CULTIVATORS, AND EXHIBITORS OF PLANTS, FLOWERS, AND FRUITS:
FOR GENTLEMEN'S GARDENERS, FLORISTS, NURSERYMEN, AND SEEDSMEN:
FOR NATURALISTS, BOTANISTS, BEEKEEPERS, AND LOVERS OF THE COUNTRY.

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M	D	ANNIVERSARIES, EXHIBITIONS, &c.	SUN				WEATHER NEAR LONDON, 1865.				M.M.P. OF 48° F. IN 1, Indian Hour; 30, Mexican Hours; 0, Greenwich.	M	D		
			rise.	set.	moon.	moon.	Barometer.	Thermometer.	rain.	W. S. P.					
1867.			h. m.	h. m.	h. m.	h. m.	mk.	min.	mk.	min.	mk.	min.			
1	T	New Year's Day. Length of day 7h. 53m.	8 4	0	3 34	a. m.	29-5	29-18	58	28	36	0	35	5	Agavecum eburneum, i Malagascor
2	W	Edmund Burke died, 1797	8 8	4	1 4	1 55	29-5	29-61	47	37	42-0	0	7	30	A. asperum, i
3	Th	Wedgewood died, 1795	8 8	4	2	5 30	29-5	29-52	43	38	40-0	0	30	5	A. virens, i
4	F	Amazon steamer burnt, 1852	8 8	4	2	6 24	29-5	29-16	54	41	46-5	0	37	0	Dendrobium spectabile, i, New Holland
5	S	Edward the Confessor died, 1041	8 8	4	4	7 12	29-5	29-63	45	28	37-0	0	30	0	D. album, i India
6	S	2nd Sunday after Christmas	8 7	4	6	7 54	30-0	30-00	43	29	33-0	0	34	4	D. chrysoxanthum, i
7	M	Trinity Monday. Fast, midnight	8 7	4	7	8 23	29-5	29-16	54	41	46-5	0	37	0	D. bicolor, i Brazil
8	T	New Moon on Sunday, Jan. 6, at 30 min.	8 8	4	8	9 0	29-15	29-18	40	30	33-0	0	35	5	B. candida, i Demerara
9	W	Fire Insurances due	8 8	4	9	9 34	29-13	29-14	40	30	33-0	0	35	4	B. venusta, i Brazil
10	Th	Penny Postage began, 1810	8 8	4	10	10 1	29-13	29-14	40	30	33-0	0	35	5	B. Atropillans spectabile, i, Guatamala
11	F	George Fox died, 1691	8 8	4	12	10 27	29-8	28-73	34	17	33-5	1	30	5	B. Barkers elegans, m
12	S	Times newspaper started, 1785	8 8	4	14	10 51	29-2	29-12	34	9	21-0	3	35	6	B. Skinneri, m

PROBABLE WEATHER, WEEK ENDING SATURDAY, JANUARY 12, 1867.—Our anticipations have all been realized to the letter, and the setting of the wind at N.E. has given us a taste of real winter. Next week bright and bracing, with wind easterly, and more or less frost everywhere. Snow in places, and of no great amount. Cold increasing as the week advances.

The Gardener's Magazine.

SATURDAY, JANUARY 5, 1867.

IMPROVEMENTS IN THE CULTIVATION OF THE GRAPE VINE have been variously described and criticized in these pages of late, and we may profitably consider as of primary importance what improvements have been made in the grape itself to increase its usefulness and value. During the past few years several new varieties have been brought into cultivation, and a certain few of them have proved of incalculable advantage both for their intrinsic merits as dessert fruits and their ready adaptability to simple and inexpensive modes of cultivation. The position acquired by some of the newer kinds in competitive exhibitions is quite consistent with their fine qualities in growth, productiveness, and flavour. Thus, for example, **BUCKLAND SWEETWATER**, introduced but a few years since by Messrs. Ivory, has become as famous among grape-growers as the oldest varieties in the lists, and is a real advance in the class of white grapes, to which it most properly belongs. The vine grows well, is not subject to disease, bears abundantly, and is adapted for any kind of structure in which grapes can be grown, and is especially adapted for cool vineries. When well done, this variety produces bunches as large as those of **Black Hamburg**; and when perfectly ripe, its beauty is not excelled by any other white grape we possess. The **GOLDEN HAMBURGH** of Busby is another of the comparatively newer kinds that has become firmly established in the good opinion of grape-growers. One of its good qualities is a high degree of productiveness, but it has also beauty of bunch and berry, and refined flesh such as a connoisseur of fruit will always enjoy. Still newer as respects the date of its first distribution is the **ROYAL VINEYARD**, which has now made its character as one of the best late white grapes we possess. For some time after the first sending out of this grape by Mr. B. S. Williams, it was reported to be shy of setting; but it has lived down the accusation, and is now known to be as free as any grape of equal quality, and much more free than some of our most esteemed varieties of white grapes. A cool house is all this noble grape requires, and it may be said to be of just the same value for a late supply as **Buckland Sweetwater** is for an early supply; and those who are prejudiced against **Sweetwaters** for their juiciness, will prefer it for its rich *croquant* flesh. Yet one more white grape must be mentioned here, and that is the smaller-berryed but high-flavoured **DUCHESS** or **BUCKLEUCH**, which presents us with a rich Muscat flavour, without demanding the high temperature and skilful cultivation necessary for the production of good samples of the most celebrated of the Muscat varieties. The smallness of the berries is a serious defect of this variety. Bunches may be grown to almost any size: have we not seen them on several occasions of four to six pounds weight? Thus from the many varieties introduced within less than ten years past, we may select four white-fruited varieties of the highest value, and which every grape-grower should keep in mind as desirable when opportunity or necessity occurs for planting any of them.

Black grapes may also be found amongst the newer kinds, and first in the selection we should place **Mrs. PINE'S BLACK**, now in process of distribution by Messrs. Pince and Locombe, which was reported in the "Garden Oracle" of 1865 as a grand contribution to the English vine. This variety has been brought under our notice again within the past few weeks, and we fell bound to direct attention to it as valuable for its good qualities as a dessert fruit, and pre-eminently valuable for long keeping, and for *improving by hanging* after it is ripe—which is not ordinarily the case with either grapes or men. This is a free-setting variety, producing large bunches and full medium-sized berries, the skin tough but not thick, the flesh quite crackling, very rich, and with more of a Frontignan than a Muscat flavour. When we first tasted this grape, three years since, the Muscat flavour was distinct and peculiar to it; but in the present season—the *Volux* we have tasted of it (taken from No. 1, NEW SERIES.—Samp. X.

a bunch a foot long) were destitute of Muscat flavour, but were strongly tainted with Frontignan, the result doubtless of the bunch having hung some time. This variety will in many instances render it unnecessary to force grapes for the earliest supply, because by careful keeping, it may be served to table fresh and delicious, at the same time as the first supplies of forced grapes, which are occasionally (!) sent to table wanting a few days more to ripen them. Such good keeping kinds as **Lady Downes**, **Alicante**, **Raisin de Calabre**, **West's St. Peter's**, have an admirable addition in **Mrs. Pince's Black**, which is distinct in character and flavour from them all, and may be kept for use as late as any.

Eminently useful, too, will be the **MUSCAT CHAMPION**, raised by Mr. Melville of Dalmeny Park, and the stock of which is in the hands of Messrs. Veitch. This grape has a true Muscat flavour, and Muscat aroma, and it does not need the usual Muscat heat to bring it to perfection—an advantage of the utmost moment. The vine grows freely, and is of robust constitution, and it is at least of average productiveness, if not excessively fruitful.

Passing from these newer kinds to one of the five old kinds, it is odd that **FRANKENTHAL** and **BLACK HAMBURGH** are generally considered the same by cultivators. Of course our more accomplished exhibitors know the radical distinctions between them, but we observe in many catalogues that they are regarded as identical, which is not the case. The **Frankenthal** grown to exhibition size is remarkable for the beauty of its bunches, and its qualities as a dessert fruit are of the very highest order. It is undoubtedly the best of the **Hamburg** group, and of the same stock as that most useful of all grapes the true **Black Hamburg**. We may yet hope to see, through improved methods of cultivation, and the adoption of improved varieties that possess high flavour and productiveness, and demand only average care and skill, cheap English grapes for the tables of the people. It is strange indeed that good English grapes are scarcely yet within the means of the masses, as they ought to be.

THE FIRE AT THE **CRYSTAL PALACE** on Sunday last made a cruel end of one of the prettiest collections of tropical trees in England, and at the same time annihilated a very complete and beautiful memorial of the labours and accomplishments of the Messrs. Loddiges. As respects the palace itself, the destruction of the whole of the building on the north side of the screen is a national calamity, for this is truly a "palace for the people"; but the loss, great as it is, can be repaired by a sufficient outlay. But as respects individual trees and various interesting curiosities, we may say with simple truth that they are gone for ever, and to replace them is impossible. Many of the beautiful examples of tropical vegetation lately located where now there is a ghastly wreck, had been housed in Hackney, in Messrs. Loddiges' care, so many years as to have acquired historical importance long ere the late Sir Joseph Paxton secured them for the embellishment of the **Crystal Palace**. To enumerate the losses is impossible, but there can be no doubt now that all the larger subjects, such as the **Muss**, the **Palmetta palm**, and others by which the well-known scene was peculiarly enriched, are injured beyond recovery. Many of the smaller aquatic plants have been gathered from amongst the ruins in a living state, and have been removed to nursery quarters to receive extra care for a time; but after all that will be saved will be as nothing compared with what is lost, and the losses include many valuable and interesting animals as well as plants. The origin of the fire appears to have been in some way connected with the practice of banking up the furnace fires, and it is conjectured that a choked flue and some adjacent well-dried timbers played severally their appropriate parts in inducing the catastrophe. We regret exceedingly to observe that the attendance of holiday folk has fallen off tremendously since the occurrence of the fire, and the diminution of receipts therefore adds to the embarrassment of the directors. We wish it to be known to our readers that all the entertainments specially prepared for the season are untouched, and for holiday merry-making the palace may be regarded as perfect as ever. Thousands of persons accustomed to visit the palace at this time of year never went beyond the screen, for the music and fun taking place in the transept were enough for them. There is therefore, as regards the entertainment of all such, no diminution of attraction, and we trust when this becomes fully known the public will swell the receipts to a degree sufficient in a great measure to promote the restoration of the structure to its former completeness and beauty.

TO DIE TIMBER WHILE IT IS GROWING is an ingenious proceeding, possible and practicable, but whether desirable remains to be ascertained. At the conservation of the **Crestmore** Agricultural College, Mr. Hyett exhibited sections of woods stained with various hues by means of metallic salts introduced to the sap of the living tree. The commercial value of the

process may not be immediately determinable, but the carrying it out on a large scale must of course turn upon the relations of monetary outgoing and incoming in the proceeding. Not so the scientific value of the process. It must be that the infusion of dyes into living woods will contribute something to our vague knowledge of the motions of the sap, and we do hope that science has herein furnished us with a new instrument for experimental inquiry on this important subject.

PARIS UNIVERSAL EXHIBITION OF 1867.—The British Commissioners for the Paris Exhibition of 1867 have issued from South Kensington a long series of "general questions which apply to all cases," which must be duly answered, signed, &c., by those who intend to advance their claims to the new "Distinct Order of Reward" which is to be adjudged at the Paris Exhibition of 1867. This particular order was instituted in favour of persons, establishments, or localities which by a special organisation or special institutions have developed a spirit of harmony among all those co-operating in the same work, and have provided for the material, moral, and intellectual well-being of the workman. The rewards consist of ten prizes of the total value of 100,000 francs (£4,000, or £400 each, and twenty honourable mentions. One grand prize of 100,000 francs may, in addition, be awarded to the person, establishment, or locality distinguished under this head by a very exceptional superiority. The form which is now issued must be filled up by or on behalf of any person, establishment, or institution in the United Kingdom for which the reward is claimed, and must be forwarded to the "Secretary, Paris Exhibition, South Kensington Museum," on or before the 26th inst.

THE ALOCASIA.

The prominent position which some of the best varieties of this truly beautiful genus generally occupy in most collections of plants distinguishable for the beauty and magnificence of their foliage at our principal horticultural exhibitions, is a pretty sure indication, if not an ample and conclusive proof, that the *Alocasia* is worthy of our attention, and has some claims upon our notice; for without doubt, no collection of fine-foliage plants which requires the assistance and advantages of a stove, combined with a liberal supply of heat and moisture for their successful management, can approach anything like competition unless it contains some varieties of the genus. I am, under the impression that I shall not be speaking far from the truth when I say that if well grown, *A. macrorhiza variegata* and *A. metallica*, two of the oldest kinds, saying nothing about the later introductions, are without exception two of the grandest ornamental leaved plants that we could possibly have for the decoration of the stove or the ornamentation of the exhibition table.

Before turning our attention to the cultivation, which by the way is by no means difficult, provided proper means are at hand, I may as well say that unless the convenience of a stove or some other house furnished with a plentiful command of heat, and sufficient space for the full and proper development of the plants, is obtainable, it will be only a useless and wasteful expenditure of time and patience to attempt to grow the best kinds. Of course the common greenhouse sorts, which are so extensively employed in outdoor decoration during the summer months, are an exception to this rule, and as they were ably treated in the magazine a short time since, it will be quite unnecessary for me to say anything about them, consequently I shall confine myself to those varieties requiring stove treatment. The best way to pot *metallica* and similar kinds is the same way as some of the orchidaceous plants are potted. Fill the pots about half full of large pieces of crocks, with a layer of rough lumps of peat to keep them from getting choked with the finer material; the plant is then potted in peat mixed with silver-sand and finely broken crocks; the crocks should be thoroughly clean. In selecting the peat, I am careful to use only that which has a large amount of fibres, and then shake out the finest portion, and only use the rough part; for so far as my experience goes in this respect, I consider it one of the most important and essential points in the culture of this section of the *Alocasia* to keep the roots out of close soil; it is next to impossible to grow the plants in it, for the roots are so thoroughly impatient of being confined that they will very soon rot if they are. Not so long since, I had a plant of *metallica* which lost a very large portion of its roots through the material in which it was potted, getting close and sour, aided by being kept in the conservatory until late in autumn; and for the benefit of any one who might be similarly situated at any time, I will describe what measures I resorted to to bring it back into a healthy condition again. As soon as the plant was brought from the conservatory, as much of the sour stuff was removed from amongst the roots as was consistent with the safety of the plant, and without giving it too great a check; and I then gave it a fresh pot, fresh soil, fresh crocks—in fact, a fresh start in life altogether, and plunged it in the tan bed amongst the pines, and there it remains now. The pot is a mass of healthy roots, and at the present time the plant is starting into a vigorous growth, just as though nothing had happened to impede its progress. It will not be out of place for me to observe that for ordinary purposes this is much too early to start them into growth; the end of February or beginning of March is quite soon enough, for generally speaking fine-foliage plants are not wanted to be in perfection until after the pelargoniums, azaleas, and other brilliantly tinted flowers are over,

and turned out into their summer quarters, and the different occupants of the flower garden at their best; it is then, to my way of thinking, that fine-foliage plants are required for indoor decoration. I wish to be understood the specimens more particularly of those possessing high-coloured leaves now, for one is able to appreciate them better than when they are placed in juxtaposition with showy flowers like the above-mentioned subjects, and are moreover a great relief to the mind from the gaudy colouring which so generally prevails out of doors at that particular season; and few things are so thoroughly refreshing to the sight after it has been dazzled with the brilliancy of the gay colouring of the parterre as a house nicely furnished with a good collection of beautiful leaved plants.

With an apology for this digression from the cultural remarks, I will return, and perhaps it will be as well to say that my reason for allowing the plant I was speaking about to remain in the conservatory so long was to give it its rest a couple of months earlier than it otherwise would have had it, on account of my requiring it at its best early, for a particular purpose. Like most fine-foliage plants, this requires plenty of water at the roots when growing, and this section must not be kept too dry in its resting season. When growing, the plants require an abundance of atmospheric moisture, which is best obtained by sprinkling the paths and stages, for if syringed overhead, even with the clearest water that can be conveniently obtained, there certainly will be a settlement and spotting on the leaves, more or less in proportion to the purity of the water used; and when the leaves are sponged, to wash off the sediment, it very materially spoils that exquisitely beautiful metallic lustre which is the principal charm of this section, under which I shall include *A. metallica*. This variety is sufficiently well known to every one who has any knowledge of plants to render any description unnecessary. *A. zebrina* is a very magnificent kind, much stronger growing than the preceding; its beautiful large velvety green leaves are produced on prettily marked stalks, which when well grown average from two to three feet high. *Caladium Lowii* and *Veitchii* will succeed under this treatment. It might not probably be exactly right to say anything relating to caladiums in a paper specially devoted to alocasias; but I trust the great resemblance these two varieties bear to the alocasia, both in manner of treatment and style of growth, besides their being introduced to this country under the same name, will be a sufficient justification and excuse for mentioning them here.

A. macrorhiza variegata is a very noble plant, and requires a somewhat different system of treatment to that recommended for the preceding varieties; it wants something more substantial to grow in, and nothing beats good fibry loam, thoroughly decomposed manure, leaf-mould, and a sprinkling of silver-sand. I mix and use it in the proportion of three parts loam and a part each of leaf-mould and rotten dung, and sufficient sand to make the whole feel gritty. This compost beats peat out of the field for growing this sort. I bought a plant of it not more than a twelvemonth since with only a couple of leaves, the stem the thickness of one's thumb, and now its bulb stands very near a foot high from the level of the soil, and measures as much, or more, in circumference, with half a dozen smaller ones considerably longer than the original one was when I first had it, and I expect to find two or three dozen smaller bulbs when I take it out of the pot it is now in. I have the plant dried off in the pot lying on its side in a temperature of 50°. Some time last February the plant was shook out of the old soil, and potted in a 48-size pot in the soil as I have recommended, and then plunged in a bottom-heat of something like 70°; I am unable to say to a degree, neither is it of any consequence that I should do so, for a few degrees either way will not signify; but I may observe, in passing, that 70° should not be exceeded to any great extent by those who are inexperienced in the management of bottom-heat. As the plant grew, I kept it shifted and plunged in the bottom-heat until it reached a No. 4, which was some time towards the end of May, and it was too large to be put back into bottom-heat, for there was not sufficient room for the immense leaves which began to push up to develop themselves. As soon as it began to fill the last pot with roots, I stood it on some pieces of brick in a pan of weak manure-water, allowing the pot to be about an inch deep in the water. I was certainly surprised to see how vigorously it grew after this, and it was nothing comparable in June, when I exhibited it at Kingston, to what it was a month or six weeks later: the leaves were scarcely half the size. I was in doubt as to whether growing this kind so vigorously had any influence upon the variegation, so in the autumn I potted two small plants very equally matched in every respect, one in peat and sand, and the other in the same soil as I have been speaking about; they have stood side by side, and had exactly the same kind of treatment. They have been kept growing up till now; the one in loam is decidedly the largest plant, and better variegated than the other. *Metallica* is propagated by division, and *Macrorhiza variegata* by the small bulbs which will be found amongst the roots, and those adhering to the parent.

GEORGE GORDON

KITCHEN GARDEN SOILS, AND THEIR MANAGEMENT.

RECLAMATION OF CLAY SOILS.

I am aware that the heading of this paper might lead the reader to expect an elaborate treatise upon the subject; but such I shall not attempt, because it is, in the first place, almost inexhaustible, and secondly, because it is imperfectly understood even by those whom it most concerns; and the best that we can do at present is to gather materials towards a full understanding of it. I therefore propose to treat this subject in my usual plain way, that our gardening readers may understand it, and that I may not be tempted to go out of my depth. I am the more anxious to so treat it because it is important that those who have not previously given the subject any consideration should do so, as on a proper understanding of it depends in a great measure the success of much of their labour. This last is such an important question to the kitchen gardener, that I may hope for an attentive perusal of the following remarks, as I hope to go through most of the essential features appertaining to kitchen garden soils and their management. I shall first dwell upon

SOILS FOR A NEW GARDEN.

It does not come within my province here to enter into the choice of positions; I rather prefer to take them as we find them on any given spot; and I shall first suppose that we have a soil with 8 or 10 inches of good surface earth, resting on a blue or yellow clay. Such a spot is by no means to be despised, although I have seen such valuable positions badly managed—in fact, I may say spoilt for the first few years of their use, for want of a proper knowledge of the subject. I am bound to say that there are many spots where the skill of the gardener is called into more active exercise to secure the well-doing of his crops than these, and the greatest mistake committed by many is, when first handling such a soil, they have generally seen, or somewhere read, that every new kitchen garden should be well and deeply trenched, and upon the strength of such knowledge they proceed to follow out the instructions without giving any consideration to the peculiarity of soil or position, and by so doing they create an enemy that is not got rid of in a day or a year. Without giving the subject any thought, the ground is trenched sometimes from two to three feet, all the best soil being placed in the bottom, and a strong rank clay brought to the surface in its place, which will take years of careful management to bring into a good working condition, unless after a year's working the ground is trenched over again, and the soil that was at the top in the first instance is brought to the surface again.

Now the order of proceeding in such a case should be, not to place the top soil in the bottom of the trench, but endeavour as much as possible to put it on the top again; and this operation is very simple, for instead of bringing the bad soil to the top, the bottom of the trench may be loosened up to the required depth (2 feet is sufficient in such a soil), and allowed to remain there, and the top spit of the next trench placed on the top of it. By this means the surface soil is retained at the top, and the cultivator will find it much the better for working, as well as for his crops, than if he had brought the bottom soil to the surface. Mistakes in this simple operation in the first instance when forming a new garden are by no means uncommon, but evidently committed without first giving the matter any degree of thought. Not many years since on the borders of Kent, I saw a large nursery famous for rose-growing, where a like mistake had occurred. It happened that a new ground foreman was engaged, whose notion of deep trenching was so great that he prevailed upon the proprietor to have every vacant piece of ground trenched up 2½ feet deep; and in conducting the operation, the top soil was placed in the bottom, and a depth of a foot of calcareous clay brought to the surface. The consequence was that what was before a kind, workable surface soil, was converted to a cold, stiff, ungenial surface, that had it been allowed to remain would have cost years of expensive management before it could be got into a kindly friable condition. But in this instance, one season's working proved to the owner that for him a serious mistake had been made, and the shortest and best remedy he found was to re-trench the ground, and bring again the original surface soil to the top. I have merely related the above facts that have come under my own observation to show that the subject is sufficiently important, to demand the serious attention of all who may be engaged in such work, for as shown in the above instance, unless a proper amount of attention is given the subject at the right moment, the neglect of it may prove a serious affair to all interested.

But from what I have above stated it must not be inferred that I am opposed to deep trenching, because few writers have advocated the advantages of deep stirring of the soil in stronger language than I have in these pages; but at the same time, experience and observation have taught me that trenching as ordinarily understood is not applicable to all soils, but when there is a sufficient depth of good soil to allow the bottom to be brought to the top, then I would by all means advocate its being brought there, but in other cases where the subsoil is of that retentive

nature, it is better for all the purposes of cultivation that it should not be brought to the top unless the cultivator can afford to incorporate with it all those necessary ingredients, such as soot, lime, burnt earth, and leaf-soil, to bring it into a fit state for cultivation. If these materials are procurable on easy terms, then a few inches laid on annually will in the course of a few years bring such a soil into a high state of cultivation; but the importance of deep stirring of such a soil as I am now treating upon; cannot be over-rated, especially if not well or naturally drained, as if there are no means of the surface water to get away below the roots of the ordinary subjects of a kitchen garden, the ground becomes soddened and sour, to say nothing of its being much colder than a well-drained spot during winter. This subject of deep as against shallow culture has long been a bone of contention amongst some of our best agriculturists; but an ordinary observer of the nature of the soil, and the purposes for which it is worked, can easily reconcile these apparent contradictions, as a deep rich soil can never be moved too much or too deep, for by deep culture rich earth is brought to the surface, air and water are more readily admitted, and the roots of plants are encouraged to spread more freely, as well as to penetrate deeper, while the rich soil affords an abundance of nourishment. But with a shallow soil, with a lower stratum of inferior quality, no good can result by bringing it to the top unless specially managed.

This brings me to say something on clay soils generally. For the convenience of working, these are the most undesirable soils which the gardener comes in contact with. But nevertheless they are valuable for the production of many kitchen garden crops, and with management they are more to be desired than some of those light soils resting on gravel. The greatest objection to a clay soil is that it is cold and ungenial for early spring crops, but its valuable properties in a dry, hot summer are so clearly demonstrated over those of a lighter and more open texture, that I would prefer to deal with it than with the latter.

The greatest consideration in bringing a new soil of this description into use as a kitchen garden, is to work out a thorough system of drainage, for by carrying away all unappropriated water the heat of the soil is increased, and it is consequently rendered more agreeable for vegetable life to feed in. This being done, the next important operation is to add to it such substances as will augment its fertility, and at the same time lighten its tenacious character. One of the essential conditions for securing early and fine vegetables is a warm friable soil. A light soil is of necessity better than a heavy one for an early spring garden; but for many summer crops I would not change a soil of a tenacious character for one that is composed of lighter or more friable substances. Therefore, the kitchen gardener will act wisely when he only aims at reclaiming a portion of his garden, just for spring crops, from that state in which he finds it. True, he may find that to improve the character of the staple of the whole garden may all require some attention, but I would only do it in part, and direct the chief attentions to the quarter that has the most likely appearance of producing the best and earliest crops for spring and early summer use.

For the common improvement of such land, there are many substances applicable. Both chalk and lime are valuable ingredients, the former keeping the soil more open, and retaining a great body of air, which is eminently beneficial, while lime also acts to some extent in the same manner. But the great advantage of lime over many other substances is its chemical action on the roots of plants which are left in the ground after the removal of a crop, as if put on the land and dug in fresh it soon causes a speedy decomposition of all organic matter it comes in contact with, thereby creating out of the soil an abundant supply of sustenance for the roots of the future crop to feed upon. To these substances may be added burnt earth, all the sweepings and clippings from the pleasure-ground, and indeed anything that will make it more precious and fertile, and always giving the preference to stable manure over any other. Here I must close my remarks on the subject of clay soils, and as soon as some other pressing matters which are waiting for space are off my hands, I hope to return to the consideration of other soils.

J. C. CLARKE.

NEW INVENTION FOR PLANT LABELS.—I have received samples of a newly invented plant label from an amateur who wishes to sell his invention, and who asks me to assist him. I would gladly write to a few firms, and state the case, and I might, perhaps, very quickly secure him a purchaser. But though I might do this solely for the benefit of a poor man, it would be equivalent to acting as an agent, and I therefore prefer to state the case here, and leave it to find attention where it may. The invention consists of a metallic label of most elegant appearance, on which the name in black and white can be changed *ad infinitum*, and the form of which can be adapted for walls, trees, flower pots—for in fact any purpose for which a label can be required. It would suit a manufacturer accustomed to small niceness in metal work, and I have no doubt at all that if introduced to public notice with spirit, the sale would be large and constant. Any letters respecting this that come to hand shall be forwarded to the inventor. It seems but proper to add that he expects only a small sum for his idea.

S. H.

PALMS FOR THE CONSERVATORY.

I see that, in some past issues of the GARDENER'S MAGAZINE, one of your able coadjutors has fixed the attention of the English gardener to some palms that have proved hardy in Britain. I am most glad, for everywhere I would wish to see the sublimest forms of vegetation adorning the green gardens of the noble English people. When I speak of these as "green gardens," I wish you to know my meaning much, for I have not seen such green gardens at home. In most parts of Germany we do not *eintauchen*, or as you say immerse our houses in woods of evergreen trees as you do; and our grass platz do not present such summer greenness in the depth of our hard winters, and our houses of the country look more cold and exposed to the blast, and the gardens have the wildness of the forest about them; but yours are rich and warm, and all comfort to the eye, as your hospitality of the inside is good to the heart. But my countrymen can show a warm house inside, though the fir-trees and the oaks be sullen without; and wherever beats a German heart, there is the power to melt ice, and to dissolve any frown, and make much gladness of the human life. Your green gardens strike me as one of the best features of the English scenery, and at this time of year I would but for the snow and the rain believe myself to be in the south of Europe, for nowhere else in the temperate zone is there so sweet a verdure in winter time as in England.

that need no stove, and can be kept with no more trouble than is required to keep a camellia. I call all such "conservatory palms," because the conservatory is always a "temperate house;" and when these palms acquire a good size, they are the most magnificent of all conservatory plants.

It is true that every palm, like every other plant, will thrive best by some peculiar treatment. Yet I will not attempt to refine on the minute treatment of each particular kind; for I will tell you that in the continental nurseries, where they are raised from seeds, and grown in quantities for the market, they are treated nearly all alike; some have more heat and more water than others, but the cultivators are not particular to distinguish amongst them, and yet most beautiful are the plants they produce. All the palms are treated as stove plants in the raising from seed, for we cannot afford to make them grow slow—it is cheaper to burn much fuel to have a quick growth; but we always harden them before they are sold, that they may not die through the cold of transit, and the check they suffer in being turned out of their pots. It is by observation of the process of hardening that we first learn the degrees of cold the species will bear, and I have tried all the kinds I could procure, and have, when they have become a few years old, kept them in cold houses all the winter, sometimes seeing a little rime on the edges of their leaves; and such as I shall name will bear this treatment well, and are therefore to be considered as world-



Latania Bourbonica.

But we shall leave the hardy palms to those able contributors who know so well how to treat upon them. Come with me into a house of the imagination, where I have grown thousands of palms, so that they could be packed in crates without pots, and sent to England to be sold at a few shillings each. I have just seen in the catalogue of Mr. Hooper, of Covent Garden, some palms announced, such as *Latania Bourbonica*, *Phoenix dactylifera*, and *Sabal Adansonii*, at less prices than your new pelargoniums and pansies attain, and I ask how it is that they are not sold in more thousands, for I would tell you that to produce them is not difficult. I have asked the English buyers why are they so timid as to take dozens when they should have thousands; and they say, "Our folks are afraid to buy them." Yes, I perceive that everywhere the idea of a palm tree carries with it the idea of a hothouse to keep it in, and a great furnace and elaborate hot-water system, and a great staff of gardeners. *This is all a mistake.* Many of the grandest palms of the whole world are perfect as specimens when only a few inches high; they may be purchased for a few shillings each, and they may be preserved through the winter in any good greenhouse which is protected from the attacks of frost. There are palms that need the stove, and the hardest kinds will grow fast and fine with much heat and moisture, but I repeat that I can find you some unsurpassed for beauty, that are perfect and picturesque when very small, that cost less than the commonest flowers, and

adapted plants, or shall I say plants that persons of taste of the middle rank of life may purchase with safety, and much enjoy for the embellishment of their gardens. While speaking of temperature, I would say that I have referred to a Dictionary which some English gardeners keep, and I find the directions given are the opposite of what experience teaches. The authors say in *Areca*, "all stove palms temp. in winter 55° to 65°." Now I can tell of *Areca*s that want only 35° to 45° in winter, and that will never hurt if not colder than 33°. Of *Chamædorea* they say, "winter 50° to 60°;" but I can show that there are four species in cultivation that will do well in common conservatory or greenhouse heat. I will not proceed, but will advise the practical man to observe for himself, and to take not much notice of garden dictionaries.

The soil for palms should be the most part fibrous loam of the best kind, with a good proportion of sand added, and it is advisable to put some small charcoal over one convex tile to drain the pots until the plants become large, and then a small pot should be inverted over the principal drainage in the large pot, and the space around be filled with broken tile, and over that a layer of charcoal. If potted with such care, and the soil is good loam full of elastic turf, very few palms need be re-potted more often than every second year, and some will do three years without repotting.

Most palms like plenty of light, and when they are growing

they require abundance of water. There are some exceptions, as, for example, that beautiful and nearly hardy palm *Chamærops humilis* should be nearly dry at all times, except in the height of summer. Another point to be noticed is that the degree of water must be proportioned to the degree of heat. When kept in cool houses all winter, they must have very little water. During cold weather, when the thermometer descends to a minimum, they must not have water at all. When they are growing freely, give them water daily, but do not drench them, for that washes the goodness out of the earth; give enough to wet the soil quite through, but not enough to make a stream through the pot. Some of the English gardeners would stare to observe with what care water is given in the great continental nurseries where plants are grown by thousands for the markets. Why at many of these places there is no water, speaking by comparison, yet they keep their plants alive and well by great economy and most careful distribution.

As to temperature, it is a good thing in the treatment of conservatory palms to give them a little extra heat when they begin to grow, so as to help out the expansion of the leaves, for a check at this time will sometimes result in a deformed growth. Just such a rise of the glass as is required for camellias and azaleas is what these will be benefited by when commencing growth. Then atmospheric moisture will be beneficial. But at all other times treat them as common greenhouse plants, and as for the winter temperature, let it range as nearly as possible at 45° never descending below 35°, and never rising above 50°. On bright sunny days, such as an English gardener just now told me was a "gushing day," I would give plenty of air, to prevent the house becoming too warm; but after the end of February it would be good to raise the temperature gently, and give them a start into growth, so that they would have a long summer to complete their periodical activities, and go to rest in good time for the winter.

I speak of these as "conservatory palms" because of their peculiar fitness for the conservatory, and their adaptability to cool treatment. But almost any of them, when small, are as well adapted for glass cases as the very finest ferns are. Indeed, I wonder our Editor has not made as good a feature of case palms as he has of ease ferns, and I will say that I have expected it of him. I have thought more than once, when looking over the splendid collection of palms in the nursery of Ambroise Verschaffelt, at Gand in Belgium, that if the wealthy English ladies who so much love elegant plants in their chambers would come here and select for themselves, every drawing-room would become a microcosm of the glories of the vegetable kingdom. And when by care these palms become too large for the cases, they could be taken to the greenhouse; and when too large for the greenhouse, they could go to the conservatory; and when of quite stately dimensions, they could be put out on the grass all the summer for the "sub-tropical" embellishment of the English garden. I think I have said enough for this time, and now I will give a list of such palms as I have grown for many years by cool treatment, and I shall sum up their culture by saying, Whoso can grow a camellia, can also grow one of these, or all of these.

Areca Bauerii, *A. monostachya*, *A. sapida*.—These are species of the "cabbage palm." Others of this genus must be kept in the stove, and for those who can grow stove palms there are not two finer to be found than *A. speciosa* and *A. Verschaffeltii*.

Brahea calcarea, *B. dulcis*, *B. nobilis*.—These are beautiful Mexican palms, with large fan-like leaves most elegantly disposed at the summit. They are very hardy.

Chamædorea atrovirens, *C. elegans*, *C. Ernesta-Augusti*, *C. Verschaffeltiana*.—I will guarantee all these to thrive by cool treatment, though where I have yet seen them in England they are always kept as if they would die if not always quite hot. They ought to have a rich soil and abundance of water when growing. These are quickly propagated by suckers from the root.

Chamærops excelsa vera (Van Siebold), *C. Ghiesbreghtii*, *C. nitida*, *C. sinensis*, *C. tomentosa*, *C. humilis*, *C. Fortunei*.—These fine fan palms are all nearly hardy, and the last two quite so. They may all be increased by means of suckers, though seeds are generally plentiful. The beautiful *C. Stauracantha* requires the stove.

Cocos Australis, *C. campestris*.—These are two of the grandest palms in cultivation; they are splendid to put out in the garden during the summer.

Corypha Australis.—This fan-palm, of New Holland, desires a sandy soil. It is most largely grown on the Continent, and is well adapted to place on the dinner-table—a subject I quite forgot when speaking of the uses of conservatory palms.

Lantana Bourbonica.—This is the hardiest of all the *Lantania*s, and I present a portrait of a plant of my own which is twenty years of age, and has never been in any better place than a cool house for fifteen years past, and I have seen hoar frost on the edges of its leaves. What beauty it has! and how well adapted is it to place out in the garden all the summer! This may be purchased by the thousand at the great nurseries I have already spoken of.

Phoenix humilis, *P. leonensis*, *P. reclinata*, *P. dactylifera*.—These are the hardiest species of date-palm, which your books say require a stove, but which I say from experience do not need other than such as you call greenhouse treatment. The East Indian species of *Phoenix* do indeed require the stove, and must have it; but we must make distinctions when we find such plants as I have named well able to bear a low temperature.

Sabal Adansonii, *S. longifolia*, *S. princeps*.—The first-named of these is one of the cheapest and finest palms in cultivation. It is adapted for the dinner-table, the glass case, the window, the greenhouse, or for the open garden during the summer.

Seaforthia elegans, *S. robusta*.—These I have well proved to be quite hardy as compared with the generality of palms. The second of them is a grand palm, and should be seen in every choice conservatory.

Thrinax parviflora, *T. tunicata*.—These are the only species of this group that I would keep in a cool-house. I killed many fine specimens in a trial of them all I made four years ago. We must kill sometimes to learn, but it grieved me much, and I might have saved my plants if I had not been determined to see the whole issue of the experiment. Indeed, I had faith they would all bear the cool treatment. However, these two are safe, and I strongly recommend them.

This closes the list, which perhaps after the present winter is past I shall be able to enlarge, for I have some more palms under trial. I would only say, in conclusion, to the lover of fine plants, you may order of your nurserymen all that I have named; they will not cost much—not one need cost more than fifty shillings, and many of them may be had for less than five shillings each. May the New Year bring to our readers the sense of a life nobler than the events which colour it, and a hope that is akin to the emblem of the palm tree, which of old was the type of immortal pleasure. Such is the wish of the writer of these lines.

KARL PROSPER.

A FEW WEEKS IN NORTH WALES.

RHUG HALL, THE RESIDENCE OF W. WAGSTAFF, ESQ.

The mansion is in a beautiful park on the south side of a ridge of mountains which commands most delightful prospects over the most exquisite landscapes the eye ever beheld, richly varied with wood, rock, and pasture. Rhug Hall was for centuries the family seat of the Vaughans. Eight years ago the late Sir Robert Vaughan died without issue. The estate was left to the Honourable C. Wynne, the second son of Lord Newborough. There are fifteen thousand acres belonging to this estate, the greater part fertile land, and in a high state of cultivation. It lies between Llangollen and Bala. It is remarkable as anciently being the property of the celebrated Welsh hero Owain Glyndwr (known in story as Owen Glendower). He was the son of Griffith Vyehan, which is the ancient name for Vaughan. This is the hero whose actions make so conspicuous a figure in English history, and who appears in Shakespeare's *Henry IV.*, Part I., as the most dreaded enemy of the house of Lancaster. At the opening of the story, King Henry says, in reply to Percy's description of the bloody conflict between Owen and Mortimer—

He never did encounter with Glendower;
I tell thee,
He durst as well have met the devil alone,
As Owen Glendower for an enemy. (Act i. scene 3.)

In the third act, where Owen declares—

At my nativity
The front of heaven was full of fiery shapes,
Of burning cressets; and at my birth,
The frame and huge foundation of the earth
Shak'd like a coward;

and receives from Percy the sarcastic rebuke which follows, we see Owen established upon these mountains by the authority of the Church; and I may therefore properly quote the passage which immediately connects the hero with the scene before me:—

Glendower. Come, here's the map; shall we divide our right
According to our threefold order taken?

Mortimer. The archdeacon hath divided it
Into three limits, very equally:
England, from Trent to Severn, hitherto,
By south and east, is to my part assigned:
All westward, Wales beyond the Severn shore,
And all the fertile land within that bound,
To Owen Glendower. And, dear coz [to Hotspur], to you
The remnant northward, lying off from Trent.
And our indentures tripartite are drawn,
Which being sealed interchangeably
(A business that this night may execute),
To-morrow, cousin Percy, you and I,
And my good lord of Worcester, will set forth
To meet your father, and the Scottish power,
As is appointed us, at Shrewsbury.
My father, Glendower, is not ready yet,
Nor shall we need his help these fourteen days;
Within that space [to Glendower] you may have drawn together
Your tenants, friends, and neighbouring gentlemen.

(Act iii. scene 1.)

The view from the hills is extensive, commanding forty square miles of picturesque and highly romantic scenery, and justly celebrated as being the loveliest spot in North Wales. Near the summit of one of the hills, called Cefyn Creini, or "Mountain of Worship," there is a vast circle of stones, which bears the appearance of having once been a fortification. It is nearly half a mile in circumference, and at a distance looks like a huge Druidical circle, though of later origin than the time of the Druids. On another hill there is a heap of scattered stones on a mound, surrounded by a moat. These ruins are supposed to be the remains of Owen Glendower's palace. On another of the hills there is a pool, with an island about ten yards over, and a willow tree growing on it. When the wind blows hard, its force against the tree is sufficient to move the island, which floats from one side of the pool to the other. It reminded me of the floating islands which

have occasionally occurred in the lakes of Cumberland. On my way to the Hall, I was particularly struck with the admirable harmonizing of the plantations, with the various alternations of hill and dale. They are not thin or scattered about without any meaning, but richly massed and grouped, breaking occasionally into open spaces adorned with single trees, blended together in one broad connected whole. The varied tints that autumn could afford seemed to me to have been studied before the planting took place, and added greatly to the effect. The green of oaks and firs, all the different hues of the ash, the elm, the heech, and the horse-chestnut, mingled together, and produced a harmonizing effect, which the breadth of light and shadow softened into mellowness, showing many points of excellence which were very effective and pleasing to the eye. The Hall, at a distance half hidden by trees, forms an essential part of the view. There are two other buildings appearing among the trees: they are an elegant chapel, and a block of almshouses for the aged poor. The mountains in the background add to the scenery an additional charm—they, in fact, render sublime that which without them would be beautiful. As you draw nearer, the Hall is quite hidden among the trees, and by whatever gate you enter the park, you have to walk some distance before you can catch a glimpse of the mansion.* I found it rather a formal-looking building, not at all picturesque when near. In the noble park, the stately and venerable oaks spread their arms over the ground as if to shelter an army. Some of the oaks are most gigantic; one measured 47 feet in girth of trunk, and its magnitude was as nothing compared with its picturesque beauty. There are many magnificent elms, which give the place an ancestral air. The ornamental waters, islands, rustic bridges, shady banks, waterfalls, are variously displayed or partially concealed from the eye of the observer by thickets. Close beside the mansion is the flower-garden, clad in lively colours, and giving to the whole a considerable degree of elegance, beauty, and grandeur.

Fields, lawns, hills, pastures, all appear
Clad in the varied beauties of the year;
Meandering waters, waving woods, are seen,
And cattle scattered in each distant green.

Near the house, picturesque beauty was not sacrificed by the prevailing fashion of cutting every available space into hearts, kidneys, diamonds, and rolypolys; but comfort, neatness, elegance, and variety had been studied and achieved. There were good and convenient gravel walks, grass turf in the finest order, and planted with subjects that are beautiful the whole year round. There were flowers sufficient to give variety and spirit without causing satiety in summer, or their absence causing a blank in winter. It was a good landscape, and all parts free and unconstrained by any prominent and highly illuminated spot which could affect the harmony of the whole, and destroy the peculiar characteristic beauties that raise our admiration. I hope it will not be supposed that by my admiring the picturesque, I have no taste for flowers, or would undervalue the symmetry and beauty of the display I saw here. I think flowers are the most delicate and charming of all inanimate objects, particularly when growing in the open air, and their colours harmonizing perfectly with the green turf. But their position must be studied if the landscape is extensive and picturesque, as it is at Rhug. If strong brilliant colours are in the foreground, they arrest and irritate the eye, and prevent a happy blending or combination of the several features of a scene. I have frequently seen charming little views completely spoiled by being too highly coloured; and if the glare and grandeur were taken away, the soft colours would blend and connect into a sweet united whole. Then the eye would dwell upon the scene with pleasure, and after the first enchantment would return again and again with a new source of delight. The flower garden lies to the right of the house, and is visible from the terrace. A piece of ornamental water divides it from the park, and it is a model of simplicity, the grouping of the beds artistic, and the flowers in the sweetest harmony. Though a high degree of brilliancy was diffused over the whole of the beds, the colours were well balanced. The water gave a peculiar freshness to the whole. The beautiful and varied effects produced by the near objects, too, were very pleasing—the trees and bushes immediately on the bank casting their shadows with great depth and breadth; the turf seemed more soft and smooth; the flowers were reflected in the mirror, and their colours assumed a mellowness possible only when water lends its valuable aid. After the stream has passed the dressed and decorated part of the ground, it loses its calm, clear surface, and becomes an irregular, rapid, and strong torrent, plunging at last over a ledge of rock, and making a fine cataract. Its wildness where it is hemmed in between rough rocky heights, affords a fine example of the picturesque as contrasted with the beautiful it exemplifies where it skirts the flower garden.

The Rosery is a long bank or border running down one side of the lawn opposite the water; this was extremely well done; it showed a high degree of polish. I understood from Mr. Elcom, the intelligent gardener, that the lady was at home in this department; and I think by the way these roses were grouped and combined, and the several varieties contrasted, the rosery could not be anything less than the principle feature in the garden. The trees were of different ages and sizes, planted at different distances from each other; the outlines full of variety—some on their own roots, and others on the brier—some advancing forwards, and others retiring to the rear, making a picture rather than a plantation: yes, a picture painted with roses. This border, when in full bloom, must present a charming appearance. At the farthest end of the garden a great belt of hollyhocks had a very striking effect; they had a fine military character, all as straight and as upright as a troop of soldiers on parade; not a straggler was to be seen. Strong wires, almost invisible, were stretched along the border, four wires to a row, and so the whole row was tied to the same wire; by this method the plants have a neat appearance, and occasion less trouble than by the use of stakes. The gardener gives Mrs. Wagstaff the credit for this plan. There were several beds of fuchsias; the ground was covered with dwarf plants, from amidst which arose standards of magnificent dimensions, some of them 8 feet high. The verbenas are not banished from these gardens, and it was quite refreshing to see so many old favourites blooming away, their soft delicate colours without spot or blemish. There were no signs of disease here to bring them into disrepute as in England. I was particularly struck by the delicate green of the lawn; it was made from the turf of the mountain, and kept in order by one of Green's pony machines. The machine cuts 3 feet; it cost £16. It has been in use seven years, and is as good now as it was when new: so the gardener says; I suppose he means it does its work as well.

The kitchen garden was everything a good gardener could require. Mr. Elcom did not take any credit to himself; he said it was good ground, good walls, plenty of manure, plenty of help; all he had to do was to see it was deep dug and not scratched over. He took me to see his carrots, onions, broccoli, and late peas. "There," said he; "while the family get such vegetables as those, I think I shall not hear any grumbling;" and I thought so too. The wall-trees were pictures of health—the peaches and nectarines especially. He spurs most of the shoots except the leaders, for he finds that he gets more fruit by this plan than leaving the shoots at full length. I was next conducted through the plant houses in the ornamental foliage department, and saw plenty of ferns. The principal subjects were begonias, achimenes, crotons, cyperus, dracenas, coleus, gesnerias, justicias, cissus, and caladiums. There was a capital plant of hemanthus, and a nice lot of amaryllis. In the hard-wooded house, camellias and azaleas appeared to be the leading features. I thought the gardener seemed to hurry me through those houses, and in fact was ready to go out before I could get half-way in. I could not make it out, for everything in the houses appeared clean and skilfully managed; but I soon found out he had something else to show me which he wanted me to see in broad daylight: he wanted to show me his cucumbers, melons, and grapes. But before I go any further I must say Mr. Elcom is one of Frost's men from Preston Hall, the well-known fruit grower and shower, and he would naturally take delight in fruit growing; and he is very successful in cucumbers and melons. He makes one house suffice for both these subjects; at one end cucumbers were planted, and at the other melons were grown in pots. Mr. Elcom speaks very highly of "Cuthill's All the Year Round" cucumber; certainly I saw very handsome fruit. Turner's Gem and Beechwood melons are also great favourites here. At last we went to the vinery, and I believe if I had listened to all Mr. Elcom could say about grapes, I might have been there now. The house contained principally Black Hamburgs, but there were a few vines of Black Prince, and at the warm end Barharossa, Muscat of Alexandria, and Canon Hall. There was nothing extraordinary in the size of bunches, but I never saw such large berries. I measured one; it was three inches and three-eighths in circumference, well coloured, a blue-black, the skin thick, the flesh firm and sweet. I believe this to be Meredith's true Black Alicante. In our conversation he said he was pleased with the remarks made about grapes by Mr. Clarke in the magazine. He quite approves of all Mr. Clarke says on grape growing; and I was to tell Mr. Clarke, if I saw him when I returned to London, that if his rambles should bring him to Wales, as mine had brought me, he was to call at Rhug; he would leave it to me to tell him how he would be treated, for he would fare as I had done. All I can say is that I spent a happy day, and am very grateful for the kindness shown me, and also for the information I received from the intelligent gardener, particularly on grape growing.

N. COLE.

Calendar.

WORK FOR WEEK COMMENCING JANUARY 7TH.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN will now want a little extra labour to clear off remains of winter crops that have ceased to be profitable, and dig and dung the ground for summer vegetables. Manuring may now be proceeded with, and breadths may be marked out and got ready for sowing as soon as weather permits. Sow peas, beans, round spinach, parsnip, horn carrot, saladings, and a few sorts of cabbage.

ASPARAGUS PLANTATIONS to be marked out at once, and the ground dug two spits deep. A light sandy loam is the best soil for asparagus, but a soil almost wholly sand will be better than one wholly clay, because when heavily manured, the sand will suit it admirably, but without plenty of manure will be useless. In a deep fertile loam a moderately heavy manuring will suffice, and the manure should be well mixed with the staple at least two feet deep. In any case the piece must be thoroughly well drained. If asparagus must be grown on a clay land, lay on six inches of sand or coal-ashes, and dig this in to a depth of two feet, mixing it well with the soil, and let the ground rest a fortnight, and then dig again and liberally manure. If it is intended merely to sow for transplanting, a good manuring one full spade deep will suffice, if the second spit was previously stirred at a winter digging.

CABBAGE of all kinds may be sown on a warm border. The most useful to sow now are Shilling's Queen, Early York, and Rosette Colewort.

CAULIFLOWERS are apt to die off now unless kept dry; a little peat will be useful to sprinkle amongst them where they are suffering from damp. Dry sand and wood-ashes may be used for the same object. If the plants are crowded, they will only kill each other, so thin at once if necessary.

CUCUMBERS managed as advised in the calendars of the last few weeks will now be coming forward for hedging out. They should be kept in the house till they have filled 48-sized pots with roots, and then be planted. If kept any length of time starving in a pot-bound state, they will become infested with red spider, and weakened in constitution. When ready to plant out, the bed should be in a sweet condition through occasional forking over the dung. The bed is to be made by laying some strips of turf grass side downwards in the centre of each light; on this put three or four bushels of soil in a heap, consisting of loam from rotted turves one part, leaf-mould one part, and dung rotted to powder one part. The third day after putting on the soil, put the bulb of a thermometer into the hillock, and if it registers 70° to 80° plant at once; if higher than 80°, wait a few days longer. A fair average to start with is 75°. Plant in the centre of the hillock, and peg down the runners regularly, and shut close. In the course of a few days give air cautiously, to let off any rank steam, and sprinkle the leaves frequently, but give only just enough water at the root to keep the soil moist until the plants have made a start. Choice sorts may be kept on from cuttings, to avoid the risk of deterioration. Plants that have been in fruit during the winter will furnish cuttings for succession, if the sorts are approved of for the purpose. Give air to plants in frames as often as the weather will permit. During mild weather a little air may be left on all night, with a mat over the opening to prevent too cold a draught.

DRAINING.—This is a good time to make and repair drains. Drains 4 feet deep and 20 feet apart will serve almost anywhere to carry off excess of rainfall quickly; and the best drain tiles are those made tunnel-fashion

—that is, a half pipe and flat sole. The drains should be cut by a man skilled in earth-work, to make sure of a hard bottom and a regular fall to the outlet; if anywhere cut with holes or depressions, it will be no easy matter to level these solid again, to prevent a sinking of the drains at those places; in fact, not a crumb too much should be taken out anywhere. When the pipes are laid, place six inches of hard rubbish, such as brick-bats, broken crocks, tiles, chalk, &c., over them, and fill in. Such drains will last a lifetime. Nothing to equal chalk for filling in over drain-pipes.

MELONS AND CUCUMBERS in the forcing-pit to be kept carefully trained about nine inches from the glass, to be regularly stopped, and at a temperature of 70° by day and 60° by night. Sow now for plants to bed out in frames and pits, and for succession in the early forcing house.

PARSNIPS to be sown at once for the main crop. Choose a quarter well manured last summer, and that has been laid up all winter. The Hollow Crown is the most useful variety, but in deep, sandy, rich soils, the Guernsey parsnip grows to an immense size. Sutton's Student parsnip is the best flavoured and most even parsnip grown.

SOW IN HEAT Tomatoes, Capsicums, Egg Plants, Cocksoombs, Amaranthus, and Intermediate Stocks.

Flower Garden.

BEDDING PLANTS must now be thought of, quantities of the several kinds determined, and hotbeds made up for starting old plants for cuttings, and for the first batch of plants required early. Old Verbenas, Petunias, Cupheas, Enocheras, Tropaeolums, &c., may be put into a steady heat at once to furnish young shoots for propagating, and seeds may be sown of *Lobelia erinus speciosa*, if to be raised from seed, by which means it comes pretty true.

ROSES required to bloom early should be pruned now, but it is too early to prune the general collections.

RANUNCULUS BEDS.—It is becoming customary now to plant the ranunculus in February; November used to be the month, and in situations not subject to severe spring frosts November and December may still be considered the best times for planting. Not that the flowers are finer—they are simply earlier; and for this gain there is occasionally a risk of losses through frost. The bed ought to be prepared a full month at least before planting, to give it time to settle and become firm, for failure is certain if the soil lies light and spongy. For February planting, the bed ought to be ready early in January, and the best time for planting is between the 1st and 20th of February, the precise day or week being determined by the weather. There has been a good deal of discussion as to the proper planting season, but it is now pretty generally agreed that autumn planting is attended with risk, for which early blooming is the only compensation, and that the first twenty days of February are the safest for collections of any value. In cold, wet, and very tenacious soils, or in exposed situations, it would even be better to defer planting to the first week in March, and planting may be the more safely deferred with the ranunculus than with most other tubers, for they retain their vitality out of the ground two or three years, and if kept cool and dry suffer but little exhaustion by delay. The proper soil is a rich mellow loam, the proper manure well-rotted cow or horse-dung; recent manure ruins it; so do any exciting compounds of night-soil, blood, or chemical stimulants, or excessive quantities of manure of any kind, all of which have been recommended in bewildering numbers, and the proportions stated with ridiculous precision. If the soil of the garden is at all suitable, manure it well in preference to preparing composts; if it is not of a loamy and somewhat crumbly character, procure the top spit of an old pasture—one in which buttercups abound is best; ridge this up, turn it occasionally for six months or more, and with this and well-rotted dung prepare your bed.

HARDY PLANTS IN FLOWER.—*Tussilago fragrans*, *Primula vulgaris*, *Hepatica triloba*, *Bellis perennis*, *Helleborus niger*, *Cheiranthus alpinus*, *Stellaria holostea*, *Eranthis hyemalis*. *Frame*: Snowdrops, Crocuses, Tulips, Hyacinths, Russian and Neapolitan Violets.

Fruit Garden and Orchard House.

FRUIT TREES not yet pruned will suffer if not speedily attended to. Save any scions wanted for grafting by heeling them in at the foot of the tree they are taken from. They will take all the better for being cut some time before grafting. Fruit quarters that have been neglected hitherto must be dressed, cleaned, trained, and put in order at once. Make ready protecting material for wall trees, for we may expect sharp weather just as the blooms expand, when the wind usually sets in from the east.

FRUITS IN SEASON.—*Apples*: Alfriston, K., Adams's Pearmain, D., Beauty of Kent, K., Bedfordshire Foundling, K., Bess Pool, D., Blenheim Orange, K., Braddick's Nonpareil, D., White Calville, K., Cockle Pippin, D., Cornish Gilliflower, D., Cox's Orange Pippin, D., Dutch Mignonne, Golden Pippin, New Hawthornden, K., Hughes's Golden Pippin, D., Lamb Abbey Pearmain, D., Lemon Pippin, K., Mannington's Pearmain, D., Newtown Pippin, D., Nonpareil, D., Northern Spy, D., Ord's, D., Ribston Pippin, D., Sam Young, D., Stamford Pippin, D., Winter Pearmain, K. *Grapes*: Barbarossa, Black Hamburg, Black St. Peter's, Calabrian Raisin, Kempsey Alicante, Lady Downe's Seedling, Trentham Black. *Pears*: Alexandre Bivort, Alexandre Lambre, Angélique de Bordeaux, Beurré d'Aremberg, Beurré Duhaime, Beurré Langelier, Beurré Sterckman's, Bezi Vaet, Broompark, Chaumontel, Colmar, Conseiller de la Cour, Doyenné Goubault, Forelle, General Todleben, Huyshe's Bergamot, Ne Plus Meuris, Winter Nelis, Zephirin Gregoire.

PEACHES in forcing-house require much care; the sir of the house to be rather drier as the trees come into bloom; and to prevent red spider, a little vapour to be caused by sprinkling the paths every evening. The pollen is usually active during the midday hours, and it is then that a dry air is most important, and as much ventilation should be admitted as the state of the weather will allow.

STRAWBERRIES in the forcing-house will swell their fruit grandly if the pots are placed in pans filled with fresh dung and kept always wet; the dung to be renewed every ten days. As soon as the roots find it, the vigour of the plants will be increased wonderfully. If plunged in a dung-bed, they will require very little watering at present.

ORCHARD-HOUSE.—Keep the house shut during cold and stormy weather. To prevent injury of the roots of the trees by frost, sprinkle dry hay amongst and over the pots to a depth of six inches above the roots of the trees. During the bright weather open the ventilators and give water. The object of the cultivator should be to keep the trees safe and still. Frost will harm them if severe, and the roots are unprotected; and mild sunny weather will start them into growth prematurely if they are not

well ventilated. At the first opportunity paint the trees with a solution of "Aphis wash," prepared by the City Soap Company; it not only destroys the brown aphid which infests peach trees, but also scale, and every other pest capable of lodging in the bark.

Greenhouse and Conservatory.

GREENHOUSE to be kept as airy as possible, without giving a chill to any delicate subjects. Clean glass is a great help now to the well-doing of the plants. Hard-wooded plants must never be subjected to sudden extremes of temperature; soft-wooded plants bear heat much better, but a great heat is never required, and is always injurious. Do not allow any plants to become dust-dry at the root; even during frosty weather, give water when required, and maintain a genial temperature of 50° to 60° by day, and 40° by night.

GREENHOUSE PLANTS IN BLOOM.—*Dentzia gracilis*, Tree Carnations, Camellias, *Hovea Manglesii*, *Andersonia Sprengeloides*, *Correa speciosa*, *Correa pulchella*, *Correa platycentra*, *Cytisus racemosus*, *Cyclamens*, Chinese Primulas, *Epacris rubra*, *Epacris maxima*, *Diphne rubra*, *Jasminum ligustrifolium*, *Jasminum nudiflorum*. *Ericas*: *blanda*, *colorans*, *scabriuscula*, *sebana*, *regerminians*, *pulchella*, *aspera*, *caffra*, *denticulata*, *vernix*, *vestita*, *tenella*, *decora*, *handoniana*, *carinata*, *exsurgens*, *flava*, *Lambertiana*, *formosa*, *longipedunculata*, *imbricata*, *ignescens*, *mammosa*, *ovalifolia*, *mutabilis*.

ERICAS to be kept cool and airy, and fire-heat used only when necessary to keep out frost.

FUCHSIAS for early bloom and exhibition will now require a little extra attention. Shake them out of their pots and repot in turfy loam, leaf-mould, and peat, in as small pots as possible, but their roots are not to be hacked about in order to get them into very small pots. When potted, give them a moist heat of 65°, and give them a shift as soon as they have filled their pots with roots. Never stop and shift at the same time; the best practice is to stop first and wait till new shoots break; then shift, and so on till they are in blooming pots. Plants kept to cut from need not be shifted; start them at once as they are in a temperature of 60° to 65°, and take cuttings as soon as the shoots are one or two inches long; these will root immediately in sand with good bottom-heat.

PELARGONIUMS.—Shift specimens into their blooming pots, give a slight rise in the temperature, and keep near the glass.

AZALEAS AND CAMELLIAS claim attention now that we have little else to depend upon to keep the conservatory gay. A little pains now bestowed in training and disbudding will repay, and Camellias are so heavily set with buds that generally speaking it would be most unwise to allow all to remain. We have seen lately bushels of buds removed in some places where a moderate show of fine flowers is preferred to a mass of indifferent ones, the profusion of which will weaken the plants. Azaleas coming into bloom must be kept at a regular temperature, and have plenty of water. Beware of urging them too rapidly, and place none in the stove until they have been first gently stimulated by the warmth of an intermediate house. Plants in flower will require a night temperature of 50°, to rise to 60° and 65° by day. Those for late blooming should have a temperature not lower than 40° by night, and as much ventilation as the weather permits.

CLIMBERS in greenhouses may now have special attention to reduce their dimensions. Lay in wood for next summer's bloom, and clear the walls and trellises.

Stove and Orchard House.

ORCHIDS IN BLOOM.—*Angræcum superbum*, *Angræcum virens*, *Dendrobium speciosum*, *Burlingtonia amœna*, *Dendrobium chrysotoxum*, *Barkeria elegans*, *Cymbidium elegans*, *Cælogyne Gardneriana*, *Cælogyne speciosa*, *Limatodes rosea*, *Bletia campanulata*, *Calanthe vestita*, *Cypripedium insigne*.

ACHIMENES to be started in pans preparatory to potting off singly; soil, equal parts peat, leaf-mould, and sandy loam.

GLOXINIAs.—Start a few by first potting in fresh soil, consisting of loam, peat, and leaf equal parts. Put in bottom-heat at once.

Selections for the Year.

A SELECTION OF USEFUL FRUITS.

APPLES FOR ORCHARD PLANTING.—Alfriston, Bedfordshire Foundling, Bess Pool, Blenheim Orange, Court of Wick, Dumelow's Seedling, Devonshire Quarrenden, Dutch Codlin, Fearn's Pippin, Forge, French Crab, Golden Noble, Gooseberry Pippin, Hawthornden, Hanwell Souring, Kerry Pippin, London Pippin, Nonpareil, Norfolk Bearer, Northern Greening, Summer Pippin, Syke House Russet, Winter Pearmain, Yorkshire Greening, Waltham Abbey Seedling.

APPLES (DESSERT) FOR GROWING AS PYRAMIDS AND BUSHES.—Ashmead's Kernel, Beauty of Kent, Braddick's Nonpareil, Cellini, Cornish Gilliflower, Cox's Orange Pippin, Court Penduplat, Early Harvest, Early Nonpareil, Knight's Downton Pippin, Golden Harvey, Juneating, Hubbard's Pearmain, Irish Peach, Mother, Newtown Pippin, Manx Codlin, Lord Suffield, Nonesuch, Northern Spy, Reinette du Canada, Ribston Pippin.

APPLES FOR VERY EXPOSED SITUATIONS.—Carlisle Codlin, K.; Devonshire Quarrenden, D.; Early Julien, D.; Franklin's Golden Pippin; French Crab, K.; Hawthornden, K.; Kerry Pippin, D.; Keswick Codlin, K.; London Pippin, K.; Manx Codlin, K.; Nonesuch, D.; Summer Strawberry, D.; Tower of Ghamis, Winter Strawberry, D.; Winter Coleman, K.; Yorkshire Greening, K.

CHERRIES FOR GARDENS, BEST TWELVE.—Early Purple Gean, D.; Belle d'Orleans, D.; Black Tartarian, D.; May Duke, D.; Black Eagle, D.; Monstrous Heart, D.; Bigarreau, D.; Florence, D.; Coe's Late Carnation, D.; Kentish, K.; Belle Magnifique, K.; Morello, K.

CHERRIES FOR ORCHARDS.—Early Prolific, Black Tartarian, May Duke, Elton, Büttner's Black, Kentish Bigarreau, Mammoth, Late Duke, Tecumseh.

CURRENTS.—*White*: White Dutch. *Red*: Cherry, Raby Castle, Red Dutch. *Black*: Ogden's Black, Black Naples.

FIGS FOR WALLS.—Black Genoa, Black Ischia, Brown Turkey, Marseilles, *For Forcing*: Black Ischia, Brown Ischia, White Ischia, Pregussata, Castle Kennedy.

GOOSEBERRIES FOR DESSERT.—*Red*: Keen's Seedling, Red Globe, Rough Red, Turkey Red, Companion. *Yellow*: Glory of Ratcliff, Rumbullion, Leader, Yellow Champagne. *Green*: Green Gage, Green Gascoigne, Turn-out, Hebburn Prolific. *White*: White Eagle, Queen of Trumps, Bright Venus, Hedgehog, Whitesmith, White Champagne.

GRAPES FOR WALLS.—July Muscat, Muscat [St. Laurent, Esperione, Miller's Burgundy, Pitmaston Cluster, Royal Muscadine, Black Hamburg, Chassolas Musqué. The last two require dry borders and good positions, or they will not ripen their fruit.

GRAPES FOR GROUND VINERIES.—Black Prince, Black Hamburg, Black Frontignan, Grovond Sweetwater, Buckland Sweetwater.

GRAPES FOR COOL VINERIES.—Royal Vineyard, Madeira Muscat, Black Champion, Black Hamburg, Golden Hamburg, Buckland Sweetwater.

GRAPES FOR HEATED VINERIES.—Muscat of Alexandria, Bowood Muscat, Canon Hall Muscat, Meredith's Alicante, Muscat Hamburg, Barbarossa, Lady Downe's Seedling.

NECTARINES FOR WALLS.—Balgowan, Early Newington, Elruge, Hardwicke, Rivers's Orange, Red Roman, Large White.

PEACHES FOR WALLS.—Small Mignonne, Early York, Early Grosse Mignonne, Crawford's Early, Royal George, Noblesse, Barrington, Walburton Admirable, Salway.

PEARS, THIRTY FOR GROWING AS BUSHES AND PYRAMIDS.—Alex. Lambre, Bergamotte d'Espere, Beurré Clairgeau, Beurré d'Aremberg, Beurré d'Amanlis, Beurré de Rance, Eastern Beurré, Beurré Goubault, Beurré Superfin, Bon Chretien, Broom Park, Conseiller de la Cour, Dalices de Jodoigne, Doyenné Boussoch, Doyenné Defais, Doyenne d'Été, Duchesse d'Angouleme, Eyewood, Fondante d'Autunne, Forelle, Glou Morceau, Huyshe's Victoria, Jargonelle, Louise Bonne of Jersey, Monarch, Prince Albert, Suffolk Thorn, Winter Nelis, Yat, Zepherin Gregoire.

PEARS, TWELVE VERY CHOICE FOR A SMALL GARDEN (hardy).—Graham's Autumn Nelis, Glou Morceau, Jargonelle, Winter Nelis, Josephine de Malines, Easter Beurré, Doyenné d'Été, Bon Chretien, Louise Bonne of Jersey, Beurré Rance, Alexandre Lambre, Duchesse d'Angouleme.

PLUMS FOR DESSERT.—July Green Gage (*wall*), Denniston's Superb, Perdrigon Violet Hatif, Green Gage (*wall*), Transparent Gage, Jefferson, Coe's Golden Drop (*wall*), Reine Claude de Bayay, Coe's Late Red, Blue Imperatrice (*wall*).

PLUMS FOR CULINARY PURPOSES.—Early Prolific, Early Orleans, Goliath, Victoria, Diamond, Washington, Belle de Septembre.

RASPBERRIES.—*Yellow:* Yellow Antwerp, Magnum Bonum, October Yellow. *Red:* Fastoff, Beehive, Prince of Wales, Red Antwerp.

STRAWBERRIES, TWELVE BEST.—Black Prince, Sir Joseph Paxton, Carolina Superba, La Constante, Elton Pine, Keen's Seedling, Rivers's Eliza, Oscar, President, Ingram's Prince of Wales, Stirling Castle Pine, Frogmore Late Pine.

A SELECTION OF THE MOST USEFUL VEGETABLES.

BEEF.—Pine-apple, St. Osyth, and Dewar's Short-top are the three best. The Seakale beet is rubbish.

BRUSSELS SPROUTS.—Rosebery and Scrymger's Giant.

BEANS.—Mazagan, Minster Giant, Longpod, Taylor's Broad Windsor, Green Windsor.

KIDNEY BEANS.—*Dwarf:* Perkin's Early Warwick, Sion House, Early Six Weeks, Newington Wonder, Flageolet. *Runners:* Scarlet, Eclipse.

BORECOLE (or KALE).—Cottagers, Green Curled Scotch, Solater's New Cabbage, Albert Sprouts, Fearnought.

BROCCOLI.—*To cut in December, January, and February:* Snow's Winter White, Early Penzance, Adams's Early White, Hampton Court, Dalmeny Park, Dilcock's Bride. *To cut in May and June:* Conning's Reliance, Foster's Champion, Richmond Late, Miller's Dwarf, Basket White, Cattell's Eclipse. *For cutting in September, October, and November:* Walcheren, Dancer's Pink Cape, Grainger's White, White Cape.

CARROT.—*For gardens:* Long Surrey, Intermediate, French Shorthorn. *For farm and allotment grounds:* Belgian White, Belgian Yellow, Selected Altringham.

CABBAGE.—Kemp's Incomparable, Tom Thumb, Brunswick, Sutton's Imperial, Rosette Collard, Enfield Market, Dwarf Early York, Atkinson's Matchless, Green Curled Savoy, Early White Savoy.

CAULIFLOWER.—Stadtholder, New Mammoth, London White, Walcheren, Late German, Le Normands.

CUCUMBER.—Hamilton's Volunteer, Kirklees Hall Defiance, Swadling's Berkshire Challenge, Carter's Champion, Cuthill's Black Spine, Lord Kenyon's Favourite, Mill's Jewess.

* * * Usually Black-spined cucumbers are most handsome, but less in size and productiveness than white-spined kinds.

CELERY.—Sutton's Superb Pink, Cole's Dwarf Red, Incomparable White.

ENDIVE.—Green Curled, Batavian, Moss Curled.

LETTUCE.—Berkshire Brown Cos, Sutton's White Cos, Black-seeded Bath Cos, Tom Thumb, Vosey's Nonesuch Cabbage, Ne Plus Ultra Cabbage, Hammersmith Cabbage.

ONION.—Reading, White Globe, James's Keeping, Globe Tripoli, Deptford, Nuneham Park.

PEAS.—*First Early:* Sutton's Ringleader, Sangster's No. 1, Early Emperor. *Second Early:* Eley's Essex Rival, Advancer, Princess Royal. *Main Crop:* Champion of England, Paradise Marrow, Veitch's Perfection, M'Lean's Wonderful. *Late:* Ne Plus Ultra, Knight's Dwarf Green, British Queen. *Best four varieties:* Early Emperor, Princess Royal, Veitch's Perfection, British Queen. *Six good kinds, all dwarf growers:* Sutton's Ringleader, 2½ feet; Bishop's Long-nodded, 2 feet; Princess Royal, 2½ feet; Ringwood Marrow, 3 feet; Yorkshire Hero, 2½ feet; Knight's Dwarf Green Marrow, 3 feet.

POTATOES.—Veitch's Ashleaf, Flour-ball, Scotch Queen, Pink-eyed Regent, Queen of Flukes, Pink-eyed Fluke. These six sorts cannot be surpassed for productiveness, quality, and keeping. The following six are also first-rate: Golden Globe, Early Shaw, Prince of Wales Kidney, York Regent, Fluke, Milky White.

TURNIP.—Sutton's Early Short-top, Mousetail White Globe, Red-top Mousetail, Orange Jelly.

SMALL BEGINNINGS.—A most forcible illustration of the old adage that "Small beginnings have great endings," is afforded by the history of the Royal Insurance Company, to which our attention is especially attracted at the present time by the really wonderful progress recorded in the almanacs they have just issued for the current year. As the accumulated funds in hand amount already to as much as £1,200,000, we are induced to wonder what it will be twenty years hence, and to speculate on the probable amount of the annual revenue, now over £700,000, in the like period.

Replies to Queries.

Chrysanthemums for Pots.—C. F. H.—The following sixes will suit you: *Large:* Christine, Golden Christine, Mount Etna, General Bainbrigg, Annie Salter, Alma. *Pompones:* Helene, Bob, Andromeda, Cedo Nulli, Golden Cedo Nulli, Lilac Cedo Nulli.—R. W. Simson.—In case the selection made for C. F. H. does not suit you, we make another. *Large:* Little Harry, Pelagie, Golden Hermine, Prince of Wales, Lady Harding, Beauté du Nord. *Pompones:* Salamon, Mademo Fould, General Canrobert, Aurora Borealis, Duruflet, White Trevenna.—Chrysanth.—You describe your plants of Empress of India producing a few flowers the size of pompones, of a dark red colour. The probability is that in place of Empress of India you have Mr. Murray, or Bob, or some other variety in that way. Those you describe as like large daisies are no doubt what we call anemone-flowered kinds; some of them are extremely beautiful. The subject of pot culture shall have attention immediately.

Scarlet Geraniums.—Novice has a number of scarlet geraniums that were taken up in October, the leaves all removed, and the plants tied in bunches and hung in a nearly dark cellar, with a slight current of air through it. He wants to know if it would be advisable to wet the roots, in case they should become very dry, and when they should be again "put into the earth." This suspension of geraniums is a pretty safe way to keep them, for if properly conducted they do not die, but they are really not worth much after it. To wet the roots as they now hang is not advisable, because of the probability that they might become infested with mildew. We advise Novice to leave them as they are till the end of February, then to prune them root and branch rather close, and put them in small pots, in soil consisting of three parts sand and one part loam, and place them in a sunny window, giving them very little water for at least a month, after which they may have water twice a week. If taken care of, they will be full of nice leafy shoots by the middle of May, and may then be planted out again.

Stove Moist Heat.—J. H. D. inquires, What is the best means of obtaining a constant moist atmosphere in a house heated by one of Green and Brown's ventilating stoves? House 16 feet by 10 feet.

[Without seeing the stove, we cannot advise in a definite manner. There is nothing like a tank or a series of pipes for a constant heat. Perhaps a tan bed in the centre might answer—it would be in the hands of a gardener of the old school.]

Muscat Grapes.—J. H. D.—What grape having a good Muscat flavour would you recommend for a cool vinery? One writer states that "Bowood Muscat" will do moderately well, but would not one of the Frontignans do better?

[Champion Muscat is the very grape for you; but if too dear, take Chasselas Musqué, or Muscat St. Laurent.]

Changing Grapes.—J. H. D.—I wish to change some of my grapes (strong canes planted last March, and wood now ripe up to the top of the house). Shall I root out these, and plant the sorts I want, or shall I cut down those I have to one or two eyes, and graft or inarch them? or would you advise me to plant in the spring the new sorts by the side of the old ones, and take a full crop of fruit from the old vines, and then destroy them?

[It all depends upon the distances at which they are planted. If far enough apart, let them fruit, and in the meantime get up their successors. Inarching would be admirable if skilfully done. We should prefer your last proposal.]

Unripe Apple Wood.—J. H. D.—The young wood of my bush apple and pear trees (planted last January) is soft, and the bark spotted white and yellow, as if half-rotten: how shall I prune them? They have been pinched in during the summer.

[You must cut out all the soft and half-rotten wood to sound hard buds. Better lose all the last season's growth than keep worthless wood. But you will not have to go so far as that.]

Poinsettia pulcherrima.—Ensign.—This beautiful shrub is easily grown if it can have stove heat, but in a cool house comes to no good. The soil should consist of just such a mixture as fuchsias delight in—say turfy loam, peat, leaf-mould, dung rotted to powder, and sharp sand, equal parts. If the cuttings are struck too early, the plants are apt to grow leggy, but if too late, they may not bloom as early as required, and they are usually required at Christmas. It is a good plan to keep a few old plants to cut from at Christmas, as the green leaves and scarlet bracts are of great value in dressing vases, &c., &c. To make nice young plants, take cuttings in March, and dip them into pans filled with sand, and place on a heat of 70°. Keep them rather dryer than cuttings are usually kept when in heat, but do not let them flag. When rooted, pot them in small pots, and put on the tank or tan bed again. Shift as required. Strike a few more in May, July, and August. Summer temperature 65° to 90°; winter temperature 40° to 50°, and the plants then to be rather dry.

Books.—Old Subscriber can have no better book on the monthly work in the garden than a late edition of Aberrombie's, "Every Man his own Gardener." There are several newish books intended to supersede this old-established work, but they only serve, on comparison, to establish its superiority.—W. Wilson.—To reprint the "Rose Book" in those pages would certainly be a novel proceeding. We agree with you there, but we do not intend to carry the suggestion into effect. It is all stuff to talk about the "Rose Book" being dear at 5s. It is a handsome book, and the author gets something out of it. There are people, no doubt, who prefer books that are low-priced and bad, but we are not bound to gratify every foolish whim in such matters. We decline to supply hooks, so pray do not send postage stamps. We have before us hundreds of letters that want attention, and it is annoying to have to wade through such a mass of stuff as you send, to find that it all ends in your wishing us to give books away.

Ground Vinery.—In consequence of the number of applications for information on this subject, it shall have attention immediately.

Musell's Hot-water Apparatus.—P. T.—We have never used or even seen this apparatus, and can give no opinion of our own as to its merits. We have heard much in its favour, and never heard a word against it; therefore we do not think you would err in adopting it as you propose.

Justicias.—J. Honry.—1, *Justicia coccinea*; 2, shrivelled beyond identification; and 3, *Justicia speciosa*. Nos. 1 and 3 are first-class stove plants which flower in winter, and demand nothing beyond the most common care. They ought to be struck every year, and the old plants should be destroyed. Early in February is the best time to strike the cuttings. Grow them on liberally, and the next winter they will be fine plants, and will flower freely.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun rises.	Sun sets.	Moon rises.	Moon sets.	WEATHER NEAR LONDON, 1865.				M. Imp. avg. of 4 yrs.	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D		
							Barometer.		Thermometer.					Rain	Growth
1867.			h. m.	h. m.	h. m.	h. m.	MX.	MIN	MX.	MIN.	ME.				
13	S	1st Sunday after Epiphany	8 3	4 15	11 21 a.m.		29.71	28.08	41 35	38.0	.32	35.6	Cymbidium giganteum, 1 ...	Nepaul	13
14	M	Great Frost and Fair on the Thames, 1716	8 2	4 17	11 49 "	0 55 p.m.	29.4	29.71	42 37	39.5	.14	35.6	C. Mastersii, 1 ...	India	14
15	T	Orsini's attempt to assassinate Nap. III.	8 1	4 19			30.06	29.81	41 35	38.0	.02	35.5	Celogyne Gardneriana, 1 ...	"	15
16	W	Battle of Corunna, 1809	8 0	4 20	1 3 p.m.	3 24 "	29.93	29.67	50 42	46.0	.16	35.9	C. media, 1 ...	"	16
17	Th	Charles I. tried, 1649	7 59	4 21	1 54 "	4 36 "	30.17	30.11	52 44	48.0	.06	36.3	C. plantagina, 1 ...	"	17
18	F	Day breaks at 5.59	7 58	4 23	2 53 "	5 42 "	29.11	29.81	51 43	47.0	.10	36.5	C. speciosa, 1 ...	Borneo	18
19	S	Full moon Jan. 10, at 7h. 36m. a.m.	7 57	4 24	4 1 "	6 41 "	29.69	29.66	53 41	47.0	.12	36.8	Limnates rosos, 2 ...	"	19

The Gardener's Magazine.

SATURDAY, JANUARY 12, 1867.

THE NATIONAL HORTICULTURAL EXHIBITION to be held in the gardens of the Botanical and Horticultural Society, Old Trafford, Manchester, 7th to 15th June next, meets with so much favour in the north, that if the promoters labour with their customary spirit and unity, their efforts must be crowned with success. The schedule contains separate sections for amateurs and nurserymen, in which the classes consist of plants only; there is a third section for fruit, which is open to all. The general plan of the competitions differs somewhat from the established routine in such matters, and it may be of some service to our readers if we point out a few of the most important features. The prizes are liberal—*eminently liberal*. Class 1, for 14 stove and greenhouse plants (amateurs), includes 1st, £20; 2nd, £15; 3rd, £12. The corresponding class for nurserymen admits only 12 stove and greenhouse plants, and the prizes are £16, £12, and £8. The lowest prize offered is 10s., and so small a sum as that appears in but few instances. Comparing the sections for amateurs and nurserymen, we have in the first a class for 20 exotic orchids, in the second a class for 12 exotic orchids. In the first a class for 10 fine-foliage plants; in the second a class for 12 fine-foliage plants. The amateur class for pelargoniums requires only 6 plants, that for the nurserymen requires 10. It is satisfactory to observe that zonale pelargoniums have been provided for; there are both amateurs' and nurserymen's classes for 10 zonale, 10 variegated, and an additional class for amateurs for 10 nosegay varieties. Ericas, stove and greenhouse ferns, rhododendrons, azaleas, amaryllis, palms, fuchsias, calceolarias, and miscellaneous subjects are severally entered, and prizes are offered for them in amounts proportionate to the sums already quoted from the schedule. The section devoted to fruit comprises a class for 10 orchard-house trees in fruit; 2 grape vines in pots; after which we have pines, grapes, melons, peaches, and nectarines. The total amount offered in prizes is £984 10s., which we may for general purposes describe as £1,000.

The exhibitions at Manchester have always possessed a character of their own. There are not only many good gardens in the suburbs of the cotton city, but the gardeners of the district have rarely been disturbed by those feuds in which the gardeners of the south delight, perhaps (and very likely indeed) because there never has been established between Manchester and the Royal Horticultural Society any very close bonds of relationship. Now it is a very strange thing that though the dates selected for the Manchester exhibition were announced long before the Horticultural Society determined on patronizing Bury St. Edmunds, yet for the Bury show the same dates were chosen, so as apparently to render the Bury show as much as possible injurious to that of Manchester. No one accustomed to watch the proceedings of the Society, and fully acquainted with its impotence for either good or harm, can suppose it capable of robbing the Manchester people of any the smallest part of the success that awaits them, provided they carry out their plan in its integrity, and are favoured with good weather during the days of the exhibition. Indeed we have but one object in alluding to the coincidence of dates, a coincidence we cannot refer to as "undesigned," and that is to put exhibitors on their guard in time, so that those who intend to exhibit at Manchester may take care not to enter for Bury, unless fully able to do justice to themselves at both places.

It is impossible to hazard any conjecture as to how far the great Parisian exhibition will interfere with the success of our own flower shows. People possessing wealth and leisure, and a majority of the patrons and practitioners of art and science, will of necessity spend a considerable portion of the forthcoming summer in Paris, and their absence may be felt at the principal metropolitan exhibitions. Yet there is always a great public to which the exhibitor may appeal with the certainty that merit will be appreciated; and there does not appear to be any special reason why the promoters of English exhibitions should be seriously influenced in the disposition of their plans for the approaching season. The horticultural part of the Paris exhibition is still in a lamentable state of chaos; and indeed the whole affair is so vast, that it cannot be rash or unneighbourly to fear that complete and unequivocal success is impossible.

No. 89, NEW SERIES.—VOL. X.

THE KINGSTOWN ROSE SHOW, which is to take place in connection with the Summer Exhibition of the Royal Horticultural Society of Ireland, has met with a very favourable consideration amongst English exhibitors, and we believe we may promise the promoters a spirited competition. The date of the show is fixed for June 27th, and the place of exhibition will be the New Grounds, Kingstown. The leading class is for 48, either single blooms or trusses on single stems. The highest prize is to be a cup value £10, the second a cup or other piece of plate value £7, the third value £5, the fourth value £4, the fifth value £3, the sixth value £2. Independent of the special fund for this rose show, and the special schedule by which it will be regulated, there are some rose classes in the schedule of the society affording abundant room for competition for stands of 36, 24, 16, and 12. We most heartily wish our Hibernian friends success, and again hint to our brethren in Caledonia that the human race are expecting something similar of them. A Scottish rose show would be about as useful as any show the Scotch florists could give their minds to at present.

THE WEEKLY NOTE ON THE PROBABLE WEATHER, which has till now occupied a prominent place at the head of each sheet, was commenced January 6th, 1862; hence the publication of the usual note on Saturday last completed the writer's fifth year of devotion to this task. When first the weather forecasts were commenced, the magazine was unknown; and probably this feature did quite as much as anything else to direct public attention to the magazine, and so prepared the way for the success that has attended the enterprise, and which it must now be confessed has proved fatal to the system of publishing weather forecasts, for the object of this note is to announce that they are to be discontinued. The writer of this can speak plain when needful, and he has a few things to say respecting these forecasts. In the first place, it has been demonstrated in black and white that it is possible to forecast the weather a week in advance, and to do so every week the whole year round, with only a small per centage of error, though the prognostications hazarded may be of a most distinct character, as in the case before us they have been. The five years' forecasts may be compared with any authentic record of the actual weather during those five years, and they will be found to have afforded decisive and generally accurate predictions of the meteorological events that occurred during the several weeks for which they were written. Since the middle of October, 1866, there has been a decided falling off in the value of the forecasts, and possibly, if they were continued, they would become utterly worthless; therefore, none of our readers need complain of their discontinuance. The continually increasing circulation of the magazine necessitates earlier printing than formerly. The last moment at which it is now possible to insert a weather note is noon on Thursday, whereas, three years ago, they were sometimes inserted at a late hour on Friday night. When the day for closing the pages was shifted from Friday to Thursday, it was thought that the task of writing the forecasts would not be seriously affected, but it was soon found that the anxiety connected with this department was increased immensely, and in time this anxiety became painful, and less attention was given to the subject, and of necessity the value of the weather notes was depreciated. It may not occur to all our readers to suppose that the framing of the forecast is a matter involving any great labour; but the truth is, if closely and conscientiously followed, the writing of the three or four lines every week is as much mental labour as any one person can safely engage to perform. Let those who doubt this hold assertion, qualify themselves for the task, and follow it till experience justifies them in accepting or denying the statement. There are some other circumstances, such as increase of labours of other kinds, and a somewhat precarious state of health for six months past, that tend to strengthen the determination to abandon this feature; but sufficient has been said to render unnecessary any minor arguments. The authorship has been concealed partly from whim, partly as a reason for avoiding useless controversies; but it may as well now be confessed that from the first to the last the forecasts have been written wholly and solely by SHIRLEY HIBBERD.

WINDOW GARDENING AMONGST THE WORKING CLASSES IN HULL.—At the general committee meeting of the Society for Promoting Window Gardening amongst the Working Classes in Hull, the sub-committee reported that the operations of the society have been of the most satisfactory character. Upwards of 700 orders were issued to applicants for plants, and 3,700 plants were distributed. A small balance still remains in the hands of the treasurer after payment for flower pots, printing, and other incidental expenses. This will form the nucleus of a prize fund to be distributed at a flower show which it is proposed to hold in the ensuing summer. Towards this fund many ladies and gentlemen interested in the movement have promised donations, and Messrs. Jameson and Co., Canning Street, have not only promised to assist the general fund, but to give special prizes to their own employes. Votes of thanks were given to Mr. Walliker, the honorary secretary and originator of the movement; Mr. Boulter, the treasurer; and Messrs. Niven, Botanic Gardens, and Peak, gardener, the Park, through whose united exertions the working of the society has been so satisfactorily performed. We understand that the Lord Mayor of York takes a warm interest in the movement, and we doubt not that not only that city but many towns will follow the example set them by Hull. The number of plants, nearly 4000, bears favourable comparison with the number distributed in London during the first year of the movement, which, according to Lord John Manners's statement, reached 17,000. Considering the vast population of London, this shows that the movement has already been well appreciated in Hull. Perhaps the most gratifying feature of the distribution of the plants was that all expressed themselves highly pleased with the selections made for them. Printed instructions were issued to every recipient, so as to acquaint them thoroughly with the mode of culture of the plants entrusted to their care.

HEATING HORTICULTURAL BUILDINGS.

Seldom if ever in the memory of an ordinary lifetime was the importance of a perfect and thorough system of heating horticultural buildings more impressively demonstrated than at the time of writing this, January the 3rd; for at 6 p.m. the thermometer indicates 23° of frost, and the appearance of the elements fully justifies in saying that before midnight it will most probably reach Zero. Such is the state of the external atmosphere, and I ask those who may read these lines, and who may happen to know anything about the imperfections of our system of heating, if such a state of the weather is not enough to set any sober man to thinking about the possibility of our attaining to perfection at last. However, it has set me thinking, and hence the reason of my taking up the subject just at this time, besides which it will be more likely to meet with attention than if deferred till winter has past and gone. To be properly understood, I must first say that I do not find fault with the principles of heating our plant and fruit houses; it is the manner in which those principles are carried into effect that gives me reason to complain. Many persons build houses, and set boilers, and furnish them with just one certain amount of hot-water pipes, without any consideration as to whether a proper amount of heating surface has been given to secure the success of the undertaking. I have seen many useful and handsome buildings erected, and a powerful and expensive boiler attached, and those most interested in it showing the utmost anxiety that these two essentials should be perfect. But when coming to the question of hot-water pipes it has been dealt with in a niggardly manner. There is a very simple means of ascertaining by calculation the amount of piping required to heat a given space of air, and this is often done to know the required quantity for any one house, and on the strength of such calculations inexperienced people act, and then comfort their minds in thinking that they have done all that means and skill could do—in fact, all that is wanted to be done to make their investments a perfect success. But such calculations are faulty; they cannot be said to be erroneous. They are faulty because they make the basis of their calculations an imaginary condition of the elements, not reckoning for external influences. Therefore it is that they are not applicable to the ordinary structures used as horticultural buildings, unless they make their calculations, which is seldom or ever done, from two extreme points. For instance, if we take a certain house in which the temperature ranges regularly at 40°, we can easily ascertain by calculation how much piping it would require to raise the temperature to 60°, and secure at the same time that there be sufficient surface, that the heat generated from the pipes shall not be of that parching character which results from pipes excessively heated, as they must be where there is insufficient surface. But then such calculations do not go far enough; they only proceed, we may safely say, to one extreme point, for a house that is maintained at 40° without artificial heat, must be favoured by an external atmosphere never lower than 35°. Therefore when we wish to raise this house by the application of artificial heat to 60°, we cannot expect that the same amount of heating surface that serves when the thermometer reads 35°, will serve equally well when it is 20° lower. Nevertheless many houses are heated in a way which compels us to suppose that the authors of the heating apparatus believed this to be possible, for there is no extra amount of piping sufficient to make up the required degree of heating surface when the external influences should demand it.

Now what is the consequence of this oversight, or rather I ought to say this deficiency of heating surface, which in every case ought to be secured in the first instance, so as to be available for use in an emergency like the present? Why, the plain fact of the matter is, we are obliged to heat to such a pitch the few pipes that we have, that the heat given off from them is so great that it is positively injurious to vegetable life, and our plants suffer to an extent that will be too plainly shown by future failures!

At the present moment, only a few yards from where I write, I can lay my hand on a return pipe in which the water must travel more than two hundred feet before it comes to the point in question, and yet I cannot bear my hand upon it more than two seconds. Yet, notwithstanding the heat I maintain in the pipes, the frost is gradually gaining upon me, but I cannot do more; for the last two hours all the force that the heating medium will allow me to apply has been given. But had I an extra supply of piping set aside for an emergency like this, I could not only wink at the frost, but the heat which I should secure from this extra extent of radiating surface would secure me a more suitable temperature in the house, as it would be less parching in its character, and the chances of a breakdown at this critical time would be considerably diminished, as there would be less force used to secure the same amount of heat. But mine is not the only case of the kind by very many.

Then in connection with piping, I would call the reader's attention to the prodigious size of some boilers as compared to the extent of pipes they have to heat. There is evidently much room for an improvement in this branch of heating, for I have seen some

instances where the boiler has been quite large enough to do double the work it had to do, and where such is the case there is a great waste of fuel. Before we can expect an improvement under this head, proprietors must pay less heed to the extraordinary recommendations of the manufacturers of the different forms of boilers. They will do better to call in some skilful practitioner who has had some actual experience in such matters. Then they may hope to get suitable advice, but to believe what we read in the glowing descriptions given of some boilers would be positively absurd. For instance, with a certain form of boiler night stoking is abolished; how ridiculous! when every gardener in the three kingdoms knows to the contrary, and the inventors themselves must know it to be impossible!

Closely allied to boilers is the use of dampers, but the question is, are they invariably used so much as they ought to be? I fear not, because it is seldom, if ever, that instructions are given to those who have the working of them as to the object for which they are intended. I served fourteen years as an under-gardener, and in one instance had the charge of three boilers for over two years, and the only instruction that I ever had given me was to use the damper when I wanted to keep the fire in, more especially of a night; but the idea that I might use the damper to a certain extent when I had a great roaring fire going, to confine the heat round the boiler, by reducing its means of escape, was foreign to my young notions. So I used to let it go to waste up the chimney, for the want of knowing better, and to the discredit of those who ought to have told me how to act. It was not until I became responsible myself for the amount of firing consumed that I began to turn my attention to the use of dampers, and to understand the purposes for which they are intended; so that I may be said to have found it out for myself. And I have also found that dampers generally are placed too far away from the boiler; they should be as near as possible, that when they are used to confine the heat, they may send back over the fire the fumes and smoke, that the inflammable portion of the gaseous products may be burnt, to the manifest saving of fuel; as if there is not the means of escape for all the smoke, there is sure to be a certain amount of heat that would go up the chimney retained and conserved, to the saving of the fuel.* But speaking of chimneys reminds me of an experiment I have tried this winter. I have reduced a 9-inch chimney (inside measure) to one half its original size close to the boiler, so that where the heat had previously a superficial square of 9 inches to escape up the chimney, it has now only half that space; the consequence is, I confine a greater body of heat round the boiler, thereby saving about 15 per cent. of fuel, and secure at the same time all the draught I require for the fire for a 4-foot cannon boiler.

As to the systems of heating applicable to horticultural purposes, hot water is unquestionably the best, but like all other things it can never be perfect. That it effects a great saving in fuel and labour none can deny, and I am in no way reluctant to give my humble opinion in its favour. But while doing this, I cannot ignore those means which were used to good effect by our forefathers, as many have done; for I have myself worked the old brick flue to a good advantage, and in the present day a strong well-built flue is not to be despised for small individual houses.

It has often been a matter of surprise to me that the Polmaise system of heating did not gain more hold on public attention for small houses, as it gives off a clean regular heat in which a great variety of plants appear to delight. I used it once for two years in a small conservatory, and certainly had no reason to find fault with its efficiency; the only part of it that I saw open to an improvement was the sharp angles of the furnace, which would sometimes prevent the coke sinking down to the fire properly. But as it is now almost entirely out of date, it will be only occupying space uselessly by discussing its merits further, and I will close this paper with just a word on the use of gas for heating purposes. This is only used yet in very small houses, and for them it is a very clean system of heating; but before the close of the present century, whoever lives to see it, will find that the use of gas for heating reasonable sized horticultural houses will become very general. J. C. CLARKE.

HORTICULTURE IN PARIS.—The cultivation of flowers and rare plants in Paris has for some years past greatly extended. This is due in a large measure to the municipality of the city of Paris, the gardens and parks of which are models of good management, elegance, and variety in the choice of their ornaments. At the beginning of 1855 the number of gardeners and workmen belonging to the municipality was only 3; in 1858, 12; in 1862, 40; in 1864, 60; and in 1865, 101. The plants and shrubs have similarly increased. In 1855 only 600 could be furnished; in 1863 there were delivered 1,602,265, of which 1,578,500 were furnished by the florist of La Muette, 23,570 by the nursery of Longchamps, and 3,186 by the fir nursery. A comparison of the accounts, from 1855 to 1865 inclusively, shows that the cost of the shrubs and plants got from the city nurseries and distributed during that period was on an average only 13 centimes.

* It is generally agreed among engineers and chemists that if smoke is once really formed, it cannot be burned. The philosophy of the smoke question, therefore, lies in prevention. The sole purport of a damper is to reduce the draught, and so check the rate of combustion.—ED. G. M.

ORNAMENTAL GRASSES FOR INDOOR DECORATION.

The art of embellishing our homes in winter with really elegant and pretty dried flowers is as yet but very imperfectly known. It is often attempted, but rarely or never successful, and chiefly from a want of knowledge of the best materials in this way. One would think that our great seedsmen who take up the matter ought to do it well, but they do not. Just look at a stand of what are called ornamental grasses, set up at a large flower or cattle show, and say if there be anything like grace or ornament about them. They are tied in rigid bundles, or perhaps projected into a sort of trifid little sheaf, an idea evidently suggested by an Isle of Man halfpenny, and they are in the greater part composed of grasses that have not any native beauty whatever, and which no amount of taste in the arranger could make graceful or attractive—common coarse grasses, in fact. It should be borne in mind that the fact of a plant's belonging to the grass family does not make it worthy of cultivation, and that we must select here, as much as in any other department of the vegetable kingdom, if we want to possess and enjoy the really beautiful. We know of nothing among plants more graceful or elegant than some of the grasses, and nothing so suitable for winter decoration, when cut at the right time and preserved properly—both matters of the easiest accomplishment. These flowers are essentially ladies' flowers, and may be cultivated and preserved by any lady with the greatest ease. The finest kinds may be grown in the open garden, either in a little bed to themselves, or scattered here and there in the borders. The best way is to have them in a bed to themselves, as then their state can be seen at a glance, and they are more likely to be cut at the right time than those in the borders and mixed about; but then they are so cheaply and freely raised from seed that there is no reason why we should not use them freely in both ways. Some of them look exceedingly graceful among flowering plants, while for indoor use we venture to say that when our readers try them they will never again purchase the abominations of dyed grasses now selling with very inferior everlasting as Christmas ornaments. As regards their preservation, the only point requiring attention is to cut them at the right time—i. e., before they begin to fade and drop their seeds; in fact, when they are in the full flush of grace and beauty in summer or autumn, as the case may be. After cutting, place them on a shelf in a dry darkish room, free from dust, and in a few days they will be dried and fit for use. In some cases, or in all cases, it is well to make a double harvesting of these elegant plants, so to speak. By doing so we get a useful variety in the panicles. When cut young, the spikelets and branchlets depend from the main stem at quite a different angle from what they present when the plant becomes a few weeks older. As for the culture, it is as simple as possible. Sow in pots in a cold frame or pit about the end of March, covering the seeds with a very slight quantity of fine sandy earth, not more than one-eighth of an inch for the largest kinds, except the seeds of maize or sorghum, if you should include these among ornamental grasses. Two or three six-inch pots of each should be sown, as if all the seed be put into one pot, the tiny seedlings will come up too thick. There is generally as much in a packet of seed as would sow four or five pots. In April these seedling grasses should be an inch or so above ground, when they should be gradually inured to the open air—i. e., left in a frame or pit that is only covered with its lights at night, or even only during frosty nights, and after a week or ten days in such exposed altogether night and day. Then they are soon ready for putting in summer quarters, which is also a simple operation. Those that are put in the borders or flower garden need simply to be taken out of their pots, the ball divided into half a dozen or more pieces, and these arranged in a circular group or patch. In the bed in which they are to be grown specially for cutting they are best placed out in lines, first preparing the ground well, and selecting a spot on some nice border in the kitchen garden, or reserve or nursery ground. Each little ball may be broken into a good many pieces, a better plan than pulling all the tiny seedlings asunder. They might hear that, but are a little too fragile for it. Place each little clump firmly in the ground, give a good watering, and all is over that need be done, unless the soil or season be unusually dry, when a watering would of course benefit. So much for character and culture. Next, as to the selection of sorts—the chief point. There are about 4,000 species of grasses known to botany, the greater part of which are no more ornamental than are wayside grasses, and consequently nothing is more frequent than for grasses possessing no claims to beauty to be sent out by seedsmen as "ornamental." From this vast host we shall select but a very few indeed, and take care that these possess not only distinction, but grace and beauty.

The most popular of all grasses generally cultivated in gardens are the Brizas. They are distinct and pretty, and though not equal to others to be presently named, worth growing. Being well known, we need make no further comment on them, the object of this paper being to draw attention to choice things not sufficiently grown. The largest kind of briza has a peculiarly neatly chiselled spikelet, suspended on a wiry little side-stalk. This type of grass flower will be found far more beautifully developed in a grass called *Bromus brizopyroides*, an extremely elegant species, having its spikelets like a briza, but more pointed at the end, and nearly an inch long. The rather long but slender stem which bears these droops or arches over in the most graceful manner, and the inflorescence when cut and dried is most valuable for vase decoration, either among freshly cut flowers, everlastings, or arranged with other ornamental grasses in a vase. It is perhaps the most gracefully drooping grass, as regards the disposition of the inflorescence, that we have in the country. It is offered in Mr. W. Thompson's catalogue at 2d. per packet, and as a packet is sufficient for any garden, that surely is cheap enough. But in gardening, as in many other things, we often give a great deal to produce results which might be equalled at trifling cost, and go a long way to find less than what Alphonse Karr found very near home.

Quite distinct from the preceding, but equally indispensable, and of quite what Mr. Ruskin would call a spiritual order of beauty, is *Agrostis nebulosa*, also a cheaply obtained and easily raised grass. It is called *nebulosa* from the singular aspect which it presents when in flower. A mass or patch of it, at a distance of a few yards, looks like a little cloud upon the ground, from the multitude of very small seeds being supported upon stems as fine as thread, and thus the densely spreading seeds, with their almost invisible supports, look like a fairy cloud upon the ground. When cut, and placed a little above the eye, the single stems of this grass have also a beautiful effect. It is the most suitable of all for mingling among *Rhodanthe* flowers in winter, or for any delicate small vases. Also marked at 2d. per packet in Mr. W. Thompson's catalogue (Tavern

Street, Ipswich). We select this catalogue particularly, because Mr. Thompson is a botanist as well as a seedsmen, and everything is truly described in his list, and, what is more, truly named.

The smallest of all the pretty grasses is *Airopsis pulchella*, which can scarcely be called elegant, as its inflorescence does not rise more than a few inches from the ground, but there forms dense bushes of seeds. It forms an interesting object on low rockwork, or on the front margin of a border.

Next comes what is probably, on the whole, the most useful of grasses—*Panicum capillare*, usually sold by the seedsmen under the false name of *Eragrostis elegans*, and therefore it is perhaps best to order it by that name. It is a very strong and free-going species, forming dark green hairy bushes about two feet high, but with the inflorescence shooting out in the most elegant manner. When emerging from the sheath, the numerous slender branchlets have the effect of the numerous tiny streams of water that flow from a finely perforated small syringe. It should be cut in this stage, and also when further developed, as the panicle presents several distinct aspects during the course of their development, and when cut and dried these different states preserve their peculiarities. It is a most useful, distinct, and elegant grass, easy to grow, and should find a place in the mixed border or flower garden, as well as in the bed devoted to growing ornamental grasses for preservation.

The common millet, *Panicum miliaceum*, is a very graceful, medium-sized grass, with a pretty drooping fingered panicle.

The German millet, *Setaria germanica*, has a bold, densely packed cylindrical spike of seeds, quite unlike any of those previously named, and worthy of cultivation on account of its distinction. The great heads of seed droop over from their weight, and look very effective among the stronger kinds in vases.

Hordeum jubatum is sometimes called the squirrel-tailed grass; and very beautiful it is, being simply a dwarf kind of barley, with the awns very close set and very silky. It is difficult to dry and keep, but looks peculiarly beautiful in the border. The seeds are apt to fall off in the drying, and of course then the beauty is lost; but it should be in every collection of ornamental grass, if only for its beauty when growing.

The singularly pretty hare's-tail grass (*Lagurus ovatus*), which grows naturally in sandy places in Guernsey, is one of the very best, and from its novel outline and silky softness, indispensable among dried grasses, and, indeed, useful for putting among cut flowers at any time.

There are two other British grasses quite as well worthy of culture as any exotic ones—*Milium effusum* and *Agrostis spica-venti*. The first is a handsome grass, rather common in British woods; and the second is only found in some of the eastern counties. *Agrostis spica-venti* is a very graceful thing, growing about eighteen inches high, with plummy panicles of a silky hue and texture; very rarely seen in gardens, but would form a charming addition to ornamental grasses. We are convinced that many of our readers would find this and others of the grasses enumerated in this paper more graceful than any fern; and when it is considered that their beauty may be perfectly preserved for twelve months after cutting, they will agree that no plants offer such attractions to ladies fond of arranging flowers.

There is another exotic milium, *M. multiflorum*, which should be obtained, as it has long slender drooping stems, from which are suspended little round seeds by slender thread-like branches—a most graceful grass. So much for the annual kinds of grasses, and now a word for the strong perennial kinds.

The smallest and not the least valuable of these is the common feather grass (*Stipa pennata*), a hardy border perennial, the long and streaming awns of which are sold so much in Covent Garden, both in their natural colour and in a dried state. It requires no special treatment whatever; merely wants a place in the mixed border, or if it be much required for drying, a little live of it might be put with the herbs in the kitchen garden. Cut it early, or the seeds will ripen, and then of course the beauty falls to pieces when the seeds fall.

In addition to this, it is only necessary to mention the magnificent pampas grass, which everybody is acquainted with. Its plumes should be cut when young and fresh, and not left till they get a dirty tone in the late autumn. Of course we mean those that are required for indoor decoration, and wherever there are good plants enough spikes may be thinned out without interfering with the beauty of the specimen. The small side branchlets of the pampas, pulled off and used among the smaller grasses, look very well, while of course the noble plume in its entirety is an ornament in itself.

Somewhat like the pampas in habit, but smaller and earlier, is a comparatively new hardy grass, *Arundo conspicua*; it blooms very nicely in the southern and midland counties.

Finally, we have a word to say for *Arundo donax*, the great reed of Southern Europe, which, though it does not flower in Britain, is most valuable from the great dignity of its cane-like habit. It grows ten or more feet high in the flower garden at Syon House, and will be sure to give satisfaction on good soil in warm districts.

The grasses recently shown by the seedsmen at Islington were, as usual, wretchedly arranged and very badly selected, and offered no guidance nor encouragement for the culture of this very graceful family.—*The Field*.

THE VIRTUES OF PENNYROYAL. BY A FARMER.—Much the largest number of fleas are brought into our family circles by pet dogs and cats, and the pigsty is generally filled with them at this season of the year, where numbers will hop on you when visiting it for the purpose of feeding or inspection. The oil of pennyroyal will drive these insects off; but a cheaper method, where the herb flourishes, is to throw your dogs and cats into a decoction of it once a week. Mow the herb and scatter it in the beds of the pigs once a month. I have seen this done for many years in succession. Where the herb cannot be got, the oil may be procured. In this case, saturate strings with it and tie them round the necks of dogs and cats; pour a little on the back and about the ears of hogs, which you can do while they are feeding without touching them. By repeating these applications every twelve or fifteen days, the fleas will flee from your quadrupeds, to their relief and improvement, and to your relief and comfort in the house. String saturated with the oil of pennyroyal and tied around the neck and tail of horses will drive off lice; the strings should be saturated once a day. Mint, freshly cut, and hung round a bedstead, or on the bed furniture, will prevent annoyance from bed insects.

FLOWERS IN ROME ON CHRISTMAS DAY.

The *tramontana*, which has been rather troublesome lately, forbore to blow on Christmas Day, and in the sun the weather was as warm as June in England. The *forestieri* all rushed out without their great-coats, and the ladies without their warm shawls, which may account for the numerous cases of relaxed sore throat of which I have since heard in polite society. I counted, however, on the Pincian, no fewer than thirty-four pairs of white pantaloons among the male Romans, which for the 25th December were pretty well. At every street corner and under every archway there were stalls heaped high and thick with fresh flowers—with heartsase, mignonette, monthly roses, violets, camellias, ferns and grasses, and wild flowers without number as to species, and without names so far as my powers of nomenclature extend. Next to the environs of Seville, where everything which is not covered with oranges is covered with roses, and the Valley of Mexico, which is one *parterre* of flowers all the year round, must come Rome as the chosen haunt of Flora. She revels in wild flowers among the ruins, the tombs, the chinks of the Colosseum, and even in the waste Campagna. She runs over with tame flowers in the gardens of her villas which fringe the Seven Hills. Flowers in Rome are literally cheaper than dirt; for dirt is a dear article—it costs lives. For penance you might buy such a bowpot in Rome as an English duchess might think cheap at a guinea in Covent Garden; such a bowpot as might make an English sempstress, stitching in her solitary garret, calculate how many hours of toil and miles of needle and thread it would take to purchase one poor sprig of mignonette from that abounding loveliness. You are spared in Rome the detestable nuisance of the flower girls who in Venice and Florence dog your footsteps and thrust bouquets into your button-hole whether you will or not. Every street corner or vacant place is, as I have said, a *Marché de la Madelaine*, and you can spend your loose halfpence in flowers, or leave them alone, as you choose. The only peripatetic vendor of flowers whom I have yet met in the Eternal City is a humpbacked dwarf, who on week days haunts the outside of Piale's reading-room on the Piazza di Spagna, and is a small Birnam Wood of choice flowers. You may make poor Lancelot Gobbo's fortune for a fortnight if you give him say forty bajocchi—'tis but 1s. 7d.—for an armful of rainbow. On Sundays, when Piale's, in deference to the prejudices of its Protestant patrons, is closed, the dwarf changes his station to the outside of the Caffè di Roma, on the Corso, whither, it may be hinted, a considerable section of the Protestant patrons resort to read the last *Galvani*, invisible at Piale's. On the Sabbath the Gobbo does not vend flowers. He has a pair of buffalo horns for sale, beautiful in their polish and curvilinear spikiness, with which he stands sentry, a horn in each hand, like a stunted terra cotta figure of Plenty, bearing ossified cornucopias. With a view to Protestant patrons, he has mastered a small stock of English. "Little lady, buy flower? bu'fil." "Little gentleman, buy horn? bu'fil." Beyond this his Anglo-Saxon does not extend. You might fancy him to be of the family of Albert Smith's donkey-box at Alexandria, with his "Giv'um sixpence; ole gentleman always giv' um sixpence." I have often purchased flowers from the dwarf, but I have not yet ventured upon a pair of buffalo horns. Such a possession might give a subject for a postscript to the author of "What will he do with it?" What should I do with a pair of buffalo horns? How should I pack them? How bestow them when I got my horns home? I have an idea that when I take to discounting bills at sixty per cent.—which is not at all an unpractical way of winding up a froward and turbulent youth—I will buy a pair of buffalo horns, and hang them up in a bleak counting-house in Tavies Inn, between a Ready Reckoner and a List of Terms in the Exchequer of Pleas. They shall be typical horns, and symbolical of hardness and smoothness, and of the ultimate impalement of my acceptors on the spikes.

I confess that the sight of the blue sky, the bright sun, and the fresh flowers rather threw me out in my reckoning, and rendered my ideas of parallels of latitude somewhat hazy. "How to have fresh roses on Christmas Day" is a recipe I cut many years ago from one of the early numbers of the pleasant old *Family Herald*. Remembering that old Time is still a-flying, you gather your rosebuds while you may, and whenever you have any spare pence in your pocket; and snipping off the end of the stalk carefully with a sharp pair of scissors, seal them carefully with red wax—black is unlucky—wrap them in silver paper, and put them in the top left-hand drawer in the best bedroom, punctually locking the drawer, lest Betty the housemaid's curiosity should be the means of your buds prematurely blowing and withering—as is the way with roses and housemaids. Then on Christmas morning, if you haven't lost the key and forgotten all about your hidden treasures, you unlock the drawer, release your buds from their prison of tissue paper, snip the stalks again above the sealing wax, pop them into lukewarm water, and lo, in the course of ten minutes, your roses are all a-blowing, and you may go down to breakfast with a flower in your button-hole, as proud as a dog with two tails. This is the pleasant theory. I remember that I once tried the recipe practically. It was a dreadful spectacle which broke upon my eyes on Christmas morning. So much stained tissue paper, so many dried and withered leaves, and a skeleton stalk or two. That was all. Did you every assist at the unrolling of a mummy? Did your horse ever shy at the skeleton of a cow picked clean by obscene birds in a mountain gorge by moonlight? I felt, gazing on the dead roses, as men have felt when they have come upon such sights as those.—*Special Correspondent of Daily Telegraph.*

THE FOOD OF PLANTS.

There is no branch of horticulture so little understood, or which seems to command the attention of the gardener less, than this; and yet much of the success of plant, fruit, and vegetable growing depends upon a knowledge of what to give for food and what to avoid. But if we take the ideas and theories of our great horticultural chemists, and reduce them to practice, we shall have made a great advance towards securing the proper necessities for our garden pets. One fact is known and common to all, that for plants to grow and produce their peculiar secretions they must be nourished by the absorption of food both from the air and earth; and although it is a fact that almost all plants will imbibe sufficient chemical properties from the atmosphere to sustain them, still this will only last for a definite period, except in the case of Epiphytes, and such plants as hyacinths, &c. The potato has the power of growing and reproducing its kind, and forming new branches, without any contact with earthy matters at all. According to the theory of Lindley, the chief food of plants consists of carbonic acid, nitrogen, and water, with various mineral matters, chiefly alkaline, but which differ in nature and in different species, and the roots of plants possess the power of selecting from the food which is

presented to them such matters as are most nutritive and best suited to their constitutions. This then will explain the practice of the rotation of crops. We find that many kinds of crops, especially the cereals, will cease to fructify if grown in the same soil year after year in succession. Roots obtain carbon in the form of carbonic acid, derived from the atmosphere, or from the decay of vegetable matter in the soil in contact with them. Plants can only take food in a liquid or gaseous form, and yet how often do gardeners offer food to plants in the form of solids. They have no power of taking these up; the spongioles are only empowered to take up ammonia, or other chemical constituents, when held, as above stated, in solution. Another important agent, hydrogen, is obtained by the decay or decomposition of water, and is assimilated with the carbon while the oxygen of the water, or of carbonic acid, is liberated. Nitrogen is secured for plants in the form of ammonia, and although a theory is of long standing that the atmosphere does not afford a supply of this important gas, a well-known authority, Rigg, asserts that plants positively do obtain free nitrogen from the atmosphere, and his assertion is founded upon a careful series of experiments. The chief use of nitrogen to plants is the production of the young parts, such as the bark, leaves, seeds, &c., and it is almost or wholly wanting in old parts; this fact will explain why young wood when it has passed the hands of the artificers decays so much sooner than old or heart wood; in the latter it is never found. Now, although the above are the principal agents which afford food to plants, still there are many others, though of minor importance. Minerals are necessary—in the absence of which many genera of plants will not survive; deprive the wheat plant of silica, for instance, and all the artificial power that can be brought to bear will prove unavailing in producing a crop. This will then prove how important it is to know something of the nature of the different plants we have to nourish, preserve, and mature, both for commercial purposes and for pleasure; we should likewise know when to apply and when to withhold stimulants, for it is just as easy to feed a man through the soles of his feet as to attempt to make a plant imbibe food when the growth of the plant or roots are at rest or inactive. Therefore it is when a plant is in activity, when the carbon is rapidly changed, and the water given off by respiration, that food should be applied. There is at this time such a demand made upon the spongioles of the plant, that they quickly exhaust the medium in which they are placed; and at such times when food is applied, the plant should be exposed to the full influence of light, or the requisite changes do not take place in the laboratories of the plant. Light alone has the power of changing part of the water into the green colouring matter termed "chlorophyll," which gives the beautiful green colour to leaves. In the absence of light, this process does not go on, hence the blanched and unhealthy state of the leaves. Seakale and other similar esculents, when prepared for table, are prevented forming chlorophyll, or in other words are blanched by keeping the plant in perpetual darkness, with excitement. The carbonic acid, ammonia, water, and other chemical agents, remain unchanged, for no assimilation of the food taken up by the roots takes place, oxygen of course accumulates, its natural proportions to the other elements is disarranged, and a decay or destruction of the tissues ultimately ensues.

This then will suffice to prove how important a matter it is to secure a due amount of light, also an unchecked healthy action in all plants, and that the food applied be composed of those agents which will at once be speedily taken up, and the plants thereby benefited. The great chemist Liebig has done much to instruct us in horticultural chemistry. His late work (a small neat pocket book), "Letters on Chemistry," will, if carefully perused, prove that gardeners can in many instances get more food for plants from natural and other sources, than by expensive artificial agents. In the neighbourhood of our great towns more ammonia is held in suspension in the atmosphere, and actually conveyed to our very plant-houses by atmospheric deposition of moisture, than is contained in many a shipload of Peruvian guano; and yet how sluggish we are to secure this invaluable food for our pets.

J. RANSLEY TANTON, F.R.H.S.,
Nurseryman.

Epsom, Surrey.

HAYS'S CONSTANT STOVE has had a fair trial during the recent severe frost, and has acquitted itself most admirably. We have no hesitation in pronouncing this the very best stove for small plant-houses of any that have been hitherto submitted to public notice. It happens that we have tried every kind of apparatus offered as a substitute for flues and pipes, having in view to advise, to the best of our ability and experience, the thousands of possessors of small collections of plants, who, for the most part, only want a cheap source of heat to tide them through a frost, and who of necessity prefer a small compact portable stove to any of the more elaborate methods of heating. To two inventions amongst many we award whatever praise is due for the merit of accomplishing all that is desired in this way, and these two are MUSGRAVE'S SLOW COMBUSTION STOVE, made by Messrs. Musgrave Brothers, Belfast, and HAYS'S PATENT CONSTANT STOVE, for which Mr. H. Baker, of 17, Harp Lane, Great Tower Street, London, is the sole agent. On the first of these we have reported on more than one occasion. Respecting the second, we have to say that it is extremely elegant in appearance, demands but little skill to manage it, and is as "constant" as its name requires it to be. The fuel used is peat charcoal, which happens to be very cheap. The stove can be used with or without a pipe to carry off the fumes of the charcoal, and when the pipe is not used, the fuel itself is made to absorb the products of combustion. There is no perceptible odour or closeness in a house or chamber in which one of these stoves is kept burning, even when there is no pipe attached. The amount of heat produced is never great, but it varies very little, as a rapid draught is next to impossible. Our observations have been made upon a double case stove measuring 4 feet in height by 1 foot wide. It is used to heat a small fernery, and at the present moment the house is scarcely less green than in summer, and there is not a particle of dust to be seen on any of the fronds. This stove will burn 14 hours without attention, and we believe it might be made to burn 24 hours without being once looked at. But 14 hours is enough for all ordinary purposes.

SAMUEL STAFFORD, HYDE, NEAR MANCHESTER. *Catalogue of Forest and Fruit Trees. Catalogue of Stove and Greenhouse Plants.*—These are in every respect first-class lists—comprehensive, accurate, admirably got up, and the several sections accompanied with valuable suggestions in respect of cultivation and display.

ARTIFICIAL HEAT.

By far the most important agent in the culture of indoor plants is heat. The supplies of light and water are more or less intermittent, but in the absence of heat plants cannot live.

The management of artificial heat has been more misunderstood than any other subject that the gardener has had to deal with. Scientific treatises on heating seem to have been aimed too high, and consequently to have missed their mark, for in my time horticulture had but very rude heating gear. A brick and tile flue, with a rusty door and bars, usually placed in a vault like the dungeon described by Sir W. Scott, "where damp and darkness seemed to strive," was our ordinary heating apparatus; and I must here remark that excellent grapes and pines were grown in houses thus heated, but extraordinary care and attention were needed, for as the flues were over-heated or otherwise, the heat would be sulphurous or ambrosial. I am not, however, going to rake up the embers of all the systems of heating that have come under my notice during the last thirty years, nor am I going to praise or to blame manufacturers.

Well may we admire the pious recluse who inscribed on his sun-dial—

"I only count the hours that are serene."

This text applied to horticulture would set us all on the right track, for unless such plants as the vine can get a certain number of halcyon days, they could not fruit. The great disturber of serenity is wind, but under glass we can easily and effectually exclude that; where, however, this is done it is not all gain, for without a breath of air blossoms are barren of fruit. It is, therefore, much easier to find fault with the wind than to find a substitute for it. A well-managed viney in this country will, for grape-growing, surpass any climate in the world. The artificial supply of heat we give is only to supplement the natural heat; indeed, the sun heat, when bottled up in a glass-house and brought under some sort of control, must be looked upon as decidedly artificial. The culture of alpine plants is positively impracticable on account of the difficulty of imitating their comforts in their native habitats. Under the snow they enjoy dryness and a perfect calm for months, and they are never in darkness, for I remember right well that when the snow-drift had made a clean sweep over my cottage in the far north, there was still a "dim (if not a religious) light" like that of frosted glass, to be seen through the windows. The cold and the dryness that the alpine plants experience is quite constant; we have no such comforts to offer them in our gardens, and the calmness and the light under the snow is perfectly inimitable by anything that we could do. The man who has plodded through life on level ground can form no idea of the serenity of a wintry day in a wood of full-grown Scotch fir trees, as it is seen and felt on some spur of the Grampians. The calmness and dryness during the times marked on barometers as "fair and frosty" are delightful. I have been assured by a gentleman who had spent some years in Siberia that the dryness of the air during the long frosts moderated the severity of the cold; and we have it from those who accompanied Captain Parry that they suffered most from wind and thaws.

The summer treatment of alpine plants is simple enough, generally speaking. Their growth is sudden and their growing season is soon over, and we all know to our cost too well that it is the winter season that tries the skill of the grower of alpine—damp, with its train, or rather its trail of evils, slugs, snails, mice *cum multis aliis*, destroyers all, preying upon the defenceless plant during what ought to be its period of rest: "the pause between the world destroyed and the world restored." Now mark here how beautifully all these evils are fenced off by three or four months of perfect safety under the snow; while they are ruined by one or other of the various forms in which artificial heat reaches them. I recollect once seeing a collection at the Rectory, Trentham, where shutters were so arranged as to keep the sun and rain off, and the plan succeeded admirably.

In using artificial heat to keep frost out of any glass-house, it is of the greatest service for the health and welfare of the plants to have sufficient heating-power to dry the house by day without raising the temperature too much. This of course must be done during the hours that the house can be ventilated. I dare not enter here upon the subject of wintering half-hardy plants, *alias* bedding plants. If plants could be said to suffer cruelly like animals, I should point out to the society for prevention of such cruelty, the London "cold frame," where our summer flowers are wintered under glass, with a foot of stable litter over the glass to keep the frost out. In mild winters the plan succeeds pretty well, but in severe frosts the loss is enormous. As it is, the wind that carries the frost through every cranny, and the damp that predisposes the plant to freeze, it is easy to see that since very dry peat will not take water, it is an excellent material to plunge plants in, where dryness is needed. Hence the success of peat turf-pits with glass overhead, as may be seen in the reserve gardens at some of our most noted show places for wintering such plants as *calceolarias*, and for early spring work.

From the time that the Lancashire gooseberry fancier placed pans of water under his choice bushes that the vapour rising might feed the foliage and so swell the fruit, the vapour theory and practice has been held in high repute; and I need scarcely remark that this "cunning device" has been imitated indoors in all manner of ways. Now I have often wondered what kind of a burning desert it would be in Nature that could yield such vapour as we see raised constantly from hot flues or cast-iron pipes—for the article that produces dry heat is not by any means thereby qualified to produce vapour in a healthy state of plants. The hot dry day with its full glare of light is unquestionably right, but the hot dry night with its darkness is as unquestionably wrong. If we take the vine for example, we have a plant that will bear more ill-usage than most plants, and yet live; but, on the other hand, we have in the vine a plant that tells better than most other plants can do, when it is well used. When a viney has been steaming like a brewer's vat, it will not injure the plants—it may even be of some service, a little better than so much dry heat; but surely this can be no reason why the foliage should not be supplied with colder vapour, just as it would be in nature after a hot bright day. It may be difficult to explain to a superficial observer the difference between a vine leaf after a hot and dry night in a house rightly called a forcing-house, and a vine leaf that has been grown under glass without any fire-heat. There will be a crispness about the leaf of the natural vine that is not to be found in the forced one, and in the early morning the hairs of the natural vine leaf will wear the sun dew like a crown of jewels, and feel stiff as if it had been clear-starched. Whilst, therefore, it may be necessary to sprinkle the walls and pathways fifty times a day to get healthy vapour, the hot pipes should not be sprinkled when

they would raise clouds of steam—when they are only warm, it is quite another matter. The time for a high temperature at night is certainly gone by. On the other hand I may state that exotic plants like the pine-apple will bear, not only with impunity, but with much benefit, a temperature higher than we have generally given them—even an amount of bottom-heat apparently perfectly unnatural has been found to forward their growth and swell their fruit; but such is the rigid character of the foliage of the pine-apple, that we look in vain to its prickly selvaige for nice tests of climate, and I have often thought that the pine-apple got more support from the water stored in its sockets than it did from the few roots and the hatful of soil that it had in the 12-inch pot. If space would permit, I might instance the support that hyacinth flowers get from a glass of water; and the gouty leaves of the American aloe would help my case, as they seem to bide their time till they are big enough to risk the flower and seed business principally on their own account, and certainly without much dependence upon their roots for support. I may have more to say on this subject at some future time.—A. FORSYTH, in "Gardener's Chronicle."

DEATH OF MR. WILLIAM KIDD, OF HAMMERSMITH.

Mr. William Kidd, so long and so well known as a writer and lecturer on song-birds and other domestic pets, died at his residence in Hammersmith on Monday last, in his sixty-fourth year. To record this event is an exceedingly painful task, for the public have lost a useful servant, and the writer of this note has lost a much-valued friend. It seems but proper to speak of the departed gentleman both as to his public capacity and his private character, for the whole of Mr. Kidd's public life was the reflex of the most sacred feelings of his mind and heart; he felt and believed what he preached, and possessed all the love for animals and all the skill in their management which he professed in his works. As a writer he never travelled beyond a certain limited range of subjects, but within that range he was a master. His "Book of British Song Birds" is not only invaluable for its natural history and sound advice on the proper management of caged birds, but enjoyable for its fine poetic tone, its racy anecdote, and the fresh, original, sparkling style in which it is written. If Izaak Walton's "Angler" is worth reading by people who do not catch fish, Kidd's "Song Birds" is worth reading by people who do not care to distinguish between the chirp of the sparrow and the song of the nightingale. The book is rich in its humanity, bright with sallies of wit, and graceful everywhere with its adornments of fancy, to justify this praise of our dear departed friend. Here is an extract, taken almost at random from his description of the skylark:—

"To enjoy thoroughly the notes of the skylark, and to estimate his capabilities as a bird of song, you must rise early. Early rising is essential to health. Nobody will deny that. So that we have two valid and cogent reasons for quitting the pillow betimes. Whilst we write (and it will be the case for some time to come), the birds hold their matins at 3 a.m., these continue till half-past 4. The choristers then cease to sing in concert, and each improvises a melody of his own, varying it as he pleases. We only ask you, good people, to rise *ones*, and listen to the voices of the birds at the hour we have named. *If you have a heart*, you will not require to be 'called' on the morrow, to enjoy a second benefit. You will, rather, lie awake, anticipating what is in store for you. To hear the birds warble their Maker's praises, would undoubtedly set our hearts in tune—were they not, alas! made of such impenetrable material.

"The skylark takes his stately steps among the wet grass at early dawn. Bedabbled with dew (his eyes sparkling like diamonds of the purest water), he rises gently on the wing, exercising his voice in sweet undertones before bursting into full song. Then does he warble forth a lay of love to his heart's idol, and address himself at once to Heaven's gate—there to do homage to his great Creator.

"See how he rises, high on the wing, determined for a season to lose sight of all below! Upwards he goes! And what sounds are those which descend and ravish our delighted ear—every note different, yet all breathing the purest melody!

"His heart is full of love. It overflows; and the benefit distils upon us:

Higher still, and higher,
From the earth thou springest
Like a cloud of fire;
The blue deep thou wingest,
And singing still dost soar, and soaring ever singest!

"Now he has entered upon brilliant cloud. He seems nearing the sacred precincts, the fond object of his flight. His voice is softer. The strains are those of a seraph. He is lost to sight!

"We listen—all is hushed—he is worshipping!

"It is now time for us to retire; and as we retrace our steps, let us each take a sweet morning lesson from this aspiring bird. 'Upward and onward!' be our motto."

It is unnecessary to speak of other products of his pen, except to say that he was a contributor to several periodical works, amongst them the "Gardener's Chronicle," the "National Magazine," and "Recreative Science," and that he published a journal of his own, bearing his own name, which was the delight of naturalists, and one of the most original periodicals ever produced.

In his private character he was all that a reader of his works would have expected. He was more. The fine humanity which pervades his writings was no mere abstraction; it exhibited itself in all his acts and conversations in the form of a deep and reverential love, having for its foundation the spirit of true religion. Joined with this he had a fund of humour and a capacity for *abandon* truly remarkable. There could be no dulness after William Kidd had joined a social party, and the more especially if there were young people present whom he could entertain with his comical descriptions of sparrows and pigeons, illustrated by performances that are quite indescribable, and by witticisms that were as original and sparkling as the best efforts of his pen. In the treatment of "feathered pets" he was a perfect magician. He could tame a screaming parrot by a few gentle passes of his hand, which in his comical way he called "mesmerising;" and he would take small birds out of their cages and kiss them, and they would appear to know him at once, and sing in his hand, though never having seen him before. These feats, and others equally remarkable, he has performed in the house of the writer, but he did not know they were feats—it was so perfectly natural for him to be on familiar terms with birds; indeed, he had a number of bird acquaintances that had never been in cages, and that used to come at his call as he walked about his garden, and take food from his hand.

But all this is as nothing to the goodness of heart that governed every action of his life. He had but few prejudices, and those were pardonable, for they wore the apparent results of some peculiar views he held in regard to the ultimate happiness of the human race. He was no sectarian, but a thorough hater of sectarianism; but he aimed at realizing what he conceived to be the highest form of practical Christianity, and from his faith derived guidance and courage and consolation. William Kidd is no more; the ripe fruit has fallen from the bough, and has been gathered home in peace and safety. Mr. Kidd has left a widow to weep at his grave. If ever a public writer was aided in his labours by good wifely counsel, wifely affection, and those home comforts which only a wife can secure, and which a man of his temperament could highly appreciate, then was our friend, and we through him, indebted in some part to Mrs. Kidd for the good accomplished in the course of his honourable career by William Kidd, Esq., of Hammersmith. S. H.

PRUNING THE VINE.

[The following paper is reproduced from the GARDENER'S MAGAZINE of Feb. 7, 14, and 21, 1863, in obedience to requests so numerous and so pressing that we have no alternative but to comply. It is hoped the roughness of the cuts will be excused; they are the same as were used in 1863.]

It has been our lot sometimes in the way of business, and sometimes for pleasure, to visit a great many large and small gardens in various parts of the country, and while even in the great places the vinerics are often a cause of extra anxiety, and sometimes are a failure, in the small single-handed or two-men places, we must candidly confess that if there was a weak place in the management, it was generally found in the VINERY.

No doubt in many cases there were valid reasons why this should be; sometimes a bad border made by a blundering predecessor, at others the limited amount of glass obliging the man to grow plants to the injury of the vines; but let the young gardener remember that this should never be done when it can by any possibility be avoided, for however pleased the employer may be with the fuchsias and gloxinias, yet the time will come when he will naturally go to the vinery for grapes, and no plants or flowers will compensate for their absence.

But there are some places where none of these excuses can be made—where the gardener made his own border—where there is no necessity to grow plants in the vinery—where the employer has not stood for expense, and after all has only been rewarded with "little miserable, discoloured bunches." This is no fancy sketch, but what all of us have seen somewhere or other—men calling themselves gardeners, yet failing, because they do not understand the management of the vine after all that has been written on the subject.

If then the professional, whose whole time and attention should be concentrated on his business, finds vine culture attended with many difficulties, how much more shall we excuse the amateur if he frequently finds himself in a fix, and appeals to the editor of his gardening periodical to help him out of it; and the great question now forcing itself upon us is, "How shall I prune my vine?"

This problem might be tolerably easy of solution if we could have a look and see how each patient has been treated during the past summer; but as that is impossible, we must try and make our instructions as plain and explicit as we can.

For instance, we last May made the acquaintance of a City gentleman who has a nice house and garden ten miles from London. Everything outdoors was well managed by a labourer, but the greenhouse was managed by the owner himself. He told us he "could not think how it was, the vine made a vigorous growth every year, and yet the fruit was always small, and not worth eating." We promised to look in once a week, and if possible find out the reason, and it was not long before it turned up. We walked down the garden one fine summer's morning, thinking, "Well, I suppose the grapes are as big as peas, and the vine will want stopping," and carelessly opened the greenhouse door, when, to our horror, we found the vine had been stopped at the first joint beyond the bunch, and every fruit-bearing shoot stripped of its leaves. Here was a reason with a vengeance. We expressed our dissent in no very measured terms, and were at once met with, "Well, I did not know any better." We promised to help him out of the scrape on condition that he did not touch them again, and the result was that laterals started from almost every eye, and were trained to again clothe the shoots with leaves; the berries soon began to grow, and ultimately there was a nice crop of Black Hamburgs, pronounced "quite a credit to an amateur."

Again: we know another greenhouse built last March, the aspect due east, and shaded on the south-east by a large villa, and on the south end by large trees and shrubs, yet considerable expense was incurred in making a vine border. Vines were planted, and although they were as green at the end of November as they were in July, the owner still thinks he shall get a few grapes next year. He is only a young beginner, and does not know that with such an aspect and with such wood it is next to an impossibility.

We will therefore suppose that the grapes are all cut, the leaves are all off, or come down at any time we like to shake the vine, that the young wood is the colour of cinnamon nearly to the end of the shoot, and whatever the previous training there is something to come out. Now we will take first the vines planted last spring; some have planted small canes not stouter than a good straw; if properly managed, these were started from a bud near the ground, and if in congenial soil, &c., will have made a shoot from 6 to 12 feet long; if only 6 feet, and perhaps part of that rather green and yellow some distance from the end, cut it down again to the plump bud you can find from 3 to 6 (Fig. 1) from the bottom; better to wait another year than irretrievably ruin your vines. But remember, once for all, although it is necessary to rub off the other buds, and train but one shoot, yet it must not be done until the shoot is fairly growing in the spring, for it sometimes happens that a shoot gets rubbed off accidentally, and if there is none to replace it the vine is spoiled.

But perhaps your vine has taken to the soil, and made a shoot 12 feet or more long, is at least as thick as your finger, and well ripened; if so, it is what a nurseryman would call a "good fruiting vine." But it is now absolutely necessary to inquire what sort of a house the vine is in. Suppose it is in a greenhouse where plants are required to be kept nearly all the year round, then your vine will have been introduced under a rafter, and must be kept there, and if more than one cane is required, a plant to each rafter is best, but there may be reasons why several cannot be planted, and one vine is to cover each rafter; if so, the vine must be pruned just at the bend, Fig. 2, a, the bud marked 1 to go up the rafter, and 2 and 3 right and left. The lower buds should be rubbed off, or they will grow and spoil the plants on the front stand; but suppose there is a strong young vine to every

rafter, then, if impatient to have fruit, cut it six eyes higher up, but remember that is not the way they get the large bunches we see at exhibitions; and as we are constantly asked "How do they manage?" we cannot do better than explain here. At the Crystal Palace show of Fruits and Flowers last autumn, was a bunch of grapes perfect in size, shape, and every property, weighing over four pounds, and in every way "better than a picture." It gained a first prize. Now the gardener who grew that held in his hand in the spring of 1861 just such a vine as we have under consideration—a fair-sized fruiting vine from a respectable nursery; he planted it into a bed (or "border" as the rooting place of vines is always called) specially prepared, introduced it into a vinery, and instead of having fruit from it, cut it back low down; soon the roots got hold of the good things provided for them, and in the autumn he had a splendid long rod reaching to the top of the house, which if cut back to ten eyes from the bend, would have carried ten good bunches of grapes, or twenty medium ones if left longer. But a few bunches



Fig. 1.

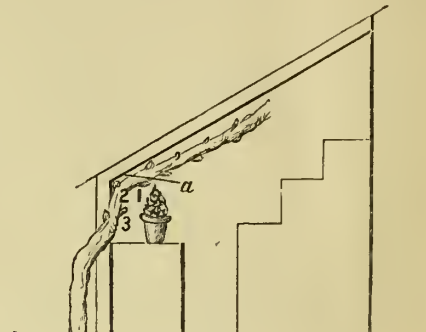


Fig. 2.

of grapes was no object, for he had plenty, and he also knew that it *always pays to wait*; so as he wanted a good bunch, he cut it back to a in Fig. 2, preserved one bunch and shoot, and had, in addition to a prize bunch, a rod that went to the top of the house and nearly down again, so that next year he will have a double row of bunches hanging from this, probably from two to four pounds in weight, and doubtless has another strong vine ready to bear its one bunch for exhibition.

We will now suppose that we have a vine under each rafter, and that some are intended to be cut as at Fig. 2, and others ten buds higher up. Of course our readers will at once see the propriety of cutting back the weak ones and leaving the strong, for it is only on those they can hope to get a dozen bunches of good grapes; and we would especially urge our friends to study the vines rather than an uniform appearance, and when it is not strong be content with six good rather than twelve insignificant bunches.

We must now consider the case of another class of inquirers—those whose vines are a year older, and who have had fruit this season. Now if they

have determined to grow on the rod system, a cane has been trained up the middle of the light from the front of the house (Fig. 3, B); if the rod has reached the top of the house, and is thoroughly vigorous and well ripened, then cut off the bearing rod at A, Fig. 3, and train the rod B in its place, cutting back

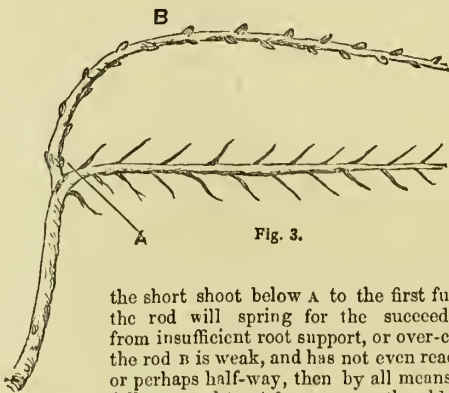


Fig. 3.

the short shoot below A to the first full round bud, from which the rod will spring for the succeeding year. But suppose, from insufficient root support, or over-cropping, or both together, the rod B is weak, and has not even reached the top of the house, or perhaps half-way, then by all means cut it back to the lowest eye, and trust for a crop to the old wood.

We have thus, in as simple a manner as we know how, given our readers an insight into *one way* of growing grapes; and while in vine culture it especially behoves us to "speak well of the bridge that carries us safe over," and we confess to having grown good grapes on this system, yet we do not follow it in general practice. We will state the advantages of the "long rod" system, and why we object to it. The first advantage is its extreme simplicity. The merest tyro cannot err—two strokes with a firm hand and sharp knife settle the business, and the pruning, about which folks are so nervous, and over which many old gardeners are so mysterious, is accomplished.

The second advantage is that if you get a good rod you are *sure of a crop*. Some of our readers will at once say, "Well, what more do you want, and what can there be to object to?" Now, unreasonable as it may appear, we certainly have two, to us, serious objections, and the first is that the rod shuts out a great amount of light while growing. In the regular vinery a due amount of shade is a *sine qua non*, but it should be produced by the foliage of fruit-bearing shoots, and not from laterals, rods, or anything else, more than can possibly be helped; but in the greenhouse or orchard-house of the amateur, where plants are to be studied as well as vines, any system that increases the shade is to be much deprecated, and even if the vines are to be trained under every other rafter, the objection still holds—the vines cover nearly *twice* the space they need. Our second objection is that the long strong rod is too frequently grown at the expense of the *existing crop*, and we believe this is the reason why nearly all our old and experienced growers have abandoned it. However well grapes may be grown on the rod system

here and there, our experience has been that with an ordinary crop, if the bunches have been large, the berries have been but medium-sized, and very frequently deficient in colour, thus proving that we were asking the vine to do too much; for when fruit that ought to be black is red, we shall nearly always find that it lacks other good qualities, and thus is very frequently watery, and comparatively flavourless.

The question therefore arises, can we not by a different system of pruning concentrate the strength that goes to form the rod into the fruit, so that we may get large, well-flavoured, good-coloured fruit. And this brings us to consider the "spur system."

This consists in cutting back the bearing wood to the last full round eye, or bud, half an inch to an inch from the main stem (A, Fig. 4). This plan answers very well for some time, and produces at least as good grapes as the long-rod system, without the objectionable shading, and is extensively practised among amateurs and gardeners in small places. But however careful the operator may be to "spur close," in the course of four or five years the old spurs form a zigzag, gnarled, unsightly mass, projecting at least two, and probably three inches from the stem; and these contortions and decayed stumps appear after a time to obstruct the passage of the sap, so that some of the spurs break very weakly, or refuse to break at all.

The usual and best mode is, when the spurs show signs of failing, to obtain a rod, as in Fig. 3, B, cut out the old wood at A, and start afresh. By this combination of the two systems, tons of good grapes are grown every year.

There can be no question but that old vines on the "spur" system present a heavy, cumbersome appearance when compared with a system which we will now consider, and which for simplicity we will call the "close-pruning" system. One method of keeping the old spurs "nearer home" is that the vine will frequently break back in the spur, sometimes pushing a shoot through two or three year old wood at the base or "collar" of an old spur; and wherever this occurs the pruner cuts the spur hack to this shoot, and thus gets rid of a year or two's ugliness. It is very probable that many gardeners, having pruned a vigorous young vine hack to the first bud or eye on the spur system, found the vine not only broke there, but also threw our shoots from the base or "collar" also, and that these shoots bore fruit, thus suggesting to some of them the idea of pruning "close," and getting rid of the spurs altogether. If a vine is carefully examined, it will be easily seen that at the junction of the young wood with the old there is a rim or collar, and that it is studded with embryo huds (see Fig. 5, A). Now the ordinary

old and unsightly spur; and, secondly, the system, like every other, has been injured by blundering disciples. For instance, in one case, a gardener who had been a successful exhibitor of grapes in a local horticultural society north of London, after seeing the Stortford vines, went home and cut off five-year-old spurs close to the stem, and of course, as there was no collar and embryo eyes to cut to, achieved a failure. But our readers must remember that they must close-prune at once, and if they have old vines with massive purblind spurs, they must get some young rods from the bottom, and close-prune for the future.

We have thus reviewed as simply as possible the principal methods of PRUNING the vine; and if we have a partiality for the latter plan, it is because it usually gives us several shoots with fruit on to select from, instead of being confined to one, as in the spur; and also because it saves time and trouble in the winter cleaning and dressing, for it is next to impossible to get the dead bark and wood out of the old spurs. But the intelligent cultivator will, if he has many vines, probably try all plans, for vines are planted not to bolster up systems, but to grow grapes; and he is a good gardener who gets good grapes, no matter what system he has adopted to obtain them.

Calendar.

WORK FOR WEEK COMMENCING JANUARY 12TH.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—There ought not to be now a single square yard of unoccupied ground that has not been deeply dug since the last crop was taken off. Deep stirring and successive frostings of the soil are immensely beneficial, and there will never be much success in the culture of edibles where there is any fear of hard work in winter. The outdoor work of this month must be regulated by the weather. When the ground is not fit to be trodden on, get together all the clippings of hedges, prunings of trees, &c., &c., for charring, and keep the produce under cover to use as useful; it is a most valuable top-dressing for peas and other early crops, both to stimulate growth and prevent attacks of slugs. During frost wheel out dung, ready to dig in at the first opportunity. Sow during fine dry weather, Sutton's Ringleader, Dillstone's Early, and Sangater's No. 1 peas, Mazagan, Longpod, and Beck's Gem beans, Horn carrot, and Hollow-crowned parsnips. We have found of late years that parsnips sown at the end of January make very heavy crops, and are rarely hurt by frosts; and if they do happen to be cut off by frost, there is still time to sow again, and the loss of the seed is a very trifling matter compared with the chance of a heavier crop.

ASPARAGUS PLANTATIONS to be marked out at once, and the ground dug two apits deep. A light sandy loam is the best soil for asparagus, but a soil almost wholly sand will be better than one wholly clay, because when heavily manured the sand will suit it admirably, but without plenty of manure will be useless. In a deep fertile loam a moderately heavy manuring will suffice, and the manure should be well mixed with the staple at least two feet deep. In any case the piece must be thoroughly well drained. If asparagus must be grown on a clay land, lay on six inches of sand or coal ashes, and dig this in to a depth of two feet, mixing it well with the soil, and let the ground rest a fortnight, and then dig again and liberally manure. If it is intended merely to sow for transplanting, a good manuring one full spade deep will suffice, if the second spit was previously stirred at a winter digging.

CAULIFLOWERS are apt to die off now unless kept dry; a little peat-dust will be useful to sprinkle amongst them where they are suffering from damp. Dry sand and wood ashes may be used for the same object. If the plants are crowded, they will only kill each other, so thin at once if necessary.

CABBAGE of all kinds may be sown on a warm border. The most useful to sow now are Shilling's Queen, Early York, and Roaette Colewort.

MELONS AND CUCUMBERS in the forcing pit to be kept carefully trained about nine inches from the glass, to be regularly stopped, and at a temperature of 70° by day and 60° by night. Sow now for plants to hed out in frames and pits, and for succession in the early forcing house. Our favourites for this season are—of cucumbers: Sutton's Berkshire Champion, Telegraph, Hamilton's Market Favourite, Carter's Champion, Lynch's Star of the West, Kirklees Hall Defiance, Butler's Empress Eugenie; and of melons: Beechwood, Carter's Excelsior, Cuthill's Scarlet Flesh, Egyptian Green Fleah, Trentham Hybrid, Turner's Scarlet Gem.

CUCUMBERS managed as advised in the calendars of the last few weeks will now be coming forward for bedding out. They should be kept in the house till they have filled 48-sized pots with roots, and then be planted. If kept any length of time starving in a pot-bound state, they will become infested with red spider, and weakened in constitution. When ready to plant out, the bed should be in a sweet condition through occasional forking over of the dung. The bed is to be made by laying some strips of turf, grass side downwards, in the centre of each light; on this put three or four bushels of soil in a heap, consisting of loam from rotted turves one part, leaf-mould one part, and dung rotted to powder one part. The third day after putting on the soil, put the bulb of a thermometer into the hillock, and if it registers 70° to 80° plant at once, if higher than 80° wait a few days longer. A fair average to start with is 75°. Plant in the centre of the hillock, and peg down the runners regularly, and shut close. In the course of a few days give air cautiously to let off any rank steam, and sprinkle the leaves frequently, but give only just enough water at the root to keep the soil moist until the plants have made a start. Choice sorts may be kept on from cuttings, to avoid the risk of deterioration. Plants that have been in fruit during the winter will furnish cuttings for succession, if the sorts are approved of for the purpose. Give air to plants in frames as often as the weather will permit. During mild weather, a little air may be left on all night, with a mat over the opening to prevent too cold a draught.

COLD FRAMES AND PITS.—Do not be in haste to remove protecting materials after a long frost. Let the plants recover themselves in the dark, and should bright sun follow suddenly upon severe weather, add some loose straw, to prevent the warmth reaching the stock too suddenly. Remove all dead leaves, and give plenty of air in mild weather.

Flower Garden.

IMPROVEMENTS AND PREPARATIONS.—We cannot advise the planting of evergreen shrubs at this season, though we confess to doing it ourselves; and seeing it done by everybody else. It would be much better for the trees to be content now with marking the places where they are to go by

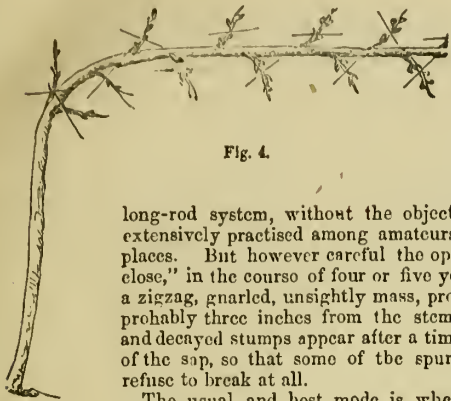


Fig. 4.

long-rod system, without the objectionable shading, and is extensively practised among amateurs and gardeners in small places. But however careful the operator may be to "spur close," in the course of four or five years the old spurs form a zigzag, gnarled, unsightly mass, projecting at least two, and probably three inches from the stem; and these contortions and decayed stumps appear after a time to obstruct the passage of the sap, so that some of the spurs break very weakly, or refuse to break at all.

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systems, tons of good grapes are grown every year. There can be no question but that old vines on the "spur" system present a heavy, cumbersome appearance when compared with a system which we will now consider, and which for simplicity we will call the "close-pruning" system. One method of keeping the old spurs "nearer home" is that the vine will frequently break back in the spur, sometimes pushing a shoot through two or three year old wood at the base or "collar" of an old spur; and wherever this occurs the pruner cuts the spur hack to this shoot, and thus gets rid of a year or two's ugliness. It is very probable that many gardeners, having pruned a vigorous young vine hack to the first bud or eye on the spur system, found the vine not only broke there, but also threw our shoots from the base or "collar" also, and that these shoots bore fruit, thus suggesting to some of them the idea of pruning "close," and getting rid of the spurs altogether. If a vine is carefully examined, it will be easily seen that at the junction of the young wood with the old there is a rim or collar, and that it is studded with embryo huds (see Fig. 5, A). Now the ordinary

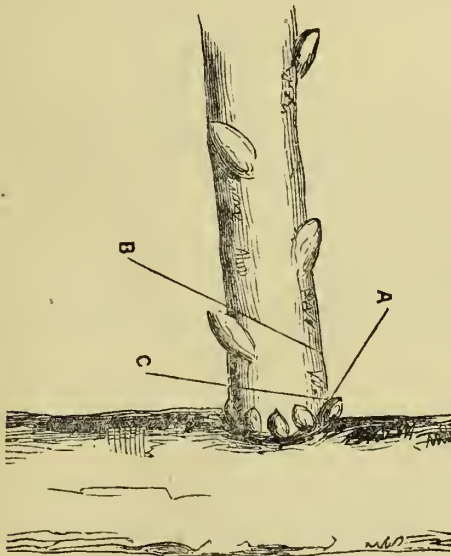


Fig. 5.

method of treating a young vine as there represented would be to spur it at B; but on the "close" system it would be taken clean off at C, close to the old stem, and nothing left but the embryo huds in the collar, and the closer it was cut without injuring them the better. In the spring, if the vines are healthy and vigorous, you will have from two to four shoots from each collar, and with many sorts the difficulty will be, not to get grapes, but to cut off and throw away as many bunches as you leave on the vine. We have pruned on this system for some years, and with unvarying success, as regards the different varieties of the Black Hamburgh and its allies, and the finer sorts of Sweetwater; and no doubt Mr. Rivers of Sawbridgeworth could in half a minute give the names of half a score first-rate growers who prune on this system; but it is sufficient for our purpose to get one illustration from his neighbourhood, and that shall be the vines of — Nash, Esq., of Bishop Stortford. Twelve or fourteen years ago, the grapes from these vineries carried all before them at the Chiswick shows of that day, and their fame was deservedly spread all over the country. We had the pleasure two years ago of seeing the same vines (as well as many others within a few miles of the same place) after at least ten years' close pruning, and saw a house of grapes that might be equalled, but could not be excelled; double rows of massive bunches hung from bottom to top of every rafter as regularly as though they had been tied on, and the gardener said he had taken off two bunches for every one left. The reason the system is not more generally adopted is, first, a want of confidence; the operator looks at the full eye on the spur, and then at the buds at the base, and makes up his mind that it is impossible that fruit can come from those little things, and so sticks to the

stakes, and leaving them untouched till April, when the shift will distress them less, and they will commence to make new roots immediately. This plan allows of the planting of deciduous trees and the finishing of all the rough work in laying out a shrubbery, and it may even be carried so far as to the making of the holes for the evergreens, laying the stuff taken out in heaps beside them to get completely pulverized for filling in. Every cultivator of flowers should secure now a good supply of turf from a loamy pasture, and of bog peat, or silky yellow loam in which the common brake grows plentifully. These should be stacked up in high ridges like walls, so that the frost will penetrate the whole mass, and the grass will rot quickly. Manure roughly spread among choice shrubs will assist in protecting their roots from frost. In spring the manure can be levelled, and all rough stuff raked off. This is a good time to make banks and rockeries, as during frost the wheeling can be done without harm to the walks.

Roses required to bloom early should be pruned now, but it is too early to prune the general collections.

DAHLIAS.—Now is a good time to get the ground ready, where these are to be planted out, by deep digging and ridging up, to have it sweet and pulverized when they are planted out in May.

HOLLYHOCKS.—Seed sown now, and placed in a moderate heat, will produce plants that will flower this year. There is only one caution necessary, and that is to beware of forcing them along too fast. We have known many instances of the plants perishing when about to open their blooms through too much stove heat in the first period of their growth. Shift from the seed-pans as soon as large enough to handle, and use a light rich soil.

AURICULAS.—Water very sparingly, keep the foliage dry, remove dead leaves, and guard against cold cutting winds. Give air at every favourable opportunity.

CARNATIONS and PICOTEES.—Keep them as hardy as possible, by taking off the lights whenever the weather permits. Much moisture would now do much mischief, but they must not get dust-dry. Turn up a few plants occasionally, and see if aphid has attacked them.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Pruning ought to have been done and the ground cleared long ago. If not, set about it at once, for in the hurry of the general spring work, the huds may swell before the knife has finished its work, which is injurious. Trees on east walls had better be unnailed till the end of February, to keep them hack. Manure between the rows of currants, gooseberries, and raspberries.

VINERY.—Cover outside borders with a dry material. Set the first house at work at 45° to 50°, and increase the heat a little when the huds have fairly opened. In late houses paint the stems with a mixture of soap, sulphur, and soot, and give walls, rafters, and trellises a general cleaning before the vines begin to work.

PINERY.—Great care must be taken at this time of year to prevent injury by damp and sudden fluctuations of temperature. As we have now little sun, the general stock must be kept quiet by a moderate temperature. Young suckers potted off in the autumn will require a steady bottom-heat and air at all favourable opportunities. Day temperature for plants swelling fruit 75° to 80°, night 65°. Shift to fruiting-pots all the strong succession plants.

Greenhouse and Conservatory.

GREENHOUSE.—Hard-wooded plants must have fire-heat during frosty weather, but it must be given with caution, and must not rise above 40° at night and 50° by day. Hang strips of worsted netting over the ventilators to break the force of cold winds; this will allow more air to be given. Soft-wooded plants may be set going pretty freely, but be very careful not to have too high a temperature, which is most exhaustive to the plants. Examine all the old stakes used as supports to plants in pots, and if decaying remove them. The appearance of fungus on the part buried in the soil soon leads to the destruction of the plant, by contact of the white threads with the roots. Train and tie out whatever requires it; revise tallies and labels; keep down green-fly by fumigating; and complete all odd jobs, so as to have no hindrances to spring work when this month is over. Thermometer, 45° on an average, varying from 35° by night to 50° by day.

CINERARIAS.—These will damp off at the collar, or lose their foliage, if any accident occurs to touch them with frost or excess of moisture. This is the critical moment for them. Keep down mildew by the use of sulphur and admission of air. Remove decayed leaves, and tie out large specimens. Those showing flower may be put on a warm shelf; but the cineraria dislikes heat as much as it does frost.

PELLARGONIUMS.—Many will probably want repotting, which must be attended to. Select the plants intended for special purposes of exhibition or decoration, and give them plenty of room near the glass, and a temperature of 50° at night and 60° by day. Water with great care, and give air whenever the temperature outside is not lower than 32°. Those for summer blooming will do best at an average of 45°, but young plants that are not over-strong should have a warm place.

CALCEOLARIAS.—Herbaceous kinds that are pretty forward should be repotted, and have a little extra warmth. Shrubby ones will require stopping, but will do better in the ordinary temperature of the house. Green fly is sure to appear now, and must be checked in good time.

CAMELLIAS.—As they come into flower, treat them liberally. Keep the foliage clean with the syringe, or sponge dipped in tepid water. Keep them from fire-heat as much as possible. Azaleas treat the same, but give a little heat to those wanted early in bloom. Remember that sudden changes of temperature, exposure to dry heat, or too copious supplies of cold hard water, will cause the bloom-buds to drop. Force gently, and proportion the supplies of water to the condition of the plants. All hard-leaved plants, such as camellias, oranges, &c., should have their leaves sponged with tepid water.

NEARLY HARDY GREENHOUSE PLANTS.—These are invaluable to amateurs who are much away from home. First amongst them we place the Camellia. After this grandest of flowering shrubs, we have the Bottle-Brush, with its brilliant feathery plume of richest crimson, which only needs protection from the severest frost; the Cytisus, brilliant with gold in the early spring months; the Corydalis, which ten degrees of frost will not kill; the shrubby Veronicas, blue, lilac, red, needing only to be protected from the severest froons of winter; the lovely Plumbago capensis, with its thousands of turquoise-like flowers; the Chinese Primula, so nearly hardy, and now in flower delightfully; the Cyclamen Persicum,

lovely as sweet sixteen in its rosy blushes, and fragrant as the may; Epacris and Ericas, if we can only keep them from being soddened with damp; Azaleas in endless variety; Fuchsias, most shamefully neglected; and a few Ferns, such as Adiantum cuneatum, Asplenium bulbiferum, Davallia Canariensis, Nephrolepis exaltata, Pteris serrulata and cretica, Platyloma falcata, and Doryopteris sagittifolia. To make up the furniture, we can have zonal geraniums without end, for they will stand six degrees of frost without harm if dry and dormant.

Stove and Orchid House.

STOVE.—Be careful to keep down the temperature in general collections, and give air whenever the sun causes the thermometer to rise above the average. Plants that need pruning and repotting should be cut over, and left to start, before their roots are disturbed. Thermometer, 55° at night, 65° by day.

ORCHID HOUSE.—Prepare for potting as the season advances, and have all necessary material in plenty, and in a clean state. Chopped sphagnum, soaked in boiling water and put aside where no insects can get to it, fibry peat in blocks, crocks broken to three or four sizes, of which that nearly of the smallness of dust will not be the least useful, and good charcoal from which the dust has been sifted. When the plants are to be shifted, immerse them in tepid water one day previous, so as to wet the ball thoroughly. After repotting, fix the plants firmly to prevent rocking over, and place them in the warmest end of the house to encourage growth at once. The repotting should take place just as they are about to grow. The general collection must be kept in plump condition by sprinkling the floor of the house frequently, and at the same time allowing a slight rise of temperature. The syringe should be very sparingly used this month, but as the month advances there will be an increase of light, and a general tendency to growth will become evident. Brassias, Cyenoches, Cologynes, Miltonias, Sophronites, and Coryanthes are now beginning to grow, and may be shifted if needful. This is a good time to increase by division of the pseudo-bulbs any large specimens that are quite at rest. Dendrobiums are increased by cutting the old hulbs from the plant when they are at rest or just starting into growth, each piece being removed with a few roots attached, in the same way as an auricula offset. Old flowering hulbs, cut off without roots and laid on sphagnum in a warm and shady part of the house, will in time throw out roots, and may then be potted. After potting, keep warm and shaded, and give very little water until growth has commenced. Cattleyas for specimen culture should now be operated upon to produce "backbreaks." The process consists in cutting the plant in two between the hulbs; that is to say, there is to be an incision made, but not to separate the parts cut. After making the cut, let them remain in the same place; be careful that no water lodges in the cut, but supply plenty of atmospheric moisture, with a rise of the temperature. This will secure the formation of several flowering hulbs for the next season. Orchids newly received from abroad should be pushed into growth very gently. Epiphytes should be attached to their hocks at once, and should be hung head downwards; when they begin to grow, reverse them.

Literature.

The Intellectual Observer. Groombridge and Sons.—This elegant and ably conducted monthly is not only as good as ever, but in some respects better. The January number contains a beautiful coloured figure of the "Bell Bird" of tropical America, to illustrate a paper on the subject by Dr. P. L. Selater, Secretary of the Zoological Society of London. Another plate is occupied with life-like portraits of Zulu Kaffirs, and there is a most entertaining paper on Kaffir capabilities, by Dr. Mann. There are two papers on the Meteors of Nov. 13, 1866—one by the Honourable Mrs. Ward, the other by Mr. A. S. Herschel. Mr. Proctor contributes on the planet Mars, the Rev. T. Webb on Lunar details, and there are papers by Messrs. Rye, Birt, and others on results of scientific observation.

The Floral World and Garden Guide. Groombridge and Son.—The January number is full of variety, and is embellished with a large and beautiful figure of a rockery. The principal articles are on the Rockery, and Plants adapted for it; the Auricula; the Raising of Sub-tropical Plants from Seed; the Cultivation of Seakale; the Cultivation of the Chrysanthemum in Pots; Planting Strawberries in Spring; and a lively controversy between the O'Shane and Mr. Williams, of Ormskirk, on hardy herbaceous plants.

The Gardener. W. Blackwood and Sons.—This is a continuation of the *Scottish Gardener*, under the able editorship of Mr. William Thomson, of Dalkeith. The work has a very neat appearance, and the number before us is rich in variety, and is admirably done. The Editor contributes a paper on Flower Gardens, in which he dwells with persuasive force on the superior merits of beautiful and interesting features over mere gaudy displays of colour. Mr. McNab contributes an important paper on Pruning the Deodara. There is a commencement of a practical series on Strawberry Forcing; and a capital paper on Drainage. The Gleanings of the Month and the Notes on New Plants admit of improvement.

The Journal of Botany. R. Hardwicke.—Dr. Seemann does not contribute anything to the January number, but the Editor's absence is well compensated by Mr. Carruthers, whose able paper on Gymnospermata fruits from the secondary rocks of Britain is illustrated by four admirable lithographic plates. This is a charming paper alike for botanists and geologists.

The British Workman.—The Band of Hope Review. Partridge.—Few among the many periodical works sent us afford more pleasure than do the annual parts (they can scarcely be called volumes) of these two peculiarly attractive and entertaining broadsheets. The first is addressed to adults, the second to youth; the object of both is to promote temperance, good feeling, enlightenment, and practical piety. In carrying out his object, the spirited and amiable Editor does, we think, occasionally indulge in excesses, and make serious mistakes, but in a world where imperfections abound, we may forget the few scarcely visible blemishes of these works, and praise them with all our might for their conscientiousness of spirit, their wholesome variety, and their exceeding beauty. We talk of guinea volumes and first-class pictures, and in these penny sheets we find pictures equal to anything in the costliest issues of the press. Look for example at the reproduction of Mr. Fitzgerald's picture of "Independence," and is there anything to bent it in the way of wood engravings in the most pretentious publication of the day? Look again at Mr. Harrison Weir's

pictures in the juvenile book; the swan, for example, sailing before the wind with all the poetry of easy motion, and innate grace and dignity expressed by artful touches of the pencil. We do confess that we are astonished at these pictures, and we advise all our readers who are not possessed of them to order the parts of each work for 1866, and keep them on the table for a month or two to spread delight, and diffuse knowledge amongst all who see them. With each of these works is issued a sheet almanac, and these are superbly adorned with pictures; "Running down Hill," in the Band of Hope Almanac, really appears to be too good for the purpose; many a one will no doubt carefully eat it out and mount it in a serap book.

Old Jonathan. Collingridge.—The part for 1866 is equal to any of its predecessors, and in respect of illustrations somewhat in advance. This penny monthly broadsheet is well adapted for gratuitous distribution among the poor, its primary object being the spread of Gospel truths, and to mingle instruction with amusement for readers of all ages. It is peculiarly rich in anecdote, and is everywhere fresh and lively with lessons drawn from stirring events, and home truths inculcated by means of homely examples.

The Ladies' Magazine. 3, Amen Corner.—Mrs. Warren seems determined to leave no room for rivalry, by making this so admirably adapted for the entertainment of the women of England that they can have no alternative but to subscribe to it, and enjoy the intellectual treat it offers them. There are of course numerous papers and pictures elucidating the fashions and all sorts of fancy work, and there are original gatherings of facts and suggestions for every department of the household, but besides these things there is plenty of solid reading, such as to constitute the "Ladies' Treasury" a valuable family book. It may interest many of our readers to learn that in the January part there is a good account of the celebrated Arteaian Well of Grenelle, at Paris. The paper on the Theory of Dreams is original and profound. With this number is given a large coloured print representing a group of flowers. We could have wished the cost of the coloured print had been in some way expended on the pages of the magazine, for prints of this kind are of little use except to amuse for a few minutes, but a good woodcut illustrating a good story or bright essay, remains as a means of teaching and amusement for ever.

Our Own Fireside. Macintosh.—The January number of this excellent monthly is greatly in advance of former issues. It is the same in tone as ever, having for its object to refine and elevate its readers, and to display the breadth and beauty of religious truth. But there is more variety than heretofore, and more originality. We welcome the good-hearted Mrs. Ellis as the contributor of a story and some poems called "Songs of the Garden." Among the specially attractive articles there is a sketch of the Franklin Expedition to the Arctic Regions; a capital collection of Anecdotes of Dogs; and light sketches by the Rev. R. Maguire, Rev. S. Wainwright, and the editor, the Rev. C. Bullock.

The British Juvenile. Job Caudwell.—A new venture in the broadsheet style, very pretty, the matter admirably selected, the illustrations pleasing and appropriate.

The Gospel Magazine. Collingridge.—It has escaped our memory till now that the readers of the *Gospel Magazine* a short time since presented the editor, the Rev. D. A. Doudney, Incumbent of St. Luke's, Bedford, with a testimonial on the completion of the first centenary of the magazine, which was originally established in January, 1766. It is not the common fate of periodicals to live so long, and if we look about us we shall find very few indeed, either of newspapers or magazines, that have passed their hundredth year. In the present case the Editor's ability, application, and faithfulness have much to do with the general esteem in which the book is held, and with the sustaining of its name and fame untarnished as handed down to these times by the illustrious Toplady. There are all sorts of periodicals manufactured now for Sunday reading; some by so-called Christian writers, published under the auspices of so-called Christian societies, effect such peculiar combinations of love and religion and morbid sentimentality and cant, that we take leave to doubt if there can be a more effective agency for the degradation of religion and the inculcation of false ideas of morality and duty. Christian folks in need of hooks for Sunday reading, would do well to take the *Gospel Magazine*. It is all it professes to be; it is sound and true to Protestantism, it is entertaining and various, and tintured in every page with the love that lasts for ever.

ALMANACS FOR 1867.

The Farmer and Gardener's Almanac is again a wonder, both in respect of the quantity of matter and the beauty of the illustrations. We would suggest to its able editors to purge it of one vice, a vice common to garden almanacs, and that is the insertion of mere nursery lists under the head of "New Plants." The names and the descriptions are furnished for the purpose by the nurserymen, and they are but as advance sheets of their several catalogues. One of the year books we could name contains scarcely anything else in the way of information for the cultivator beyond what the trade has supplied, so that editing there is none (and that perhaps is no loss). With this exception the *Farmer and Gardener's Almanac* is a most valuable production, and it is especially so in the agricultural portion.

The City Diary is undoubtedly the best of all the diaries for business men. There is plenty of space for scribbling, and good blotting between, and at a moment's notice we can learn who is master of the Mint, or director of the aerial railway, or chief magistrate of the City, or alderman of Portsoken Ward.

De la Rue's Diary.—This is a fanciful book for the pocket and the desk; almost too slippery for common use, but well adapted for genteel people, and such as like everyday life to be embellished with red letters and true lovers' knots.

The Garden Oracle. Groombridge and Sons.—This issue of the Oracle slightly exceeds in bulk its predecessors, and has cost considerably more labour than usual in its preparation, which will account for its appearing late. To give any opinion upon its merits is of course impossible, but we may properly state what are its principal contents. The pages for the several months are filled with selections of the best fruits in all the several classes, making in all a list of about 500 choice varieties. The several selections are marked to enable the cultivator to select, say a dozen of the best apples or pears, half a dozen best grapes, pears, peaches, &c., &c. There are lengthy lists of gooseberries for show, with their weights, in 1866, and selections of the same fruit for flavour and for culinary purposes. The lists of new plants are derived as usual from the *Botanical Magazine* and the continental works; the lists of new flowers of 1866 are accompanied with descriptions, which in nearly every case are the result of the inspection of

the varieties by the Editor. This is the only garden almanac which contains independent descriptions and criticisms of new flowers; in all others they are supplied by the trade. A very important department is that devoted to selections for 1867. These have cost an immense amount of labour, and they are the most extensive and carefully arranged lists that have yet appeared in the Oracle. They comprise selections of hundreds, fifties, twenties, twelves, sixes, &c., &c., in all the classes of exhibition and decorative plants and flowers, and will no doubt be found of service to those who wish to grow only the best, and have no means of making comparisons for themselves, and who cannot afford to buy plants in order to pick out the best and throw the rest away. As the demand will be very great, we advise our friends to order the Oracle at once, as if the first impression (which is a large one) should run out quickly, some time must elapse ere a second can be got ready. To print a few copies of such a book, and so keep the market supplied, is next to impossible; or in other words, the proceeding would be attended with loss.

Colonization Circular, No. 25.—This is the report for 1866 by Her Majesty's Emigration Commissioners. It is a most important document to all who are interested in emigration. Those in want of it can obtain it from Messrs. Groombridge and Sons. The price is 6d.

CATALOGUES.

JAMES VEITCH AND SON, KING'S ROAD, CHELSEA.—*Catalogue of Garden and Flower Seeds for 1867.* This excellent list contains everything in request at this season; the arrangement facilitates reference, and there are some excellent woodcuts representing garden tools, meteorological instruments, &c., &c.—*List of Gladioli.* This is a single sheet on which the varieties are classified according to prices. All that are worth having will be found enumerated and described.

SUTTON AND SONS, READING. *Amateur's Guide for 1867.*—This admirable publication is as brimfull of valuable information as ever; all the selections have been revised; and in respect of cultural advices it is all it professes to be—a genuine "amateur's guide."

A. VERSCHAFFELT, 50, RUE DE CHAUME, GHEENT. *Catalogue No. 79 for Spring 1867.*—This is M. Verschaффelt's small yellow-paper list crammed full of stove, greenhouse, and hardy subjects, and comprising a few novelties of importance.

SMITH AND SIMONS, BUCHANAN STREET, GLASGOW. *Descriptive Catalogue of Hybrid Gladioli.*—This includes the newest kinds, and all are described with care.

W. WOOD, WOODLANDS NURSERY, MAREFIELD, NEAR UCKFIELD, SUSSEX. *Catalogue of Seeds and Bulbs for Spring planting.*—An excellent trade list, very nicely got up, and comprising everything needful for spring sowing and planting.

JAMES CARTER AND CO., 237, HIGH HOLBORN. *Gardener's and Farmer's Vade Mecum, Parts 1 and 2, 1867.*—In the first part there are 90 close pages occupied with lists of flower seeds and ornamental plants, and practical essays on the art of raising plants from seed, and on the subjects which may be safely selected for various styles of garden embellishment. In the second part there are fifty pages occupied with lists of seeds for the kitchen garden and farm, and woodcut representation of several novelties. Amongst the latter, the following deserve special mention: *Sims's Mammoth tomato*, a large fruited variety of the cherry tomato. The *Ashtop Fluke* potato, an excellent kidney shaped variety, the result of a cross between the fluke and the old ashleaf. *Bromus Schröderi*, the new and valuable "Australian grass," which is coming into general use as one of the best forage plants in cultivation, especially to furnish early feed before the rye grasses are in condition.

JOHN SCOTT, YEOVIL, SOMERSET. *Catalogue of Flower Roots.*—A good list of bulbs with selections of Achimenes, Gloxinias, Liliums, Alstrœmerias, Violets, and various garden requisites.

FREDERICK GEE, BIGGLESWADE, BEDS. *Catalogue of Agricultural, Garden, and Flower Seeds.*—A capital list, so arranged as to serve for customers to order what they want with an infinitesimal amount of trouble.

Correspondence.

PRESERVATION OF TEMPERATURE.—With pleasure I read the leading article of your valuable GARDENER'S MAGAZINE of December 29th, 1866, on the preservation of temperature. I am happy to state that I quite coincide with your opinion, namely, that the construction and heating of houses are matters that lie at the heart of our practice in every attempt to cultivate fruits and plants. It is a subject that has occupied the attention of many eminent horticulturists from time to time to endeavour to find out the best and most economical means for the preservation of temperature. In the more exposed situations of the northern counties of England, the object of protection may probably demand more careful consideration and attention than in the southern counties, to grow and protect plants introduced from a warmer climate. I often found, years ago, our ordinary method of covering plant pits, and small houses and structures, with bass mats, where plants were placed to remain over winter, with little or no fire-heat, was in many instances incomplete. Many times in winter and early spring months, the winds are so strong and boisterous that it is almost an impossibility to keep the glass covered. I was at length, therefore, led, without ever hearing of the plan, to place my mats, or covering, *inside the glass*, instead of outside. I found it in severe frosty weather a capital plan. Spare lights, employed for cucumbers, &c., in summer, placed inside along the lower part of the roofing, answer a good purpose for preserving temperature, and protecting the plants beneath from becoming frost-bitten. The covering over the glass outside often becomes saturated with wet, and if followed by an intense frost, the glass and covering become, as it were, a complete mass of ice, and also, if very windy, half of the covering is blown away or removed. Now nothing of this kind takes place when the covering is neatly placed inside. The preservation of the vital principle of plants, and the stimulation thereof to the functions of active operation, depend upon the agency of heat. It would be well if we northerners could gain more perfect knowledge on the elaboration of the sap and distribution of the vital secretions, and other wonderful phenomena of vegetable life, and also of the laws of conduction and radiation of heat, and evaporation of fluids. Of all these things we know but little, and may with propriety confess our ignorance of the laws and regulations of this most interesting part of natural operations. I do not know if you have ever been presented with a communication of this kind out of this county, but I have read your magazine several years, and never recollect an article out of the county Durham.

A. D. ALLASON, Bishop Auckland.

DOES COCOA-NUT FIBRE INJURE GARDEN SOILS?—I am the victim of divided opinion, and I must trouble you to solve my difficulty, as I have always found you do with ready kindness when I have got into a dilemma. I have for many years in the winter (living in London in a north-east aspect) put over my bulbs *more especially* a thick coating of cocoa-nut fibre refuse, likewise on the borders, to save any hardy things that can be saved by its warmth. My bulbs have always done especially well: hardly any loss, and good flowers. I have likewise, in potting, over my crocks put a good handful of the refuse, as I think the roots like to work in it, and the worms and vermin are not fond of getting through it. All this I did under good advice, and I have not yet doubted its benefit, or lost faith in it. I am now told by a party whose assurance might constitute authority that I have ruined my garden by using the fibre, as it deteriorates the ground to that extent that nothing will ever grow in it, and quotes my not succeeding with my bedding plants last year as a proof of it, baving, he says, nothing but foliage upon my geraniums, calceolarias, verbenas, &c., &c. It must be a fine summer indeed in my aspect, surrounded on all sides by houses as I am now, to hope for much from my bedding plants—last year especially; but I acknowledge my conversion to the O'Shane's opinions, and am trying to convert others; that we need not give up gardening because bedding plants won't do more, especially in the unsatisfactory way we obtain them from the nurseries. I say you may as well to-day pick up a native of Calcutta as he is basking by the Hooghly, and, *hey presto!* drop him on the ice of the Neva, and expect him to like it; but that is far from the purpose. Please give your opinion on the fibre question.

NE QUID NIMIS.

[We print this letter in order to raise the question amongst our readers whether the constant addition to the soil of a garden of cocoa-nut fibre refuse in the way above described does tend to the deterioration of the soil. As we are asked to give an opinion, we say that we believe most garden soils would be improved rather than deteriorated by the addition of the fibre to the staple, for it contains no innocuous property, and must produce in the process of decay more or less of carbonic acid, the presence of which in a soil is promotive of fertility. That our correspondent had a poor display of bedding plants last summer may be as well attributed to the unfavourable weather as to the fibre, for certainly the summer ended with the month of July.—Ed.]

GROUND VINERY.—I have a newly made border about 24 feet 6 inches by 8 feet 6 inches, lying against a south wall: the west end bounded by a path, but the east end by a wall and fence about 9 feet high. Being anxious to make the most of the space, and at the same time to secure the best advantages for the vines, I have thought, after some deliberation, that the best plan will be to plant four vines (Black Hamburgs) at the west end, and train them in two vineries the whole length of the border, leaving a narrow path between the two. This will give a run of 96 feet and secure to the vines the early sun. By planting against the wall, or in front, much space would be lost and more vines required. However, I should be glad of your advice as to which or what plan is best. Then, too, I have thought whether two vines under a 42-inch vinery would do so well as one under a 30-inch vinery. I should mention that there are some vines at present against the wall, which, if the vineries ran from west to east, might remain, but they need not stand in the way of a better plan.

AMATEUR.

[Plant at the west end, because of the path there, which enables you to reach the foot of the vinery without making any alterations. The best economy of space will be to have four vines in two vineries; you have fair space for three lengths of 7 feet each, and when needful you could have a half length made so as to carry the rods, to the extreme end. There is no more difficulty in taking two vines along a 42-inch or even a 36-inch frame than in taking one along a 30-inch frame: they are always kept to single rods.]

RECORDS OF THE WEATHER AT WOOLSTON, NEAR SOUTHAMPTON.—Sunday, Dec. 30th, weather began to get colder, wind W., and threatening distant electric clouds; lightning after 8 p.m.; bar. fell from 29.04 to 28.90. Monday (last day of 1866), hard frost, cloudy, snowy, electric "nimbus," calm, and cold; bar. steady, 28.90; eve, came in sharp frost, with masses of cumulo-cirro-strati clouds, sinking along S.W.; wind E. to N.E. New Year's Day, hard frost, fine, very cold, N. wind, rather cloudy; p.m., calm, cirro clouds; night, hard frost, but falling barometer (indicating a downfall), overcast at 11, then risen; heavy snowfall before morning, strong wind. Jan. 2nd, bar. down to 28.67, overcast, strong wind driving the snow about, about 7 inches deep, some places knee-deep; p.m., cleared up; eve, severe frost. Jan. 3rd, intense frost, overcast, cleared up about midday—splendid scene, bright sun, and dazzling snow-clad earth; bar. rising steadily; night, frost intense. Jan. 4th, intensely cold, calm, cloudless; it then steaming, and some ice floating about; p.m., cumuli clouds bordering S.E. to S.W.; night, cold greater than night before at same time, but looks on the change; cloudy at 9. Jan. 5th, overcast all day, slight thaw, almost a gale S.E.; night, gale and sleet. Jan. 6th (Sunday), a thaw, and its accompaniments, warm, foggy, rainy. Jan. 7th, warmer, gale S.W., rain at times; bar. very low, 28.80. In the following table I give the lowest and highest temperature in air, and lowest on snow (or grass).

	Min. Air Lowest.	Min. Snow Lowest.	Max. Air Highest.
Dec. 30	34°	—	43½
" 31	28	21° grass	37½
Jan. 1	28	20½ "	32
" 2	24	16½ "	28½
" 3	14½	4½ SNOW	31½
" 4	7	2 "	29
" 5	14½	5 "	36½
" 6	34½	32 "	46½
" 7	43½	34½ grass	*53½ *46!

See what happens in a week! Now it's like it used to be a few days ago, warm and rainy. We know not what may occur before next Monday—perhaps cold again.

FRANK EKLESS.

Replies to Queries.

Primulas.—W. H.—There are several named varieties with stripes and blotches on white ground. Yours are beautiful, but not novel. You would do well to cross the best of these with pollen from dark flowers.

Woodlice in Outdoor Fernery.—Bonchurch, Isle of Wight.—The fernery being made of blocks of limestone rock, affords abundant shelter for these vermin, and all outdoor ferneries are similarly infested. There is but

one way to deal with them, and that is to trap them, and if this be vigilantly followed up, every woodlouse may in time be destroyed. Something may be done now by lifting any blocks that are moveable, and killing all snails and woodlice that are found. But the serious task of trapping must be deferred till spring. Then place near their haunts wooden boxes or flower-pots filled with dry moss and lettuce leaves, or slices of potato or apple concealed amongst the moss. They will scent out these dainties, and take up their abodes amongst the moss. The traps should be examined every morning, and the vermin found in them should be at once killed. They will take shelter in any place that is *dark and dry*, and may be almost as easily trapped without baits as with them. We had occasion to regret the increase of woodlice near a border in which small seeds were sown last year. Some large sheets of bark were stripped off some trees that had been felled, and these were laid hollow side downwards near the haunts of the woodlice. In the course of a few days, the bark was crowded underneath, and the vermin were swept off it and destroyed wholesale. In the course of a fortnight the bark trapped them all, and the border was ten times more valuable than before as a seed-bed for lettuce, broccoli, &c. &c. We much regret the delay in replying to your letter.

Removing Roses and Carnations.—A. E., Notting Hill.—The roses and carnations you have purchased may be removed any time during the winter, provided that, at the time of removal, the weather is not frosty. Of course they must be at once planted where they are to remain in their new quarters, or if the place is not ready for them, pot them.

Books.—J. A.—Mrs. Loudon has published an excellent book on the cultivation of bulbs, which you can hear of through Messrs. Bradbury and Evans, Whitefriars. Messrs. E. G. Henderson and Son, of St. John's Wood, published a few years since a useful work on the subject, which, however, did not pretend to rank as an important literary production.—J. Simson.—You will find all the information you wish in rotation cropping of the kitchen garden, in "Profitable Gardening," the price of which is 3s. 6d. In the management of a small flower garden, no better guide than "The Town Garden," published at the same price.

Ericas.—Old Subscriber.—The following are twelve good ones to flower from November to February: Pucbella, Syndriana, Ardens, Hyemalis, Sebana lutea, Formosa, Wilmoreana, Mammosa, Decora, Prestans, Triumphans, Coccinea.

Cinerarias.—Old Subscriber.—The following are twelve of the very best (not including any of the newest): Captain Schreiber, Celestial, Constancy, John Spencer, Lord Elgin, Midshipman, Novelty, Optima, Perfection, Premier, Queen Victoria, Vicar of Caunton. We have made a very careful selection of these in the "Garden Oracle."

Material to prevent Drip under Stage.—Tyro.—Plants put under the stage of a greenhouse usually require a little light, and there is generally enough light for fuchsias, ferns, and other subjects during winter, and the drip caused by watering does them no harm. The only material well suited to prevent drip is zinc, with one edge turned to form a gutter, and placed so that the water falling on it will flow away to one end where it can be caught. In many instances we have seen elegant conservatories kept dry by means of a zinc catch under the shelves, but it is seldom needful in greenhouses, and besides it excludes the light from the plants that are placed under the stage.

Dahlias.—W. Moore.—Add the following twenty-four to those you have Miss Pressley, White Perfection, Helen Potter, Norfolk Hero, Bullion, Master of Arts, John Keynes, Disraeli, Lord Palmerston, Triumph de Percq, British Triumph, Scarlet Gem, Lord Clyde, Foxhunter, Marquis of Winchester, Empress of India, Duke of Wellington, Erebus, George Rawlings, Baron Taunton, Juno, Marquis of Bowmont, Lilac Queen, Freemason, Arrah na Pogue. You do not say if you want fancy varieties, and we have selected only from the show classes. It will be well to consult the new selection of Dahlias in the "Garden Oracle," as they are all marked for distinctive purposes.

Potatoes.—Agricola.—Webb's Imperial and Dawe's Matchless are the same, but Cheshire, Pink-eye and Pink-eyed Kemp are, we believe, distinct.

Magnifying, &c.—S. S. S.—In the remarks to which you refer no names were mentioned; therefore there is but a general case for consideration. The rebuke was a wholesome one—likely to do good, but incapable of harm. Your letter is equivalent to a personal attack, which is uncollected, and can serve no useful purpose. The picture of the rose at page 546 of last year's volume was sketched from the life by Mr. Damman, one of the most able artists in London. It undoubtedly represents a well-finished specimen fit for the exhibition table, and every practical cultivator will value it as a model. A figure of a scraggy, ill-furnished plant could be of no use except to show what is possible where skill is wanting.

Hoya carnosa.—R. W. W., Clapton.—Your plant is the noble Hoya carnosa, a first-class twiner for the stove. The plant requires a mixture of one part each of fibry peat, silky loam, and pounded brick, and a half part of silver-sand and charcoal dust. During winter, keep rather dry and cool, say not more than 45° on the average; in summer, above heat, and all the sunshine possible. This plant looks charming when trained to the roof above the level of the eye.

Examination of Gardeners.—D. D.—The matter was explained at length in the GARDENER'S MAGAZINE of Dec. 9, 1865.

Pomponc Chrysanthemum.—R. J. Chapman.—Your seedling pomponc is extremely neat, chaste, and pleasing, the colour bluish deepening to soft pink. It is in the style of "Fairest of the Fair," and appears quite suitable for cultivation in the specimen form.

Pruning a Vine.—Green Amateur.—Nothing can be more simple than the pruning of your vine. Shorten the leader to about six eyes beyond the topmost lateral, of which in your sketch there are four. Then cut each of those laterals clean away to one eye, or, in other words, leave only one eye of each lateral.

THE ONLY ORIGINAL GARDEN ALMANAC IS THE GARDEN ORACLE, edited by SHIRLEY HIBBERD, Esq. The descriptions of new flowers and fruits are from observation, and have the guarantee of personal responsibility. In other works of the kind the descriptions are supplied by the dealers: in other words, the descriptions are advertisements in disguise. The faithfulness of the Oracle in statements of fact, and its well proved soundness of opinion, have secured for it universal approbation. The issue for 1867 contains a quite new Selection of Fruits, and very carefully prepared Selections of Plants, Flowers, &c., for home decoration and exhibition. Order the GARDEN ORACLE for 1867, price 1s. Groombridge and Sons.—[Adv.]

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.				M. Imp. avg. of 43 yrs.	Orchids that may be in bloom, I, Indian House; M, Mexican House; G, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain	Growth					
1867.																			
30	S	2nd Sunday after Epiphany	7 56	4 26	5 14	p.m.	7 30	p.m.	29-73	29-62	52	30	41-0	-02	35-0	Limatodes alba, M	...	Dorneo	20
31	M	Full Moon 2 nd 7h. 36m. a.m.	7 55	4 28	6 20	"	8 11	"	29-79	29-76	54	45	49-5	-01	35-6	L. superba, M	...	"	21
22	T	Length of day 8h. 30m.	7 54	4 30	7 44	"	8 44	"	29-78	29-70	52	37	44-5	-28	35-5	Brassavola Digbyana, I	...	W. India	22
23	W	Royal Exchange opened, 1871	7 53	4 32	8 57	"	9 13	"	30-41	30-03	50	25	37-5	-00	35-0	L. venosa, I	...	"	23
24	Th	Frederick the Great born, 1712	7 52	4 33	10 7	"	9 41	"	30-55	30-52	43	27	35-5	-00	36-3	Brassia Lancana, M	...	Demarara	24
25	F	Conversion of St. Paul	7 51	4 34	11 14	"	10 6	"	30-57	30-54	43	27	36-0	-00	36-5	Bletia campanulata, G	...	Peru	25
26	S	Audubon died, 1851	7 50	4 36			10 31	"	30-54	31-45	46	35	40-5	-00	36-8	B. Shepherdi, G	...	Jamaica	26

The Gardener's Magazine.

SATURDAY, JANUARY 19, 1867.

THE MANCHESTER EXHIBITION progresses so well that already above 120 persons have become guarantors to the amount of £20 each, making a total guarantee fund of £2,400, which it is expected will be increased to £5,000 by the 1st of June next. By a slip of the pen, in our remarks last week we stated that the Bury show would clash with this. The fact is, the Bury show does not take place till July next (15th to 19th), and moreover the date of that affair is fixed by the Agricultural Society. The patronage of Bury by the Kensington Council is therefore by no means a mischievous proceeding, though as a bit of trifling it may have in it some ludicrous features. The capacity of the society for mischief is really greater than we represented it in our leading article of last week. The society's own show has been ingeniously arranged with a view to rob Manchester of some of the lustre that belongs to it of right, having fixed the date of the National Exhibition long ere the deliberations of the Council of the Royal Horticultural Society had carried them so far as to determine to hold a show at all. The Manchester Exhibition is to open on the 7th of June, and continue to the 15th. The great show of the Royal Horticultural Society is open to at Kensington on the 4th, and continue to the 8th, so that it will be impossible for the same plants to be shown at both exhibitions. It will be perceived that the case is much worse than we represented it last week. The Royal Horticultural Society, in its zeal for horticulture, will, if it can, cripple a great project intended for the promotion of horticulture in one of the most populous and wealthy manufacturing cities of the north. "If it can," we say, but fortunately it cannot, for long since many of the best plant-growers of the southern and midland counties promised to support the Manchester project, and will assuredly keep their word. There is only one thing the society can do effectually in this matter, and that it has frequently succeeded in. It can make itself look as mean and ridiculous as it is in reality; it can display all the paltriness that underlies its very superficial grandeur; it can wage a war with Manchester with the certainty of being beaten; it can betray the desire for mischief, and its utter incapacity for accomplishing it. That we were not better informed on this subject last week, admits at least of this excuse, that there is always great difficulty in ascertaining the truth about any movement inaugurated or favoured by the quasi-horticultural people at Kensington. For example: on Tuesday last we received the "Proceedings of the Royal Horticultural Society, No. 6, new series, August 1866 to January 1867"!!! Since July last we have not heard officially of a single spasm that has affected the Kensington Council, and now a shabby little Catnach sort of print comes to hand containing 16 pages of information on the affairs of the society, such information actually dating from the 15th of May last. Any mistake about the intentions or accomplishments of a society which communicates with its members at intervals of six months is excusable, and indeed we prefer to know very little of its affairs, and should not have devoted all this space to remarks upon it except to put our friends on their guard against being led astray by the movement set on foot at Kensington for the injury of Manchester.

A TASTE OF REAL WINTER is almost as welcome to the masses of the people as such a rare occurrence as a hot and enjoyable summer. People who thought Nature had altered her ways in respect of weather in England, are now reassured, finding in seasonal frost and snow some evidence that Nature is not utterly and hopelessly deranged. To all who are directly interested in the affairs of rural life, the recent frost has been a welcome event. The general opinion is that it will be followed by important benefits, especially in respect of the vegetable produce of the season forthcoming. There does not appear to be any immediate and necessary relationship between a cold winter and a fruitful summer, and possibly if we were to investigate the records of a century, we should find as many fruitful summers following mild winters as the reverse; and the popular notion that "frost kills the vermin" is certainly as erroneous as any popular notion can be. Generally speaking, insects are well taken care of, and have means to take care of themselves in winter, so that, as a rule, frost destroys but few of them. That frost operates beneficially on the soil admits of no dispute. Frost and snow are admirable fertilizers; they "burst up" mineral masses, and present an infinitude of fresh surfaces to the disintegrating action of the

atmosphere, and thus feed the soil out of its own resources with silica, potash, calcareous salts, and other ingredients requisite for the growth of plants. Those who followed the oft-repeated advice to dig deep and ridge up all vacant plots of ground before winter, will now be benefited by the pulverization of the soil, and its enrichment with materials newly reduced to a condition suited for appreciation by plants.

The first frost of the year came suddenly, and lasted but a short time, but was excessively severe. On the 2nd of January the snow fell heavily, on the 3rd frost set in severely, on the 4th (the dreadful Friday) the thermometer registered in many places 26° of frost, and in every one of our great towns the atmosphere was so loaded with coal-smoke, that breathing became difficult, even for the robust, and many thousands of weak and aged people received their death-blow. Never before has the present generation passed through such a trying day. The cold was keener on the night of Christmas 1860, but it made a less terrible mark in the bills of mortality than did the cold, combined with fog, of January 4, 1867. The long lists of deaths in the *Times* newspaper, for several days following, afforded indication enough of the havoc made amongst the aged and infirm. On the 5th the temperature rose steadily, and the barometer fell, so that in London it had ceased to freeze by about 4 p.m., and weather-wise people knew a storm was brewing. On the 5th (Sunday) the heavens rained a deluge, the snow was washed away, and the face of the earth was prepared for the kind, but firm and enjoyable frost that followed, and which has not yet proved particularly severe, 14° to 18° of frost being the extreme point reached in the descent of the thermometer.

It is perhaps premature to inquire what harm has resulted to the vegetable kingdom from the two visitations of severe weather. As far as can be judged by the present appearances of things, the first exceedingly severe wave of cold has inflicted a comparatively small amount of damage upon the fields and gardens. The snow which preceded the frost protected vegetation, and many comparatively tender subjects have escaped apparently unhurt. That Brussels sprouts and broccolis should be destroyed in all the gardens on the cold soils of the north of London was to be expected. Such things are always swept away by a sharp frost in those districts. We have made a rough inspection of several comparatively tender trees and shrubs, and they appear to be scarcely at all injured. In the fatal winter of 1860-61, *Grislinia littoralis* was destroyed root and branch, though well established in a sheltered border. Some nice plants of it in pots which have been plunged in a border with other choice evergreens are now almost as green and fresh as they were before the frost commenced. We attribute their escape from the frost of the 4th to the fact that they were heaped over with snow, for we added to what fell upon them and buried them entirely. So the rather scarce and tender *Berberis Fortuni* appears to be unhurt. The plants of this were treated in the same manner as the *Grislinia*. When the winter is over will, however, be the proper time to take correct measure of the effects of the recent frost, and we quit this subject in order to cast our thoughts upon the future.

At the time of writing this (Thursday noon), a sharp north-east wind is howling amongst the trees, and the frost holds its own very steadily. A little sleet-like snow has fallen, and the landscape is agreeably whitened. It is a question of equal importance and interest, "Will it last?" We fully expect that before this sheet is printed the frost will for the present be past and gone; and instead of skates for the feet, umbrellas for the shoulders will be in request. But whether it holds to the end of the week, or pass away while these remarks are in course of printing, we fully expect that a few days at the utmost will complete the present reign of King Frost, and that the interregnum, ere he again wields the sceptre, will be characterized by every possible meteorological misery, amongst which snow and rain will be the predominant features.

THE DOUBLE PETUNIAS.

When the flower garden is in full bloom, then it is that, almost as a rule, the houses are but scantily supplied with attractive subjects. And why? Because the outdoor attractions, combined with the season, are more inviting; yet withal there is something very pleasing in leisurely walking through a well-furnished house of blooms in the summer and autumn months—the same being effectually screened from the scorching rays of a hot sun, thus reflecting a nice soft and subdued light on the plants. At one

period of gardening when Pelargoniums had ceased to bloom there existed an ambition among gardeners to rival each other in the growth of the Balsam and Cockscomb, but the cultivation of these favourites has almost become a thing of the past, the Fuschia having to some extent superseded them. Yet there must be variety; and nothing is finer or better adapted for that purpose than Double Petunias, because they present to you some lovely shades of colour, including pure white, purple, blue, mauve, crimson, blush, and others. Some of the varieties are highly fragrant. Of course their habits and constitutions vary, some being particularly robust, while others, on the contrary, are weak in growth. But there is one thing in their management must be guarded against in the earlier stages of their progress, and that is to check any tendency to lanky growth by frequent stopping and pinching the side-shoots. Every encouragement should be given to produce a bushy plant, as the closer the shoots are to the base of the stem, the more likely are you to preserve your old plants throughout the winter, if you are desirous of doing so. As most of the Petunias, both single and double, have a tendency to shank or wither midway of the stem, betwixt the surface of the pot and the lower shoot, I have from practice proved that the more the lower portion of the stem is furnished with shoots, the less liable it is to incur the evils complained of. During this month and February is a good season for propagating them. If done in the autumn, it would be better, as they would, if now potted from their nursery pots into single pots, submit to being pushed on in their growth as soon as they are established in the pots, which can be hastened by plunging them in a mild bottom-heat. But avoid too much top-heat, as they will grow fast and weak, and the consequence will be that a great number of the shoots will become too spindly, and thus dwindle away, so that no after-treatment will restore to them the necessary vigour. Fast growth, when subject to heat, induces them to become a ready prey to the attacks of green fly. However, under all circumstances, fumigate them at frequent intervals, if you wish to preserve their health. As with the Fuschia so with the Petunia, there is always some improvement on the varieties already in existence being introduced; and although you may wish to preserve the stock which you now possess, yet it is advisable to purchase a few varieties every year, and thus by comparisons you will be led to discard some of your old favourites. It is a very good season now to make choice of them, as they are to be had at the principal nurseries. In passing through a large nursery at Holloway during the past week, I observed several batches of them in small 60-size pots, treated on the plan now advised for future culture. Such plants, if encouraged by liberal treatment, would by the next autumn fill an eight or nine inch pot, and produce a very gorgeous effect in the conservatory. Where cut flowers are in great demand, they are excellent plants to cut from, as they are good substitutes for rose blooms when the latter have past their best, particularly if required for decorating epergnes or large vases, as they maintain their freshness for some time after being cut. In potting, I prefer a firm soil—that is, some nice mellow loam, with sufficient leaf-mould or decayed manure to impart their nutriment to the plant, and adding some silver-sand—enough to keep the soil porous. With the Petunia, as with the Primula, the firmer they are potted the better are you enabled to keep them throughout the winter months—especially old plants; and here other attention is required, such as picking off any decayed leaves, &c., so as to prevent them from damping. Place them in the highest and warmest corner of the greenhouse, and water them but sparingly during the winter months.

JOHN F. M'ELROY.

PEASANT PROPRIETORSHIP IN FRANCE AND BELGIUM.

A writer in the *Pall Mall Gazette* asks: "But has peasant proprietorship answered so well in France and Belgium as to encourage us to introduce it in a land far less suited to it, and in which we have already had so terrible a warning of the danger of maintaining a large population wholly or mainly dependent on the produce of the soil? We will not prejudge the question, but let those who think so ponder the following figures. By one of the last returns we can lay hands on, there were 7,846,000 proprietors of land in France, and of these 3,000,000 were so indigent that they were unable to pay even the very moderate land-tax imposed on ownership. Such are the mad prices given by the people, owing to their mad passion for possession of the soil, that in many cases their lots yield them only 2 per cent. on the purchase-money; two-thirds of them are mortgaged nearly to their full value; and so difficult and costly is the transfer (in consequence partly of their smallness and partly of their indebtedness), that the legal charges on the sale of land sometimes reach 75 per cent. on the value. In Belgium, the facts are almost as significant. According to semi-official returns, there were, in 1857, 908,000 families in that country (averaging five persons each). Of these 89,630 were in good circumstances, 373,000 in straitened (*pénible*) condition, and 446,000 in actual poverty. This does not look well for peasant proprietorship even in a country where the climate is much better and the waste land much rarer than in Ireland. In fact, Belgium, though in many respects prosperous and well managed, abounds in pauperism. Out of a total population of four millions and a half in 1856, there were 86,000 known and habitual boggards."

A FEW WEEKS IN NORTH WALES.

AN EXCURSION FROM CYNWYD TO PYSTYLL RHAIADR.

This is the most celebrated waterfall of the country. It is situated near the boundary lines that divide the counties of Denbigh, Montgomery, and Merionethshire. The route I was obliged to take was over the Berwyn Mountains, an immense range extending fifteen or sixteen miles. Half of this distance completed my journey to the cataract. It was not the waterfall alone that induced me to take this journey; I had another object in view, that of searching after rare and beautiful plants, many of which I expected to find on my way. My expectations had been greatly enlarged by spending an evening with a Mr. Hugh Puig, a gamekeeper in Cynwyd. This person is a good botanist, and knows every plant that grows on this mountain. He showed me a fine collection of dried specimens, correctly named; and, by-the-bye, he has promised to take me and show me where a patch of the Maidenhair fern is growing in its natural state. He showed me a variety of interesting ferns that he had collected in the neighbourhood. Wherever his wanderings may conduct him, whether over the mountain or in the valley, he is equally at home amidst the beauties of the vegetable kingdom; and through all the changes of the seasons he meets with friends whom successive years have brought to his acquaintance, who, though silent to the casual observer, are always eloquent to him. There was something indescribably cheerful in his open countenance when he was talking about these little mountain plants. I could not help smiling at his enthusiasm. "I have to travel a great many miles in a week through the woods and over mountains, but it does not matter where I go, Nature presents an inexhaustible fund for contemplation and delight," said he. I thought if the productions of the vegetable kingdom excited such emotions, and a close acquaintance with Nature's works contributed so directly to human happiness and the exaltation of every noble feeling, as evidenced in the case of my aged friend, we ought to try to encourage a taste for those pure and simple pleasures. Such studies are not only suited to every time, to every age, and to every place, but give strength in youth and joy in old age, and adorn and delight us when we walk abroad.

At my outset, the morning was serene, the air fresh and crisp; everything seemed to partake of a general sprightliness. The whole scene was enlivened by the notes of the blackbird, echoed from among the distant foliage. I could almost fancy it was May instead of December, and I am sure the general greenness and beauty of the mountains would have interested a less ardent admirer of the works of Nature than myself. These rural objects continued, however, for a very short distance, for after I had walked about a mile and a half from Cynwyd, continually climbing higher on the mountain, I began to leave the homesteads and their peaceful occupants behind, and then entered on a succession of dreary open moors, which might have charms for the sportsman, but they had none for me. For three or four miles the scenery is wild, dreary, and comfortless. As I ascended, the moors became more swampy, walking began to be very unpleasant and even dangerous, for the swamps were covered with treacherous mosses, such as *Funaria hygrometrica*, *Bryum serpyllifolium*, *Sphagnum palustre*, *Dicranum glaucum*, and many others. These made tempting green walks to look at, but hollow ground to tread upon. The peat bog had accumulated to an enormous depth; the thickness was made visible by the gullyholes that had been formed by the mountain storms and torrents. I now came in sight of the Great Berwyn Rocks. These I was informed, before I started, were near the waterfall. The two most elevated summits are Cader Ferwyn and Cader Fronwen. I was anxious to get to one of those high points, as I anticipated an extensive view; but to ascend its summit appeared a most arduous undertaking, and indeed I found it so. After mustering all my resolution, I commenced the laborious task, and after continuous climbing and frequently slipping, using my hands, my knees, and the points of my toes as the agents of propulsion, I attained the highest part, and found myself on the verge of a precipice, deeper than any I had before seen. At the bottom was a pool, and I should think it was a thousand feet from my station to the water. I rolled a stone down the nearly perpendicular side: it dashed into a hundred pieces, and was several seconds before it splashed into the water. A gust of wind now startled me, and almost made my blood chilly with horror, for it came with force nearly sufficient to send me headlong down the precipice. Soon after, I was completely wrapped in light clouds; this was enough to strike one with terror. After a few seconds, these clouds cleared away, and scudded with the wind along the hollows and sides of the mountain, the intervening rocks receiving a yellow tinge from the reflection of the light of the sun through the mist. Dusky intervening clouds passed on with considerable velocity, which rendered the scene as wild as imagination could paint; and various other tints and shades were thrown on the hollows and mountain sides by different reflections of the light through the more or less dense mediums. My station commanded the whole dome of the sky, and presented me with majestic scenery. The prospects below, which I had before considered separately as grand scenes, were now only miniature parts in the immense landscape. There were numerous beauties in this vast expansive scene, but there were wanting woods, hedgerows, and scattered trees to soften the prevailing black and dreary features. There was a wonderful variety of mountains, receding in succession to the horizon, which appeared immensely distant; and the eye was severely tasked to trace out where in the distance was the real boundary of the scene. Though full of sublimity, the scene wanted the charms that can only be given by cultivation, or by a rich wild vegetation, both of which were absent from this vast inhospitable scene. But what about alpine plants? some will say, was there nothing to admire besides the distant views? no plants—nothing but barren rock? In truth, I found plenty to admire and to study, and never saw a place but there was something in the way of vegetation to beautify it. What appears to be nothing but desolation and death is the theatre of a now world in miniature. Every created thing serves for the good of the whole, and so I found on the rocky point of this lofty mountain Nature busy making one plant take advantage of the protection of another, and even turning to use the decaying parts of every vegetable and animal production. The rock was tinged with lichens, and spotted with their coloured fronds: the calcareous lichen, consisting of a white crust with black tubercles; the crab's-eye lichen, white; the tartarous lichen, yellow and white; the purple lichen, with a leaf-like form, very much lobed; and many others—all pretty and interesting, although so small. In places where the lichens had decayed, mosses had taken their places. The seeds had no doubt been driven thither by the wind, and had generated in this meagre soil.

In the course of time they had grown and produced their green tufts, and these in their turn had decayed, and other plants had taken their places. I could see the evidences of these successions and mutations in many a mixture of dead and living forms. Here I found the saxifrages next in rotation, such as *S. stellaris*, *S. nivalis*, *S. oppositifolia*, *S. hypnoides*, *S. palmata*, *S. caspitosa*, and a few others of less note. *Ericas* and other small plants come next. The Sphagnum moss grows at the bottom, and rots rapidly; thus a layer of earth is formed, into which the larger plants send their searching roots. Such is the progress of Nature—every death is the beginning of a new life. Constantly conducive to the general good are her operations. This is the process which Nature employs to cover the mountain with soil, and fit it for the husbandman, who converts the bogs and shattered rocks into fertile fields and rich meadows. But the use of lichens and mosses is greater still. They have a property to attract moisture; they draw towards them the clouds, and hence the tops of mountains are almost constantly involved in vapour. As they cannot retain all the moisture that distils upon their summits, much of it sinks into the clefts and crevices, whence it proceeds from all sides to the lower levels, and at last appears in the form of springs. Many small springs unite and form a rivulet, which in its progress swells to the size of a large stream. Then to the apparently insignificant mosses we are indebted almost entirely for the mightiest rivers; and to them, moreover, do we owe the desiccation of extensive swamps, and the fertility of soils which originally were most unfruitful. And here even on the top of a desert mountain the lover of the intricate and beautiful amongst Nature's handiworks may revel in the purest of all pleasures—that of reflection on the singular economy of the vegetable kingdom, and the vastness of that power which keeps all the laws of the material world in motion. It is not the mere individual objects, but the knowledge of circumstances and accompaniments, and the connexions that subsist between them, that most profitably engage our thoughts. We must look upon Nature's productions, in all their variety, as one great whole; we shall find that all parts harmonize, and are mutually and reciprocally useful and necessary to each other. The foundation of utility as a source of happiness consists in people seeing and knowing that which is around them, and which they may examine any day or every day, without cost and without trouble, and which will prove to them a perpetual source of enjoyment.

I continued my route to the left, over a series of points and crags, stopping at different times to enjoy the prospects and various plants that presented themselves, and soon after made my way to the hollow. There I turned round to look at the station I had left, and from below it appeared an immense height. I came to several little rivulets, in many places thrown over low rocks, and forming small but sometimes elegant cascades. I followed the course of the stream, looking in every direction for the great fall, as I was told it was conspicuous a long way off, but all to no purpose. I listened in hope of hearing its sounds, but it was still in vain, for I was not in the right road, as I afterwards found to be the case. I wandered along, hoping to see a human being or a house—two very scarce things, for I had not seen either since my start. At last I espied a cottage; it seemed but the habitation of misery from the exterior; the construction was of shaly stones, with which the country abounds, and just sufficient mortar to cement them together, and keep out the mountain blasts. A low roofing of straw; a chimney of the same, bandaged together with hay rope; the window small, consisting of boards, and in which rags had taken the place of glass. When I went to the door, I was met by two dogs and an old sow; these were the only occupants I could see. The door seemed to answer the purpose of a chimney as well, for I found the smoke coming that way; and the light, I suppose, when this door was shut, came down the chimney, for it was impossible it could come through the window. Of furniture there was everything that could be mentioned; every part of the wall was hung with something, and so was the ceiling, the wooden beams of which had the appearance of a little museum. When I knocked, the dogs barked; at last a female put her head out of a hole in the roof, or window, and after a great deal of trouble, and many signs, as she could not speak nor understand one word of English, I found out the way to the waterfall. I had to cross another high bill. Having gained the summit, the views were equally extensive and wild as those I had seen already. I cannot describe the sublime forms the mountains exhibited—rolling, as it were, over each other, varying in size and form until they insensibly lost themselves in the horizon. From hence may be seen both Cader Idris and Snowdon, the two monarchs of the British Alps; and here I caught the first sight of the cataract rolling down the side of the opposite mountain. The fall is terribly grand; it is 220 feet high, and for nearly two-thirds of this height the water is thrown down the flat face of a black naked rock. From thence it rages through a natural arch, and betwixt two prominent rocks passes into a small basin at its feet. Here the stream is confined within a rocky chasm, which offers so many obstacles to the progress of its impetuous course that it is everywhere covered with angry foam. The whole scene is nearly destitute of wood, but it has so much simple grandeur that many trees would injure rather than heighten the general effect. Sir Watkin Wynne has erected a neat cottage at the foot of the rock for the accommodation of visitors, which is very convenient to those who bring refreshments with them. On my return from the cataract, the people put me in the right road for Cynwyd, and told me to make all speed, as darkness would overtake me before I got off the mountains, as it was half-past three o'clock. I paid little regard to the advice, and I had occasion to repeat it, for in a very short time the wind began to roar among the rocks, and I could see narrow skirts of clouds brushing the tops of the mountains before me. I could perceive that they became more condensed and black, till at last the mountains and the clouds became one solid black mass. This I had to make head against, and pass into or through, if I could find my way. The fiery rays of the sun at the misty extremity gave to it an awful appearance. With the velocity with which the lower clouds were moved, the sides of the mountain full half-way down had the terrible aspect of a volcano; the clouds looked like volumes of smoke as they were driven by the wind. It was too plain I had tarried too long, and must make my way with all possible expedition. The clouds increased rapidly, and appeared to block up the mouth of my retreat. Still I hurried on till I came to the clouds, for they had gathered before me. The wind seemed to be blowing a hurricane. I paused for a moment, and considered whether or not I should go or return to the cottage at the waterfall. I was resolved to proceed, and I entered the clouds and made the utmost exertion to reach the top. This I did, but not before I had several ups and downs. When I got to the summit, the wind blew a

hurricane, the clouds beat like wet sails upon my head, and I had to exercise great care, clinging to the projecting rocks, crawling on all fours, and feeling my way with a stick. This stick I found a most useful companion, and without it I should have had to stay on the top all night, exposed to cold and tempest, without any hopes of making my distress known. I hurried on. My downward course was pretty good. I was anxious to get out of the darkness; but total darkness had set in amongst the hollows as well as on the hills, and I had yet three miles of swampy moors to traverse. The prospect became somewhat alarming, for I knew how treacherous some places were, and what awild, dreary, and comfortless journey it was in daylight. The lumps of white rock that were here and there peeping out of the black mould helped to darken and bewilder me, till I did not know which way to steer. I did not now whether I was going backwards or forwards. I kept tumbling about till I came to a rugged glen amongst the rocky banks, at the bottom of which runs a rapid torrent. The water was more plainly heard than seen in this dark chasm: it was full of horrors. The only course left me was to follow the water. This I did for a very short distance with the most painful efforts, and repeated struggles with bogs and rocks. Finding that danger was every step increasing, I was obliged to wait till the moon rose. I mounted a rocky pinnacle, and there I sat in this distressing situation, better to be conceived than described. I had not to wait long before the moon arose, and shone very brightly; but it lasted only for a short time, and seemed only to tantalize my hopes, for as I proceeded it became eclipsed by the mountain. I stopped, anxiously watching it moving, hoping it might soon again light my path. I had not to watch in vain; and after a troublesome and hazardous journey over rocks, crags, and through bogs, I arrived at Bryn Hyfryd, the place of my abode for the night; and from the countenance of the mistress of the house on my appearance, I suspect the family had believed that I should not again return.

N. COLE.

THE APPLICATION OF MANURES.

Lecture by PROFESSOR VOLCKER, before the London Farmers' Club.

It is no part of my duty to-night to have to direct your attention to an agricultural discovery with which I may be supposed to be more familiar than others engaged in the practical pursuits of life. Agricultural novelties, emanating from scientific men, I am sorry to say, seldom are such as to inspire good farmers with much confidence in the wisdom, judgment, and sound business character of their originators. If, however, the subject on the discussion card has not the doubtful merit of an agricultural novelty, nor the charm of an ingenious invention, I believe it has the advantage of giving gentlemen a good opportunity of discussing the pros and contras of certain prevailing practices of applying natural and artificial manures to the land, or of reconciling many apparent contradictions in the actual practice of different farmers. In inviting discussion to-night, I hope those taking part in it will not be satisfied merely stating the results of their actual experience, but that they will also point out the reason why they prefer one practice to another, and why the plan which is generally adopted by intelligent farmers is not resorted to in their case. Our practice, as regards the best time and most approved mode of restoring fertility to the land by means of manures, evidently must greatly be modified, according to the chemical composition and properties of the fertilizers which we wish to employ, the chemical and physical properties of the soil, and the requirements of the plants which we wish to cultivate. In order to be of any practical use, agricultural matters should be treated rather in detail than in a general way. It may be very useful to a country gentleman to have some general ideas of farming; but I very much question whether such ideas alone would be of much use to the rent-paying farmer, who, amongst other particulars, must know exactly how and when to apply the various fertilizers which practice has pointed out to him as the most profitable for raising good crops of wheat, barley, or turnips. I therefore propose to treat my subject less from a general or theoretical point of view, than to enter somewhat into details respecting the most approved modes and periods of applying manures to the land. In the first place, I shall have to speak of the circumstances which ought to regulate the manner and the time in which farm-yard manure is most usefully employed, and then it will devolve upon me to offer similar remarks on guano, bones, superphosphate, nitrate of soda, and a few other artificial manures.

FARM MANURE.

The principal questions on the mode in which farm-yard manure should be used, and the best time at which it should be incorporated with the soil, appear to be the following: Should it be used long and fresh? or short and rotten? Should it be carted into the field and ploughed in at once? or may it not be spread on the land, and ploughed in at the convenience of the farmer, without deterioration of its qualities? Is it desirable to distribute manure in a field in small heaps, and to leave it in that state for days or weeks? or should the manure be spread at once, and may it be left exposed to the air in such a state for some time, in case heavy rains should set in, and the wet condition of the land render the ploughing-in of the manure undesirable? What is the best time of the year for carting manure on the land? Should this be done in autumn or in spring? or may it be done at any convenient time, no matter what is the period of the year? To what crops of a rotation should farm-yard manure be used, where a sufficient quantity is not produced for meeting the requirements of the crops intended to be grown, and the deficiency has to be eked out by the employment of artificial manures? On all these questions great variety of opinions prevail. Allow me to state at once that I have always been an advocate for putting the manure on the land as soon as possible after it is produced, and that I believe autumn manuring, as a general rule, will be found more advantageous than spring manuring. It is not enough, however, merely to give expression to these convictions, for you will naturally expect me to support them by such proofs as will carry with them also conviction to your minds. In attempting to do this, I do not wish to weary you with chemical details; but it will be necessary, for a clear understanding of the subject, that I should speak as briefly as possible of the composition of fresh farm-yard manure, and the changes which it undergoes in keeping, or by exposure to the air. Chemically considered, farm-yard manure has to be regarded as a universal and perfect manure. It is a universal manure, because it contains all the constituents which our cultivated crops require to come to perfection,

and it is suited to almost every description of agricultural produce. As far as the inorganic fertilizing substances are concerned, we find in farm-yard manure potash, lime, magnesia, oxide of iron, silica, phosphoric acid, sulphuric acid, hydrochloric acid, and carbonic acid; in short, all the materials, not one excepted, that are found in the ashes of agricultural crops. Of organic fertilizing matters we find in farm-yard manure some which are readily soluble in water, and contain a large proportion of nitrogen; and others insoluble in water, and containing, comparatively speaking, only little nitrogen. The nitrogenous matters are principally present in the droppings and urine of animals, and yield ammonia on decomposition. The straw or litter in the manure hardly contains any nitrogen, and on decomposition produces brown vegetable organic acids, which pass under the name of humic acids. These organic acids—which, as we have just seen, are produced simultaneously from straw, with the ammonia arising from the putrefaction of excrementitious matters—have a great affinity for ammonia, in consequence of which they fix it as readily as sulphuric or any other mineral acid. For this reason I may observe, in passing, that chemical fixers of ammonia are perfectly unnecessary in farm-yard manure in which a due proportion of litter is used. Farm-yard manure is a perfect manure, because experience as well as chemical analysis shows that the fertilizing elements are present in it in states of combination which seem to be specially favourable to the luxuriant growth of plants. And I would direct special attention to the fact that fresh farm-yard manure, although it has a strong smell, practically speaking contains no volatile or free ammonia; and I may add that I have also found none worth mentioning in perfectly rotten dung; and of course, where no free ammonia exists, chemical fixers of this substance are quite out of place. It is true ammonia is produced abundantly on the decomposition of the urine and solid excrements of animals; but it is equally true that during their decomposition peculiar organic acids are formed in the rotten straw, which effectually bind the ammonia and prevent its escape into the air. We have thus good grounds for maintaining that artificial fixers of ammonia are neither required for fresh nor rotten dung, and also for asserting that both fresh and rotten dung may be freely exposed to the air without loss in ammonia, for the former contains hardly any ammonia in any form, and the latter contains it in the form of ammoniacal and volatile salts. Farm-yard manure, as is well known, is subject to the process of spontaneous decomposition, which generally is called fermentation, but more appropriately putrefaction. The nature of this process consists in the gradual alteration of the original organic matters, and in the formation of new compounds. All organic matters, separated from the living organism, are affected by putrefaction, some more readily, others more slowly. These organic matters, which, like straw, contain but little nitrogen, on exposure to the air and moisture at a somewhat elevated temperature, decompose spontaneously and slowly, without disengaging any noxious smells. On the other hand, the droppings of animals, and especially their urine, which is rich in nitrogenous compounds, rapidly enter into decomposition, producing disagreeable-smelling gases. In a mixture of nitrogenous and non-nitrogenous matters the former are always first affected by putrefaction; the putrefying nitrogenous matter then acts as a ferment on the other organic substances, which by themselves would resist the process of spontaneous decomposition much longer. The disagreeable-smelling gases which are produced during putrefaction arise from the sulphur and phosphorus of the nitrogenous compounds present in dung. A considerable proportion of this sulphur and of the phosphorus combines with hydrogen, and form sulphuretted and phosphoretted hydrogen—two extremely nauseous gases—which both escape from fermenting dung-heaps. The relative proportions of inorganic to the organic matters in well-rotten dung is much greater than in fresh. This increase in mineral matters can have only been produced at the expense of organic substances, the quantity of which during the process of fermentation must decrease in a corresponding degree. Thus, whilst I found in fresh dung, dried at 212° Fahrenheit, organic matter 83.48, inorganic substances 16.52 per cent.—rotten dung shows in 100 parts, organic matters 68.24, mineral or inorganic matters 31.76. It is clear, therefore, that during the fermentation of dung, much of the organic substances must become changed into compounds which are readily soluble in water, and easily washed out by heavy rains, or into gaseous products which are readily volatilized. In point of fact, both volatile gases and readily soluble organic and inorganic compounds are formed. By far the largest proportion of the gases which escape into the air consists of carbonic acid gas, oxide of carbon, and light carburetted hydrogen, or marsh gas; and it is worthy of special notice that no appreciable amount of ammonia is dissipated. Now this is not a mere assumption, but a fact which can be readily ascertained by any one who has the skill of discerning the amount of ammonia with accuracy. The practical result of the changes which take place in fermenting dung is, that fresh manure, in ripening, becomes more concentrated, richer in nitrogen, weight for weight, more soluble, and consequently more easily available to plants, and more energetic in its action.

The per-centage composition of fresh and rotten manure, however, does not throw much light on the question whether a dung derives any loss in ammonia during ripening, and to what causes are really due its deterioration by exposure to wind and weather. But if a given weight of manure is put up in a heap, and its composition ascertained from time to time, and its loss in weight is simultaneously determined, then it is clear it is possible to ascertain whether the rotten dung which is produced from a given weight of fresh contains the same, or less, nitrogen than was originally present; and by exposing the rotten dung afterwards to heavy rains, we can also determine the reason why it deteriorates so rapidly under their influence. This I have done a great many years ago. Two cart-loads of fresh farm-yard manure were placed in a heap set against a stone wall, but otherwise exposed to the influence of the weather.

Without entering much into particulars, I may observe that, in the first experimental period, the fermentation of the dung proceeded with rapidity, but was unattended with any material loss of ammonia, nor, indeed, any appreciable amount of the more intrinsically valuable constituents of dung. At the end of April (as will be seen), the whole heap contained almost precisely the same amount of nitrogen which it contained when put up fresh in the preceding November. During that period little rain fell, and this never in large quantities at a time; whilst in the interval of April and August rain was more abundant, and fell several times in continuous heavy showers. In consequence of this, soluble matters in the heap were washed out, and with them a considerable portion of available nitrogen and the more valuable mineral constituents of dung were wasted. The general

conclusion which may be drawn from these experiments is evidently that manure loses no valuable fertilizing matters by simple exposure to dry air, and, I may add, nor even by exposure to a broiling sun, but that it is rapidly deteriorated by rain. Now it is upon these undeniable facts that I found an argument for carting the manure on the land as soon as it can be done conveniently. Once placed there, neither sun nor wind will hurt it, I believe, in the slightest degree; and when rain falls, the soluble matters will be washed into the soil, where they are wanted, and stored up there for the use of plants; for all soils—some in smaller, others in larger degree—as is well known, possess the power of absorbing and retaining, in a comparatively speaking insoluble condition, the more valuable soluble fertilizing constituents of dung. If the manure is carted on the field during the autumn or winter, and spread at once, it will, even when perfectly fresh, become sufficiently decomposed by the time it is required by the spring crops, and the unnecessary expense of putting up manure in heaps, and turning them over once or twice, and the loss attending such turning, may be entirely avoided; and this may be done at a time when the horses have little or nothing to do, and the fields are not injured by the horses' hoofs. I advocate autumn and winter manuring, because autumn and winter, generally speaking, are the most convenient periods for carting manure. There is, however, not the slightest reason why this may not be done at any convenient time throughout the year; for, as I have said before, not even a broiling sun dissipates any valuable fertilizing matter from manure.

Many persons, if I am not mistaken, entertain rather erroneous views with respect to the desirability of ploughing in the manure directly it is carted on the field. I have of course no fault to find with this, if their anxiety to plough in the manure directly arises from the wish that whatever can be done at once should be done without delay; but if this is due to the fear that manure, if not ploughed in directly, will lose in fertilizing quality, I cannot share their anxiety; and go so far as to say that often it would be much better to leave the manure freely exposed on the land in wet weather than to plough it in, and make a mess on the land when horses and men ought to be kept from it. Others take a middle course, and distribute the manure in small heaps, and leave it in this state until a convenient time occurs for spreading and ploughing it in. Now this, I do not hesitate saying, is an objectionable practice; for if heavy rain should fall continuously for a number of days, these small heaps will be washed out, at least partially, in consequence of which the portions of the field where the heaps were placed will receive too much of the soluble and most fertilizing matters, and the crops there become too rank, and the produce on the field will ripen unequally. I have observed over and over again the injury which may be caused by the objectionable practice of distributing manure in small heaps on the land, and leaving them for weeks together before spreading the manure. I would therefore advise the manure to be carted on the field whenever convenient, to spread it directly, and not to trouble about ploughing it in at once if rain should set in, even if the wet state of the land should render it advisable to keep horses and men from it for weeks or months. The views which I have advanced I am aware are not accepted as correct by some agricultural authorities. Thus, for instance, I find in an article on the farming of Leicestershire, in the last volume of the *Journal of the Royal Agricultural Society*, the following passage: "Lord Berners puts great stress on covering up the manure when laid in small heaps on the land, and cites an instance where the labourers were overtaken by a thunder-storm while manuring for roots, the ridges being opened and the dung carted on and laid in small heaps. A portion was covered with soil previous to the storm, and the remainder left for a few days exposed, the manure and treatment being in every other respect the same, but the difference in the crops was most astonishing. Where the manure was covered the produce was nearly double. Nor did the difference end with the root crops, for the barley succeeding was also very much better on the covered manure. This scarcely accords with the scientific conclusions of Professor Voelcker, who does not anticipate harm from exposing manure if spread on the ground. Lord Berners, however, is far too practical and acute an observer to allow us to have the slightest doubt as to his accuracy, and this is one of the instances where the teachings of science and the facts of practice cannot be easily reconciled." In explanation of this passage I would observe that I have not the slightest doubt about the accuracy of Lord Berners' observation; but that I cannot recognise in it either an instance which shows that the teachings of science and the facts of practice cannot be easily reconciled, nor a proof that manure sustains any loss by evaporation. Incidentally, I may also observe that I never taught to leave manure in small heaps in a field, but that it should be spread out at once. The real cause why, no doubt, Lord Berners got a bad mangold and barley crop on that portion of the field where the labourers were overtaken by a thunder-storm appears to me a very simple one. The field was a heavy clay land, and therefore it is not at all surprising that where the manure was got on the land and ploughed in before the rain interfered with the operation, the mangold and succeeding barley were good, and these crops turned out bad on the other portion of the field simply because the land was messed about after the thunder-rain, and not because the manure lost in quality by exposure to the air. At all events it is a fact well known to clay-farmers that on stiff laud a better crop is often obtained without any manure when worked dry than with manure when worked wet. With regard to the crops to which farm-yard manure is best applied, I would observe that time does not permit me to dwell on particulars; I therefore will only notice that on farms on which farm-yard manure is scarce, and recourse must be had to artificials, the most economical plan to use the manure appears to be to grow the root crops mainly with artificial manures, and to spread the yard dung on the seeds or clover-lay.

ARTIFICIAL MANURES.

I must now hasten on to offer very briefly some observations relating to the manner in which some of the more important artificial manures should be used on the farm. All concentrated manures, such as guano, nitrate of soda, or superphosphate, should always be mixed with some diluent or other, and applied in a finely divided state. Artificial manures may be conveniently divided into nitrogenous and phosphatic manures. The former, as is well known, are especially useful for cereals and grass crops, and the latter for root crops. Concentrated nitrogenous manures, such as guano, nitrate of soda, sulphate of ammonia, &c., I am of opinion should never be ploughed in deep, or applied with the drill, but be spread, properly diluted with dry and fine soil or burnt clay, vegetable ashes, or sifted coal ashes, by hand, or better by the broadcast distributor, and

harrowed in very lightly. Superphosphate and bone manures, on the other hand, should be drilled in at the time of sowing the seed. When the land is very light, or out of condition, so that rather a heavy dose of manure is required, it seems to me advisable to sow a portion broadcast, and to drill in the remainder of the manure with the seed. The state of preparation in which artificial manures are sold by dealers often is not what it ought to be, and particular care should be exercised by the farmer not to use any which are wet, lumpy, or otherwise badly prepared. This remark applies specially to bone-superphosphate. Even some of the most respectable manufacturers, I find, sell badly-prepared bone manures—that is to say, manures in which pieces of bone an inch long and longer, and scarcely acted upon by acid, are plainly visible. This arises from a desire to convey the impression that the manure is made from bone; frequently, however, so-called bone-superphosphates are in reality made from mineral phosphate and acid, to which a few plums of bone have been added. But even should the manure be made entirely from bone, it would be far better if it were thoroughly disintegrated, and sold in a dry pulverulent state. As regards the quantity of superphosphate useful for root crops, I may mention that sometimes mistakes are made by employing too much. As a general rule, 2½ to 3 cwt. of a really well-made and good superphosphate appears to me an amply sufficient quantity for raising a good crop of turnips or swedes on land in a fair agricultural condition, provided the superphosphate is properly diluted with ashes or dry soil before drilling, or applied with the liquid-manure drill. Considering the great advantage of distributing much more uniformly turnip manures by means of the liquid-manure drill than by the dry drill, I am surprised that the former implement has not superseded to a greater extent the employment of the latter. There can be little doubt that where water is at hand, the application of superphosphate by means of the liquid manure would effect a great saving in the purchased manure, for we possess trustworthy experiments which show that half the usual quantity of superphosphate gave as large a crop of roots as double the quantity applied with the dry drill.

BONES.

Bones in the shape of ¼-inch and even ½-inch pieces are still used by some farmers. I do not think this is the most profitable plan of applying this important fertilizer to the land. As long as bone-dust was comparatively cheap, and prepared bone-manure dear, the practice of using bones in a raw condition was perfectly defensible; but at the present time the altered circumstances of the manure trade will have the effect of superseding more and more completely the use of ¼ or ½-inch bones. Even for permanent pasture, I believe bones partially dissolved by sulphuric acid will be found more profitable than raw bone-dust. It is true the latter lasts longer than the former; but it should be borne in mind that the purpose for which manure is put on the land is not that it should remain there, but that it should produce heavy crops. Now bone-dust requires a season or two before its action becomes manifest in the increased produce, and all the while the capital invested in the purchase of the bones remains on the land without bearing much interest, which surely cannot be an advantage. "Quick returns and small profits" should be the motto of the enlightened agriculturist, if he wishes to make the most of purchased manures. The profits of farming, I believe, in comparison with those realised in other pursuits of life, are, and probably always will be, small; hence the greater the necessity appears to be to secure quick returns, and not to lock up capital useless in the soil. I would therefore suggest the addition of about 20 or 25 per cent. of sulphuric acid, which will make a portion of the bone-dust soluble, and directly available for the use of plants. The addition of acid to bone-dust, moreover, in localities where crows abound, effectually prevents the depredations of these feathery marauders, who, it is well known, will carry off a good many bits of bone-dust from recently boned pastures.

NITRATE OF SODA.

Nitrate of soda is usefully mixed with about double its weight of common salt before sowing; 1½ cwt. to 3 cwt. of salt is a fair top-dressing for wheat or barley. Top-dressings with nitrate of soda should never be used in winter, but delayed till about the beginning or middle of March. The precise time when nitrate of soda should be put on the land depends on the more or less advanced state of the season, and the proper time of using this top-dressing I found, by many years' actual experience in the field, is the period when the young wheat crop is just beginning to make its first perceptible start in spring. I have used nitrate of soda as late as the middle of April with advantage, and in other years as early as the middle of February with equally good effects. If there is a fair prospect of March being a moderately dry month, I should not hesitate to top-dress with nitrate of soda as early as the end of February; but should the weather at that time and in March be very wet, I would delay the application of nitrate of soda till the beginning or even middle of April. There are two good reasons why nitrate of soda should be applied to the land in spring, and not during the winter months. First, experience has shown the period pointed out by me to be the best; secondly, it is well known that no soil, whatever its composition may be, has the power of absorbing and retaining nitrates; and these highly soluble salts, therefore, are quickly washed away by the rain into the subsoil, where they are not wanted, if they are applied to the land during the winter or early part of spring; and hence it is only reasonable to delay top-dressings with nitrate of soda until the time when the wheat begins to make its first perceptible spring growth. It is well to bear in mind that soils do not possess the property of fixing nitrates. Unlike salts of ammonia, nitrates pass unchanged through the soil into the drains, and are lost to vegetation in a great measure if they are applied to the land in autumn or winter.

AMMONIACAL MANURES.

such as sulphate of ammonia and guano, on the other hand, are best used in autumn or during winter, and not too late in spring. Even on light land it is not desirable to apply guano too late in the season for corn crops. Autumn dressings with guano generally produce more healthy and equal crops than when manured in spring; and as all soils without exception possess the power of eliminating ammonia from soluble salts, guano, sulphate of ammonia, and other ammoniacal manures, may be applied during the winter without risk of losing valuable fertilizing matters.

In conclusion, allow me to throw out a few hints as regards the mode in which guano should be applied to the land. Much more care should be taken than is bestowed upon it to apply it in a good mechanical condition. Guano should never be sown without having been first sifted, and any hard lumps in it reduced to powder. It is a good plan, before sowing, to mix the sifted guano with about an equal weight of salt and double its weight of dry soil or ashes. Salt is a useful distributing agent of the fertilizing constituents of guano in the soil, and moreover prevents the dusting and loss of finer particles of guano during sowing in the field. The mechanical preparation of guano is not quite so easy an operation as some imagine; and this, I believe, is the reason why very few farmers perform it properly. Allow me briefly to describe a plan which I have found to answer well in preparing guano for use. First sift off all the fine guano dust. Then mix the hard lumps left in the sieve with about twice their bulk of sharp sand. Spread the mixture on an even floor, and pass a heavy garden roller over it, or beat down the lumps with a wooden mallet. (The admixture of sand prevents the caking of the guano, and greatly facilitates its reduction to fine powder.) After the whole has gone through the sieve, add salt in the proportion of two parts, by weight, to one of guano. The moisture imparted to the guano by the salt prevents the dusting, which is a great inconvenience in sowing by hand. Salt, in conjunction with guano, moreover, has a specific action on vegetation, which is specially beneficial to corn crops on light soils. I cannot too strongly impress you neither to spare trouble nor expense in preparing guano properly before sowing it: 10s., or 15s., or even £1 per ton will be well laid out, should the labour of preparing it in the way suggested by me cost as much. Peruvian guano contains no more than three-fourths to one and a half per cent. of free ammonia; and hence there is no necessity of adding sulphuric acid to it, with a view of fixing the ammonia. Nevertheless, the addition of sulphuric acid to guano can be strongly recommended, for the reason that it greatly increases the chemical efficacy which this manure is capable of producing in the field. As little as 10 or 15 per cent. of sulphuric acid, added to guano, I find, has an extraordinary effect upon its composition. Sulphated Peruvian guano, on account of the large amount of soluble phosphate which it contains, is certainly more efficacious than guano in its natural condition, especially for root crops. However, the mixing of guano and oil of vitriol, if I am not mistaken, is not a pleasant operation for the farmer, and I therefore do not advise you to attempt it; but if you will prepare your guano mechanically, in the way described just now, and then mix it with a good dry coprolite superphosphate, rich in soluble phosphate, you will secure all the chemical benefit which sulphuric acid itself produces on guano much more conveniently, and thus be able to prepare yourself a really good prepared guano more economically than you can buy chemically prepared guano. For root-crops, one of guano and three of superphosphate made from coprolites, and containing, as it should do, not less than 20 per cent. of soluble phosphates, is an excellent mixture, and a fair dose per acre. For cereals, the proportions of guano and superphosphate should be reversed—that is to say, one of phosphate and three of guano should be employed.

NOTE ON THE CULTIVATION OF AMHERSTIA NOBILIS.

By Mr. TAPLIN, Gardener to His Grace the Duke of Devonshire at Chatsworth.

(From the Journal of the Royal Horticultural Society.)

The age of the plant is probably about twenty-five years; the height 5 feet, the circumference 45 feet. It is planted out in a house specially built for it, in a bed of soil about 6 feet square and 3 feet deep, raised above the level of the surrounding path. The soil is warmed to a temperature of about 85° by pipes underneath.

The soil is good open loam and sand, to allow free passage for water, of which it requires a large quantity during the growing season, both on the surface, and also poured down a perpendicular opening to the heating pipes below, so as to give moisture with bottom-heat. There is sufficient piping to keep the top-heat at 70° even in severe weather. The following is the mode of treatment.

When the plant has flowered, a portion of the old soil is removed from the surface without disturbing the roots, and some nice fresh soil added; it will soon commence growing, when it must be kept shaded from the bright sun; for the young growth especially is very impatient of the sun's rays. I keep the plant sprinkled twice each day, and evaporating pans constantly full of water. The plant generally makes two growths in the summer. The growing temperature is 75° at night, and from 85° to 100° by day.

In the autumn, when the wood begins to ripen, I give less shade, and reduce the supply of water for about three months, but do not allow it to be very dry, and keep some of the evaporating troughs full of water during the winter.

Winter temperature 70° to 75°. In January I give more water, and the plant will begin to show flower by the end of the month, the flowers pushing out very rapidly, and continuing to open for five or six weeks.

There have been this year fifty-five racemes of bloom open, and there are three more to open, in all fifty-eight, with from ten to sixteen flowers on each raceme. The greatest number of racemes with flowers open at one time was about twenty.

FIRST PINE-APPLES IN ENGLAND.—When Oliver Cromwell ruled in these realms, a present of pine-apples was one of the things which fell to his lot, and this was probably the first introduction of the fruit into England, although it was known on the Continent four years previously. Four years afterwards, and Evelyn writes of its appearance on the royal table. But the fruit, however much it may have been extolled, is not the only good product of this plant. From the leaves thereof is procured a fibrous material known and appreciated by the barbarous hordes of Africa and the semi-civilised Malays. The celebrated pine-apple cloth of the Philippines, resembling the finest muslin, is woven with the delicate fibres of the uncultivated pine-apple plant. This muslin is embroidered by the nuns of the convents of Manila with excellent skill and taste, so that the "Pina" muslin of the Philippines has become a celebrated article of manufacture. Mr. Bennett has observed in his "Wanderings" that one of the coarser fibres may be subdivided into filaments of such fineness as to be barely perceptible, and yet sufficiently strong for textile purposes.—*Hardwicke's Science Gossip.*

THE CYCAS AND ITS ALLIES.

It is only the possessor of a large conservatory who can hope to do justice to the *Cycas*, the *Zamia*, the *Dion*, and other members of the remarkable family of *Cycadaceæ*. But where there is sufficient room and warmth, and plants of fine form are valued, a certain few of these are indispensable to give richness to a scene which must have more or less of a tropical aspect. They are among the most wonderful of all the plants in cultivation, and they must always be costly, for we cannot chop them up and multiply them like soft-wooded plants, nor can we force them into rapid growth and make specimens quickly. Nature is our mistress here; Art is a trifle only in comparison of the fixed habit and non-compliant temper of these noble members of the vegetable kingdom. I can never look on a grand specimen of any one of this tribe without reflecting on the long series of years during which it has grown solely and grandly in its own way, and I have sometimes attempted to arrive at some correct knowledge of the age of a *Cycas* or *Encephalartos*, but I confess with no satisfactory result. They are botanical enigmas.

Australian grass tree (*Xanthorrhæa*) which must have been growing a couple of centuries ere it was torn from its native site in the wilds to adorn a display in this land of wealth and luxury and high taste. The *Cycas* is in another respect a conifer, for the flowers are nearly related thereto, both male and female; in fact, we may call a female inflorescence a cone, and we may find in it naked ovals as in the cone of a pine or fir. Moreover, a section of the wood under the microscope displays a structure close akin to that of coniferous timber. When we see their huge pinnated leaves unfolding from the crown, we are persuaded that they bear relation to the ferns; and the scars left after the leaves have fallen are like those left by the articulated series of ferns upon the woolly or scaly rhizomas. I say these plants are botanical enigmas, and no one who has reflected upon the origin of species can doubt that they have played their part in the modification of less ancient forms of vegetation, but how or when no man can say.

At Kew there is a fine collection of these wonderful plants, and they have good treatment, as is evidenced by their healthy appear-



ENCEPHALARTOS CAPFRIA.

They are living records of a dead past, and connect the present with ages when man trod not the earth, and gigantic forms, animal and vegetable, dwelt amid the steaming atmosphere which marked the last decline of the subterranean fires which have apparently quite gone out. I shall not attempt to descant upon the part the *Cycas* played in the vegetation of far-off geological ages, but I must at least reflect upon their antiquity when I compare their forms and physiology with their nearest congeners of the vegetable kingdom. What is a *Cycas*? It is in one respect a palm; the leaves all proceed from the summit, the stems are simple and cylindrical, and though we are accustomed to see stems only a foot or so high, there are some that attain a height of thirty to forty feet, and it would perplex us to say how many years must pass ere such a growth is attained. A friend has just shown me a nice plant of *Todea pellucida* with a stem rather more than a foot high, and has asked me what may be its age. He is astonished to hear me say that it must be over a hundred years of age. I remember Mr. Williams presented to a flower show, which was one of the first I attended after I landed on these shores, a plant of the

ance. I have not seen amongst any of the best collections of plants on the Continent, a greater variety or finer specimens than those at Kew, but there does not exist in cultivation specimens which represent the actual magnitude or the picturesqueness of these plants, for it is impossible to import gigantic specimens, and to keep them would be even more difficult than to obtain them. In their native localities they are in most cases important because of their real usefulness. They furnish an abundance of wholesome food; indeed, the Japanese and Surinam name for our well-known *Cycas revoluta* is a term meaning "Sago palm," though the true sago palm (of commerce) is a palm, and not a cycad. It is from the pith of the stem that the sago is prepared. In the Moluccas this sago is largely used as food. From *C. circinalis* also sago is prepared. From the *Zamia* also, in the Bahamas and West Indian Islands, they prepare an excellent arrowroot from the starch which is obtained from the stems of *Zamia integrifolia*; and in Kafir-land, a bread or eatable paste is prepared from the starch of *Encephalartos capfria*, the native name of which plant is "Caffre-bread."

CYCAS REVOLUTA.—This grand plant is one of the requisites of a

good collection, if grandeur of form is required; and I do not wonder that those who have fine plants prize them, and believe that as wealth and refinement increase, there will be more and more demand for specimens. In my first visit to Mr. B. S. Williams's interesting nursery, I was struck with the fine condition of numerous grand examples of this and other cycads (some of the specimens are unique). But those we see, though gigantic sometimes as compared with the common inhabitants of our plant houses, are pigmies as compared with the monsters that may be found in some tropical swamps. And I hope the young cultivator who is trying his hand with such plants will remember the word *swamps*, for it is only where water abounds, with great heat, that the finest examples are met with. The greatest examples ever introduced to Europe were those sent to Ghent some ten years ago, the tallest of which measured 9 feet 3 inches high from the ground to the top of the trunk. Mr. Regel has noticed that in Surinam these plants become gigantic when located in marshes, where sometimes they make two distinct growths in the course of a year, owing to the peculiarities of the climate; but in China and Japan, where there is less heat, and when they are located in drier spots, they make but one growth, and this is less luxuriant, though fully as beautiful as that accomplished with the aid of excessive heat and moisture. And I would here make a remark for the cultivators, that according to the original location of the plants is their habit (climatologically considered) for all time to come, so far as human experience can teach us. Those who wish to place this plant in a comparatively cool house—that is to say, to adapt it as nearly as possible to the treatment of a hardy plant—should obtain, if possible, plants from China or Japan, for these are habituated to a lower temperature and less moisture than those which grow in tropical swamps. My meaning in respect of their habit being fixed for all time to come is this; that plants from hot swamps will not submit to cool treatment; they require the treatment of the hottest of the orchids; but those from cooler districts will bear cooler treatment, and to alter their constitution, even by the most careful course of acclimatization, appears to be impossible. If any of your readers have cooled down a hot plant of Cycads so as to bear cool treatment without injury to the specimen, I shall be most glad to hear; and I make no doubt you will be glad also, for it is a matter full of interest. Why, as touching this question, every plant of the well-known *Araucaria imbricata* has a constitution of its own: some of them will bear the extreme cold we know of in Europe; others are killed by a severe winter; and *all* are injured by being placed where a constant sharp wind prevails all winter. The Belgian plants of Cycads *revoluta* that were brought from Surinam have required a greater heat than other specimens of the same plant under the same roof; and probably they will never bear such cool treatment as such as come from cooler climates. Those Belgian plants were found in a marsh which is almost constantly bathed in sunshine; the heat is fervid, the water plenty.

By far the larger proportion of all the plants of this species known are females, and the fruit they produce is infertile. I have seen many examples in a state of fructification. Thunberg and Siebold rarely saw male plants; Mr. Regel never saw a male in Surinam, though the plant is there most abundant in the swamps. A male plant once flowered at St. Petersburg; and I find it on record that in the collection of Miss Neilson, of York, one flowered in the year 1833, and the same plant subsequently flowered in the Sheffield Botanic Garden in 1839. Since then males have flowered in two or three botanic gardens on the Continent; but to this day no one has ever had the opportunity of fertilizing a female flower-head by means of the pollen of the male. To see the female flowers is an interesting spectacle which it has been my lot oftentimes to enjoy. The inflorescence has at first the appearance of a human head covered with auburn hair. Afterwards it is like a coronet, consisting of upwards of a hundred woolly stalks like gaunt birds' claws, which branch into smaller divisions. At the base of these claws is produced in clusters a number of red or rose-coloured fruits, flattened, the size of a plum, all covered with brown pubescence, which comes off at the least touch, and shows the lovely colour of the fruit. There are hundreds of these fruits in the entire collection; my friend, August Wenherdt, told me he counted 1,126 in one that he had the privilege to examine at Berlin. It is possible, and most probable, that neither male nor female plants ever flower till nearly a hundred years of age; it is certain that they may be kept twenty or thirty years in the same house, and not show signs of any fructification. I can say with certainty that fruiting may be induced by starving the plant four or five years; but care must be taken that it does not suffer in health by the process.

To grow this plant well needs a free, sandy, and rich soil, a good moist heat, and plenty of pot-room. When suckers are produced, it is a good thing for the cultivator, as he may then make sure of young plants. Those obtained from comparatively cool and dry parts of the world are to be preferred, though they grow less fast

than such as are obtained from the hottest districts; the cool plants will bear and enjoy all the heat of the stove, but the hot plants will not at all bear cool treatment. *C. angulata* will bear the coolest treatment of all. *C. circinalis* must be kept in the stove, and so must *C. squarrosa*.

ZAMIA, OR ENCEPHALARTOS.—The *E. Caffra* is quite a cool conservatory plant, as might be expected from the country it inhabits. It is of most noble proportions, and grows very slowly. *Zamia angustifolia*, *Z. horrida*, *Z. cycadis*, *Z. lanuginosa*, *Z. latifolia*, *Z. longifolia* (a splendid species), *Z. pumila* (a pretty little species for small houses), *Z. spinosa*, are all such as you call (but not wisely I think) *hardy* greenhouse plants, being natives of South Africa. I could name some more which we have in good collections on the Continent, but I do not think you have all I have already specified, and you beg me so not to make long lists of plants that you say "nobody can obtain." You may grow all these in the stove if you will; the heat will not kill them if with abundance of water in the growing season; in fact, they have a deluge of rain in their own country when the season of growth occurs, and at other times they are parched with heat and smothered with sandy dust. The soil should be rich and sandy. When suckers appear, take care you make of every one a plant.

DION.—I see that in some of your books the noble Dion is described as a palm, but it is in truth one of the Cycads. *D. edulis* is one of the most magnificent plants known to cultivation. The name is a good one, for the scales which compose the cone are two-lobed, and the edible seeds are produced in twos. It is very palm-like, and attains a gigantic size, though the specimens in cultivation are mostly small. This will sometimes produce suckers, but very rarely, unless an operation be performed. I learned that this could be done by a plant that was much injured, so that the crown was cut vertically. Two years afterwards it produced a number of suckers, and the fact was kept secret. If we had the courage to hack a fine plant with a hatchet, I do not doubt that it would pay in the end, but I do not advise it. I am content to record what I have seen. This plant requires to be potted in much the same way as a heath or epacris, the soil to consist of lumpy loam, with plenty of sand and broken bricks, and to have the drainage of the pot or tub very carefully arranged. When growing, it must have plenty of water. It will winter well in a temperature so low as 45° to 50°, though usually kept much warmer. In summer, a good stove heat is necessary.

I here quit this subject, which is after all interesting to only a few amongst the thousands of plant-growers. Still we must consult the interests of the few rather than the many. You see that in Prussia the minority were the active agents in bringing about what the majority now accept as good. So let us hope that while there are so many who have no care for Cycads, the time will come when many will desire to know all about them. Then I think I can write another chapter; but for the time of this I do as you wish; I am brief.

KARL PROSPER.

MY ORCHID HOUSE.—No. X.

THE LYCASTE.

It will not be necessary for me to occupy much space in introducing the Lycaste to the reader's notice, for most people who are in any way acquainted with orchids and orchid growing, know more or less about it, as some of the varieties have been so prominently brought forward within the last few years as "fit and proper" candidates for the cool house. Indeed, with the exception of the *Odontoglossa*, I have no hesitation in saying that some of them, particularly *L. Skinneri* and its varieties, are quite as well, if not better suited for that purpose, than a great many of the different kinds of orchidaceous plants which have been very strongly recommended by the different advocates of the cool treatment system. Whilst I am by no means convinced of the practicability of carrying the cool treatment to the extent which some people suppose to be possible, I am not so thoroughly and effectually prejudiced as to shut my eyes to the fact that some few orchids can not only be grown without much fire-heat, but will certainly do much better in a low temperature. It would be undoubtedly a decided advantage if all could be successfully grown without the assistance of a high temperature, for it would effect a vast saving in both the expense of maintaining it, and the extra time and trouble which is necessary, as compared with the management of a low temperature. I was going to say it would add to the pleasure already derived from them, were that possible, to be able to inspect them when in flower in a temperature congenial to one's feelings, than to what it is in one which I have heard some people compare to a Turkish bath. But it is never necessary for the admirer of the flowers of orchids to suffer parboiling except in rare and peculiar cases, for when in flower the plants of most kinds are much better removed to a cool house; and if carefully managed, and kept dry both at the roots and overhead, the flowers will remain in perfection double the time they would do if left in their growing quarters, and the

plants will not suffer the slightest injury. Therefore the idea of the necessity of people being next to roasted or boiled alive, to be able to see orchids in bloom, is nothing less than a fanciful objection.

A very good temperature to grow the *Lycaste* in, and one that will be very suitable for it, is from 55° to 65° through February and March, which will start them beautifully, and then as the days lengthen and the principal atmospheric warmth is derived from the sun, a rise to 75° or 80° will keep them growing vigorously, and enable them to complete their growth early, so that the young bulbs will be well ripened and able to stand a low temperature of from 45° to 50° through the winter. When the season's growth is about finished, and the plants are gradually declining to rest, they should have all the light they can conveniently be exposed to without the sun actually scorching them. I might mention here that it is very difficult to keep them in a low importance through the winter, unless the young bulbs are thoroughly matured; and as I have mentioned on former occasions, the temperature of this cannot possibly be overrated, and a great deal (if not everything) depends upon this as to whether the plants bloom profusely or not the following season. There will be no difficulty in growing the *Lycaste* in a mixture of equal parts of sphagnum and rough fibry peat, combined with plenty of drainage to allow free egress for the water, which should not be administered in too great abundance even when the plant is in full growth, and not more than is sufficient to keep the bulbs from shrivelling when it is at rest. Some of the varieties have large fleshy bulbs, which are exceedingly liable to decay at the base if kept too wet at any time, particularly through the winter. To guard against this as much as possible, the plants should be potted so that the base of the bulb stands three or four inches above the rim of the pot, varying it according to the size of the plant, the same way as I advised for the *ampliatum* section of the *Oncidium* when treating upon their culture a few weeks back. The *Lycaste* is propagated by division, which is best effected in the spring, after the young growths have pushed about an inch or so in length.

The varieties of the plant we have under consideration are not so very numerous, but all that are in cultivation are well worth growing. Certainly none of them are particularly grand or magnificent, but still very beautiful, and are what we might term a first-rate middle-class orchid. *L. aromatica* blooms in May, with lovely yellow flowers which are most deliciously fragrant. One good-sized plant of this kind is sufficient to perfume a large house. Another good kind is *L. cruenta*, which flowers two months earlier than the preceding, with yellow and crimson flowers. *L. Deppei* is also worth growing; it has a pretty yellow flower, with a brown lip, and is in perfection in June. *L. Laurenceana* is a splendid variety, and should be in every collection. Last, but not least, comes the beautiful *L. Skinneri*, and its two lovely varieties, *albida* and *superba*, which flower in October. GEORGE GORDON.

THE MEXICAN AGAVE.

The American Aloe (*Agave Americana*) is a native chiefly of Mexico, but it is found in other parts of America. The precise date of its introduction into this country is not known, but it is recorded that one flowered in Lameth in 1698. It grew to a height of from 12 to 15 feet, and was considered very choice and rare. The plant appears to have flowered in Paris in 1663, and at Leipsic in 1700. In 1729, and again in 1743, two plants flowered at Hampton Court, it still being considered a great rarity.

There is a popular notion regarding the *Agave* that it flowers but once in a hundred years. The plants cannot be said to flower more than once during their life, but this flowering period may be at any age, and is influenced by the soil and position in which they grow. After flowering, the plants die, but new ones are produced by suckers. Though the *Agave* itself is of comparatively slow growth, the flower spike, which shoots up from the centre of the tufts of leaves, on the contrary grows very rapidly gaining a height of from 20 to 30 or even 40 feet, from the upper portion of which small branches are given off, which are crowded with yellowish-green flowers. At the base these flower spikes are nearly as thick as the wrist; the longest one ever recorded was 40 feet, and grew in the King of Prussia's garden. The flower spike which runs to this great height is a very striking object, being of a remarkably straight growth, and remaining in flower for several weeks; it contrasts favourably with the great fleshy, rigid leaves, which apparently spring from the ground without any stem intervening; these leaves sometimes grow to a length of 6 feet, and remain perfect for many years. Interspersed through the fleshy substance of these leaves is a large quantity of strong fibre, much used for a great variety of useful purposes in all countries where the plant grows. It makes excellent twine and cord of any thickness, and is exceedingly strong and of a very clean appearance; the fibres themselves are very regular and even. Hammocks are constantly made of this twine, and very strong and durable articles they are. The fibre has also been imported into this country of late years under the name of Mexican fibre, and it is much used in the manufacture of nail-brushes, scrubbing-brushes, and similar articles. Humboldt speaks of a bridge in Quito over the Chimbo, the span of which was upwards of 150 feet, and the principal ropes, which were 4 inches in diameter, were made of this fibre. It is separated from the fleshy part of the leaves by bruising them, then macerating them in water, and afterwards beating them. This fibre has also been used for paper-making. Important as is this product of the plant, the most valued of all is the sap, which when fermented is known as pulque in Mexico, where it is much used as a beverage.

There are three or four species of *Agave*, all of which yield a vinous

sap, but *A. Americana* is the most important; of this, however, there seems to be many varieties, for in a very lengthy report received at the Foreign Office from the Consul at Mexico upon the cultivation and uses of the plant, he says that as many as ten varieties yield neither juice nor fibre, and are consequently of no other use but for making hedges; he then enumerates twenty other varieties, each yielding juice in greater or less abundance, or of different degrees of quality.

The introduction of the use of pulque into Mexico is said to have been "between the years 1045 and 1050, in the reign of the eighth king of the Tlaltec tribe, named Tepancaltzin, at whose court a relation of his, named Pepantzin, presented himself, and informed him that his daughter had discovered that a sweet and aromatic liquid sprung forth from the *Mel* plants in her garden. The king ordered her into his presence, and she brought him a 'Tecomel,' or vase, of the liquid she had discovered, which he tasted, and then ordered her to bring him more; and subsequently becoming enamoured of the maiden, whose beauty was great, and whose name was Xochil, or 'flower,' he married her; of which union a child was born, to whom was given the name of Meconetzin, or son of the *Mel*, or Maguey, in allusion to the circumstance which was the origin of his parents' first interview.

"Whether the discovery of the use of the juice of the *Maguey* be really attributable to the god Izquicatl, or to the queen Xochil, there is no doubt that the divers properties of the plant itself were known many years before the discovery of Mexico by the Spaniards, for not only is it mentioned as furnishing thorny scourges as well as whips made of the fibres of the plant's leaves, for the multitudes who annually met to celebrate a festival in honour of the god Texcatlipuca, in the great temple of Tenochtitlan (the modern Mexico), but the use of the juice became so general that many severe laws against the drunkenness resulting from it were issued by the ancient Mexican kings, mention being made of a widow who sold it promiscuously having been put to death by order of the king Netzahualcoatl—only women sucking infants, old people, and soldiers upon the march, being allowed to drink it.

"To the various uses to which the *Maguey* plant was turned by the ancient Mexicans, and which were so much commented upon by the writers of the period, may be added that of the making of paper from the skin of the leaves, many curious old documents still existing of that material, as well as the manufacture of a kind of soap from the root. As to the extent of the lands appropriated to the culture of the plant, the writers in question give scanty information, but still sufficient to show that it was cultivated on an extensive scale in various districts of Mexico, where the vassals paid a great part of their tribute-money in clothes and sandals made of 'ixtil,' or *Maguey* fibre, and it is worthy of observation that the districts in question were the most thickly populated of the ancient Mexican territory, which is stated, perhaps somewhat vaguely, by the old Spanish writers to have contained more than 30,000,000 inhabitants."

"Dr. Hernandez, a botanist who was sent to make researches in Mexico by Philip II., in the year 1570, makes mention of ten different species of the *Maguey* plant as existing within the Mexican territory, assigning to each, under their Indian names, some peculiar medicinal properties or domestic uses, while ancient tradition, as well as the assertions of such of the rural population as are employed in this branch of industry, testifies to the existence of thirty different varieties of the plant in the chief *Maguey*-producing district of the plains of Apam.

"The plant may be cultivated to a height of 10,000 feet above the level of the sea, but is cultivated with greater success at a somewhat lower elevation, about 9,000 feet, but ceases altogether to grow at 5,800 feet. It requires an average temperature of 15° R. (60° F.), and flourishes from that to 26° (92° F.), the most favourable quantity of humidity in the air being about 35° to 50° of De Saussure's hygrometer in dry weather. For the complete development of its flowers it requires about 62° of heat (Centigrade) as a diurnal maximum. The juice of the plant is the least mucilaginous in a somewhat clayey soil, but if the soil be too dry, so many mucilaginous particles are secreted in the juice that an inferior kind of pulque, called 'ilachique,' can alone be manufactured from it.

"The vast *Maguey* district (calculated to comprise 600 square leagues) is now entirely destitute of trees, although vestiges remain of cedar forests having formerly existed there, the soil being light, stony, and apparently arid in many places; indeed, nothing can be less agreeable to the eye or promising in its general aspect than these or any other *Maguey* plantations, although so surprisingly productive."

There are few branches of agriculture, indeed, so productive in any country as is the growth of the *Maguey*, as is proved by the calculations given in the report from which these extracts are made.

"The mode of propagation of the *Maguey* is extremely simple. Before it dies the plant leaves a family around it of six, eight, or more suckers, which are left to grow for two or three years, and then dug up with great care, so as not to injure the stem; and after all the leaves but three have been cut off, the plants are spread out on the ground for two or three months, in order that they may partially dry, for if the *Maguey* be planted too moist it rots, and a destructive worm is often generated in it. The young plants are afterwards planted out at little distances apart, and in rows—harley, which is believed rather to favour their growth, being very commonly sown between. The formation of the leaves of the plant is admirably adapted for supporting all meteorological variations. A hail-storm which would suffice for the destruction of the maize or corn crop, scarcely leaves a trace of its passage upon their hard tissues; rain falls off from them, sun does not parch them, neither does frost dry them up or cause them to wither; and the plant would appear, as it were, to secure just so much of the various elements of the atmosphere around it as is necessary for its nurture and development, and to cast off the rest. It is only towards the close of its life that it begins to exhibit symptoms of being affected by the influence of the different seasons, yielding less juice in cold, rainy, or tempestuous weather. In a good soil the *Maguey* plant requires a period of from ten to twelve years for attaining maturity, but at least fifteen years in soils of an inferior quality; and thus the capital which it represents, although eventually yielding so high a return, remains unproductive for a lengthened period." The plant, upon attaining its full growth, which is easily discernible by its height and the prodigious extension of its leaves, brings forth a tall stem crowned with yellow flowers, and then a certain amount of pruning becomes necessary, so as to form a kind of reservoir in the centre, and what is technically termed a "cara" or face around it, so as to cause the juice to flow towards the same spot, and to facilitate the extraction of it by removing some of the interior leaves and thorns.

The belief which exists in the efficacy of the medicinal properties of the plant is universal among the Mexican peasantry, to whom it has been handed down from times of remote antiquity. Thus the juice of the leaf is said to be a specific for bruises and contusions; the gum which is engendered in the lower part of the stem to be a cure for toothache; whilst various experiments upon the curative properties of the plant under different forms have been made by members of the medical profession in Mexico with satisfactory results.—*Gardeners' Chronicle*.

RAILWAY PLANTS BETWEEN LONDON AND LEATHERHEAD.

I am this evening in possession of a treat that very rarely falls to my lot, that is, the opportunity of spending the evening by the fireside; and I do really find it very difficult to resist the inclination to have forty winks after being hard at work in the open air all day, but I will try to resist the temptation, and on this identical sheet of paper, which already bears the impress of my pen, I will mention to you a few plants that for several years past have given me much pleasure in my railway journeyings between London and Leatherhead. First, there are rich masses of the common Coltsfoot (*Tussilago farfara*), growing on the banks between New Cross and Forest Hill. On bright sunny days in the early part of March, the dense patches of this singular flower are really gorgeous. It is difficult to conceive anything more beautiful than several square yards covered with the rich orange of its flowers, which is only displayed in perfection when the sun is shining in unclouded brilliancy. And the singular habit of this plant, protruding its flowers from the creeping underground stem before any leaves have made their appearance, renders it an object of great interest to the botanical student. There are on many parts of the banks, both right and left, many interesting Hawkweeds, which in the latter part of the summer unfold their golden charms for the admiration of the passer-by. The ever-beautiful Furze (*Ulex Europæus*) is very frequent on the banks between these two stations. Passing on, there is a little nook between the Sydenham and Penge stations which contains a good many common Primroses, which in the season are very interesting; this is the only patch that I know of all down the line where there are enough of them to produce anything like effect; besides these, they only occur in isolated instances. The patch occurs on the left from London, about midway between the stations. There is not much variation in the character of the plants until passing from Norwood to Croydon over the rail crossing the main line. The bank over which the train runs, is at some points beautifully covered with Mare's-tail (*Equisetum arvense*). In the early stages of its growth, before being browned by exposure to wind and sun, this is one of the most graceful and interesting plants our island produces. Poppies are somewhat abundant, and very effective, on both sides of this steep embankment. The common Marshmallow is in patches on the chalky soil of which this bank is composed, producing flowers of a richer colour than I recollect to have seen elsewhere. Passing on, there is growing on the right, between Waddon and Carshalton, large patches of what I take to be *Gnaphalium sylvaticum*. I have never had the chance of examining it, only as the train passed along; and have never had the opportunity of asking any one to procure me a specimen. I should like to be certified what it is. Just before arriving at the Carshalton station, there are on the right two or three very dwarf bushes of the common thorn, which are really surpassingly beautiful; they are not larger than a small gooseberry bush, but are in the season perfectly covered with blossom, each of them a perfect galaxy. I have gazed on a good many beautiful things, but I have never seen anything more enchantingly beautiful than these bushes when in full bloom. They may easily be recognised; one of them is growing at the foot of one of the telegraph posts. A little beyond the Carshalton station, among the chalk, still on the right, there are some lovely patches of Viper's Bugloss. Drawing towards Sutton, still on the right, there are two plants of *Lythrum salicaria*—one growing close to the rails, and not easy to see in consequence; the other growing on the steep slope of the bank, about two-thirds of the way between the two stations. This last mentioned is a really beautiful plant, the finest I have ever seen anywhere. It is so stately, and its appearance so imposing, that it is invariably spared by the barbarians who ruthlessly mow down the thousands of beautiful succory and other plants which decorate this part of the line. It is a wish to call attention to this unique specimen which has induced me in part to pen these lines to you. I have been told that there is a large patch of Vervain (*Verbena officinalis*) growing close to the bridge near the Cheam station. I have not seen it, but I found a solitary plant of it growing by the side of the road, about midway between Ewell and Cheam, one day as I was walking. I also found a solitary plant growing on the margin of the bank surrounding the station-master's garden at Cheam (who, by-the-bye, is an old gardener, well up in a knowledge of plants, and is a diligent student of entomology). Near to where I found the first-mentioned plant, I found a large patch of the ever-interesting and graceful *Bartsia odontites*. On the left hand side of the road leading from the Cheam station to Banstead, there is a continuous hed of the pretty little yellow Rock-rose (*Helianthemum vulgare*). On leaving the Cheam station, there is a triangular piece of ground surrounded by rails; the fore-mentioned road may be reached by turning short off to the left, where there is a slippery path along the bank, which lies at an angle of 70°; but if the visitor is unable to maintain his equilibrium on a path of this sort, or has twisted ankles, or does not want to have them twisted, the best plan will be to walk round the railway, and passing under the bridge, he will not be long before finding this delightful little plant. I also found a solitary plant of it near Burrough Heath. On various parts of the line, the lovely *Calystegia arvensis* springs up among the stones, and is of a particularly beautiful colour. On both sides of the lower part of the line, the lovely blue of the Succory is of frequent occurrence, and positively enchanting. I think I have seen the White Moth Mullein (*Verbascum blattaria*) in one or two places between Waddon and Carshalton, but owing to the rapidity of transit I have not been able to observe it with sufficient steadiness to be able to say with certainty. There are many other plants which to me are objects of very great interest. I must not forget to mention a splendid copper beech in the front of a mansion which comes into view just before entering the Ewell station. This tree is a model of perfection, large in size, beautiful in profile, and in contrast with the other trees in its neighbourhood, looks like an immense *Perilla Nankinensis*. This tree cannot be too freely in-

troduced into park scenery, on account of the beautiful effect it produces all the spring, summer, and autumn, in contrast with the various shades of green of other trees entering into the composition of such scenery.

On nearing the Leatherhead station, there are, both right and left, some meadows covered with cowslips, which are in the season very cheerful and interesting. There is a meadow close behind the station which is covered with Adder's-tongue (*Ophioglossum vulgatum*). This plant, of course, is not observable from the line, but on turning aside into the meadow, in the season, it will be found abundantly over the entire surface. With the mention of another plant, of the *Allium* family, I will close this rambling paper. I have not seen it growing, but it was brought to me by a person in the neighbourhood accustomed to work in the fields. The flowers are white, produced rather numerous on loose panicles nine inches in height, and are very showy and interesting. The leaves resemble in size and shape those of *Colchicum autumnale*. I had not seen it before. Probably it is *Allium ursinum*. Some of your readers will think me a simpleton for noticing and writing about these things, but it gives me indescribable pleasure to look at them, to think about them; and it has kept me from going to sleep for a whole evening to write about them.

The locality from which I am writing is rich in objects of interest to the lovers of plants. I have already found—No, I will not anticipate; but when I have been here a little longer, and seen a little more about me, I may occupy myself some leisure evening in writing the account of my observations, instead of going to sleep.

WILLIAM CHITTY,
Knockholt, Surrey.

ADVANTAGES OF PLANTING EARLY WHOLE POTATOES.

About twenty-four years ago I planted several rows of the same variety of potatoes, some with small cuts, some with large cuts, and others with small, large, and whole potatoes. When dug, it was ascertained that the largest whole sets yielded the weightiest crop, and the small cut sets the lightest. Since that time I have been in favour of planting large whole potatoes, notwithstanding the large proportion of unsaleable potatoes generally produced by planting them. Perhaps this is one of the reasons that cut sets are generally resorted to by the great majority of farmers and others. With the view of improving the quality and increasing the quantity of those raised from large whole sets, about seven years ago I caused all the stems except the best one to be pulled from each of the sets while the potatoes were being hoed, and in this I succeeded far beyond my expectations. From a series of trials I have found that it is most unwise and most unprofitable to plant cut potatoes of any kind, and more especially those of the early sorts, which are frequently disbudded twice and sometimes thrice before being planted, consequently the sets are so much drained and weakened by the cutting and disbudding, that many of them perish from exhaustion or dry-rot, and those that grow are generally weak and unproductive. Besides, cut potatoes, although not destroyed by disbudding, are frequently damaged with dry-rot when planted in drills that have been much exposed to the sun, owing to the sap of the potatoes being absorbed by the dry material in which they are planted; hence the propriety of planting whole potatoes, to avoid the risk of being so damaged. Early potatoes would be much more productive than they usually are if proper means were taken to prevent them from sprouting before they are planted. This may be accomplished by storing them in cold cellars, or in dry ground sufficiently deep to exclude the heat of the sun from them, or in an outhouse where they must be frequently turned to prevent them from sprouting.

I have long been impressed with the idea that good results would follow from autumn planting, especially of early potatoes, in dry ground where the tubers would remain fresh and without budding until the soil becomes more or less heated. If they are planted 5 or 6 inches deep, they will not be injured by frost; although they should be frozen, the frost would leave the potatoes undamaged at the same time as it leaves the ground, provided that they are excluded from the sun and air. They will, however, not be so early as those of the same variety taken carefully from a pit or other potato store, with sprouts on them, and planted about the beginning of April. Some persons may doubt this, but they have only to make one fair trial to be convinced of the truth of this assertion.

On the 20th of April of this year, I resolved to ascertain, by a fair trial, the difference of planting cut sets to those of whole sets. The potatoes used in the trial were Smith's Earliest, which had been left in the ground during the winter, having been missed by the digger, consequently they were fresh and in good condition, from which I selected 72 sets—24 of them being cut sets weighing 1½ lb., 24 small sets weighing 2 lb., and 24 large whole sets weighing 5 lb. The whole were planted at the same time, and on the same ground, and grown with the same quantity and strength of liquid manure. The cut sets were planted in two drills, 10 feet long by 2 wide, and 10 inches apart. The small whole and large sets were planted respectively in two drills adjoining each other, of the same dimensions in every respect as those referred to; and of course the large whole sets, as well as the small whole sets, were set only 10 inches apart, the same distance as the cuts. It will thus be observed that 24 of either of the sets only occupied 40 square feet of ground. During the time of hoeing, all the shaws were pulled away from each of the whole sets, except one, and that one had had ample room to grow; indeed, I am convinced that if they had been planted 2 or 3 inches wider, the crop would not have been so good either in quality or quantity.

There is little or no danger of damaging the crop in the removing of the superfluous shaws, and the cost will not exceed in any district of this county 6s. per imperial acre.

The potatoes were dug on the 6th of August last; the produce of the cut sets weighed 15 lb., of the small whole sets 23 lb., and of the large whole sets 31 lb.—each of the lots being raised on 40 square feet of ground. At the same rates, an acre would produce from the cut sets 72 hags (or 115·2 stones), from the small whole sets 111 hags, and from the large whole sets 150 hags. The proportion of cut seed required to plant an acre is 6 bags, of the small whole potatoes nearly 10 bags, and of the large whole potatoes 2½ bags. The same variety of potatoes planted were sold this year by retail at 3s. per stonc. At this rate the cost would be (per acre), for the cut seed, £14 8s.; of the small whole seed, £28; and of the large whole seed, £57 12s.

Supposing the produce to be sold of the different sets at the same price per acre, they would realise respectively £172 16s., £236 8s., and £360. It will thus be seen that after deducting the extra price of the seed, labour, and per centage thereon from the latter sums, that a handsome balance will be left in favour of the whole sets.

It has often been asserted by persons who are looked upon as good autho-

rities that the only way to avert the potato disease is to plant none but those that are ready for storing in July. Upon this plan I have acted for the last sixteen years, and during that time I have not lost one potato by the disease until last year, when I met with a considerable loss, owing to having been too long in digging them.

The potato best suited in my opinion to avert the disease, and to remunerate the grower, is "Smith's Early," frequently called "Smith's Curly," probably from its producing long narrow curly leaves similar to those of the ashleaf kidney. It resists spring frosts better than any other variety known to me, and produces a large quantity of peach-coloured bloom about the beginning of June—a thing not common to early potatoes. It is, however, the earliest potato that I know of, being round in form and of a large size. Some parties in this district, however, have not succeeded so well as could be desired in the growing of this potato, having cut their sets after the sprouts had been once or twice broken off them; therefore, nothing but a poor blanky crop could be expected. If growers treat them in the way recommended, they will be amply rewarded. JAMES DOBBIE, *Renfrew*.

Calendar.

WORK FOR WEEK COMMENCING JANUARY 19TH.

Kitchen Garden and Frame Ground.

CAPSICUMS, TOMATOES, AND EGG PLANTS to be sown at once, and placed in heat. Use light rich soil, sow thin, and prick the plants out to strengthen as soon as they are large enough.

CELERY to be sown for early supply. A small pan of seed will be sufficient for the wants of the largest family for a first sowing. Let the soil be rich and fine; the seed to be very lightly covered. If the soil is reasonably moist in the first instance, it will not require to be watered till the plants are up. To prevent evaporation, lay a square of glass over the pan after sowing the seeds.

RHUBARB in the open quarters to have six inches of rotten dung heaped over the crown of each plant. Rhubarb may be planted now, and old stools may be divided.

KITCHEN CROPS of every kind required for spring sowing may be sown in very small breadths, and with the exercise of judgment as to the prospects of the weather.

CABBAGE occupying plots of ground which will be required shortly for some other crop, may be taken up and laid in by the heels in some out-of-the-way place till wanted for the kitchen. As the plants do not grow at all at this time of year, nor for several weeks to come, the ground they occupy may be taken possession of at once if required to be got ready for another crop. This remark applies of course only to cabbages of a size fit for table, and that would probably be cut for the kitchen during February and the early part of March; store plants for planting out in spring must be let alone for the present. If any likelihood of requiring early supplies of summer cabbage, sow now a few of the early heading kinds in boxes or pans, and start in a gentle heat. At the end of February these will have to be pricked out into a sheltered bed out of doors, or better still into a bed over which a frame can be placed for a few weeks to help them on and protect from frost.

CAULIFLOWERS.—Sow in boxes, and treat as advised in foregoing paragraph on cabbage, remembering that these are more tender in constitution, and will require a little more nursing.

LETTUCE.—Sow in boxes as advised for cabbage and cauliflower.

PEAS AND BEANS pushing through the ground need some protection both against frost and vermin. If the weather is mild and open, the best you can do for them is to sprinkle slightly with soot, or plentifully with wood ashes. This will keep off slugs and snails, which, if they wake at all now, are sure to search out the peas and beans for breakfast. If the weather is cold, and likely to be severe, strew over them any light dry warm material that may be handy, such as chaff, waste hay, or even dry fine earth. In places exposed to the wind, branches of spruce thrust in against, so as to overhang the rows, will be protective, and may save many a promising piece of plant from destruction.

POTATOES of early kinds that have made short, hard, purple sprouts in the full daylight may be planted at the foot of a warm wall, or in any other well-sheltered and sunny position for an early crop. To force potatoes it is only necessary to have a gentle bottom-heat from a large mass of fermenting material, a bed of light rich earth containing a good proportion of leaf-mould and chred rubbish, and some old frames and lights. Of course they must never be exposed to frost or excessive wet; but as soon as the season is sufficiently advanced, they must have as much light and air as can be given with safety. It is most important to protect the roots from the steam of fermenting dung; in fact the potato murrin many be engendered in a forcing frame by shutting the plants up close over a steaming hotbed.

CELLARS.—The foetid air from decaying vegetables is as bad as the malaria from a swamp; hence be very careful in storing vegetables and in frequently examining those already in the cellar, to remove all roots and leaves beginning to decay. Thorough draining, ventilation, and plenty of lime whitewash, are good, both for the things kept in the cellar, and for those living above it. A little hydraulic lime mortar, with bits of stone and broken glass, are good stoppers for rat-holes. The best cellar temperature is one as low and equable as possible above freezing—in fact, a little frost is better for apples than too much warmth. Potatoes endure rather more warmth than apples and other fruits. Sashes with double glass and an intervening thin space of confined air, are nearly equal to stone walls in shutting out cold. Protect the exposed walls with a bank of earth outside, or what is neater and better, spent tan-bark, if it be conveniently accessible.

HOTBEDS should now be made up for every kind of early work. In many districts it is no easy matter to get hot dung for the purpose, on account of the immense demand from the beginning of February to the end of April. This is especially the case in suburban districts where gardening is pursued with ardour. Where there is any such risk, the amateur should remember that every scrap of dry fibrous material can be made available to increase the mass for the production of heat. Straw, fern, mouldy hay, leaves, &c., are all of value to mix with dung, for the continuance of the heat depends entirely on the bulk of undecomposed fibre in the mass. Large quantities of material available for hotbeds are ruthlessly wasted in private gardens, simply to get it out of the way;

but wherever conveniences exist it should all be saved, and in many cases the mass of a fermenting heap may be doubled or trebled by this economy.

WORK FOR BAD WEATHER.—Very shortly there will be a demand for clean pots, clean crocks of various sizes, flower-sticks, labels, and all sorts of mending and patching of lights, frames, &c., &c. While the ground is covered with snow, or frost, or wet, put a stop to outdoor work. Many of these odd jobs may be comfortably done in the potting-shed, where perhaps there is warmth enough from the furnace fire to make work pleasant to the servant, which is one step towards making it profitable to the master. Gardeners are not sufficiently thoughtful of their health and comfort at this time of year, hence many an illness, and many a permanent lodgment of rheumatism in the limbs. Suit the work to the weather for all hands, and save up for such times as these a few jobs that may be done under cover, and which, if well done, will save much hurry and confusion, and neglect of important work when spring with its ten thousand demands on thought, and strength, and time, breaks upon us suddenly and finds out all our dilatoriness.

Flower Garden.

PANSIES for exhibition will have to be repotted shortly, and it will be well to prepare for the operation by providing suitable compost. The Pansy never thrives in a heavy soil; in all places where they master this flower they use a sandy loam, to which is added a good proportion of leaf-mould and some thoroughly decayed hotbed manure. Let the mixture lay up some time before using, as its qualities will thereby become better blended. As a recipe for a compost for pot Pansies may be useful to beginners, we advise that it consist of light hazel loam two parts, decayed turf from pasture-land or very sweet leaf-mould one part, two-year-old cucumber-bed manure one part, sharp sand one part.

TULIPS pushing through will need some protection to prevent injury by frost. Light soil heaped in cones over the plants will suffice; better still cones of coconut fibre refuse.

ROSES to be planted as soon as possible. In light soils, standards will thrive better if some clay is dug in with the manure. Roses on their own roots need a lighter soil than brisars. Roses will never thrive unless the ground is effectually drained, deeply stirred, and liberally manured.

TULIPS breaking ground now are likely to suffer by frost. Heap cones of sand around them before the crowns open, and cover with mats on hoops while the weather continues severe.

DAHLIAS may be started in a gentle heat for cuttings. The simplest way is to lay the tubers on the soil over a tank in an propagating house, or on a bed of warm hops or dung, and when the shoots are two inches long take them off and strike them.

HOLLYHOCKS in cutting pots to have a shift to 48-sized pots, and the soil to be chiefly loam. Keep them in the greenhouse or warm pit for a week after shifting, then they may go to a cold frame. Strong plants in pots may be planted out.

HERBACEOUS CALCEOLARIAS are now among the most gorgeous of all the herbaceous plants we possess for the decoration of the conservatory and greenhouse during summer, and to do justice to them they should never be put out in the open air. Now is a good time to get in stock of the named kinds, and to sow seed for new varieties. Plants in store pots to be shifted, and the compost to be chiefly turfy loam, with not more than a fourth part of peat and leaf-mould added. Experience has taught us that a firm soil, containing plenty of fibre, causes them to throw finer trusses, and be less subject to red spider, than when peat is largely used. It is a good presention against the possibility of damping at the collar to use a very sandy mixture at the top of the pots about an inch in depth.

ANNUALS to be sown in plenty for early bloom. There are a few choice kinds which should be grown to bloom in large pans or in pots for the drawing-room, such as *Nemophila insignis*, *Fenzlia dianthiflora*, *Iberis Kermesina*, *Gypsophylla muralis*, *Silene armeria*, *Mignonette*, &c., &c. Sow also in beds and borders any of the Californian kinds. Half-hardy annuals should be sown now in heat, such as *Thunbergia*, *Schizanthus*, *Phlox Drummondii*, *Balsams*, *Datura Wrighti*, *Eccremocarpus seabear*, *Ten-week Stock*, *Cockscomb*, *Celosia pyramidalis*. It is a waste of seed and labour to sow Asters at this early season.

EVERGREEN SHRUBS had best not be transplanted or in any way disturbed for a few weeks hence. After December we prefer not to move them till between March and May, as the ground is now so cold that they cannot make new roots in it.

LAYERING of hardy shrubs may be practised now for increase of stock, and to furnish the lower parts of specimens on lawns in cases where they have become unsightly through the loss of wood at the bottom. The operation is a very simple one. Draw down a suitable branch and peg it to the ground, to mark where the tongue should be cut. Then enter the knife on the under side, and make an incision half through the wood, and turn the knife towards the top of the shoot, and cut a slit an inch or an inch and a half long. Remove a little of the soil, and peg the branch down with a bit of tile or pebble inserted in the cut to keep the tongue open, and peg it down firm, and cover the tongue with an inch or two of soil. If the cut closes, the cut will probably heal; if it remains open, it will in the course of the summer emit roots, and may either be left to throw up new growth to increase the bulk of the specimen, or be removed to form an independent plant.

RANUNCULUSES.—In planting ranunculuses, some growers mark off the bed, and then just stick the claws of the tubers into the soil, and cover the whole with sand; others dibble them in, in the way that beans are sown by farmers; but the best plan is to drill them. Choose a fine day; have your tubers sorted as you mean to plant them, and your zinc or wooden tallies ready. You have already at the fire-side planned how the colours and sorts are to be arranged, and have entered in your note-book all necessary heads, so that when you begin planting you will have to work only, and not to consider. First rake the soil so as to give the bed a gentle convexity; then put down the line for the first row, and with a small-pointed hoe, or the corner of a common one, draw the drill exactly two inches deep. The orthodox depth is an inch and a half, but I prefer, and therefore recommend, a trifle deeper, on the principle of giving the root free work before the foliage appears, as well as to escape as much as possible the effects of the very late frosts to which we have been subject for some years past. Into the drill sprinkle a very little fine sand, then proceed according to your book, and plant the first row of tubers, inserting the proper label at once, not trusting to memory a single jot. Each tuber must be gently pressed into the soil to about half the length of the claws,

care being taken that none of the claws are broken in the process. The drills may be five inches apart, and the roots four inches apart in the drills, though some growers prefer six or even eight inches distance every way. The first mode will not be injuriously close, and it forms a very rich bed. When the drills are filled and tilled, sprinkle a little sand over the tubers, and then neatly rake down the soil over them, and dress up the bed as you intend it to remain. It may be as well to state as a last word on this point, that if the roots are planted too deep, they will not flower, for instead of throwing up the flowers they will exhaust their energies in forming new tubers near the surface. Be careful, therefore, never to make the drill more than two inches deep. As soon as the plants begin to push through, the bed should be carefully trod over between the rows, firmness of the soil being a prime element of success in the general cultivation. If the weather is dry, they may be watered night and morning, and if the soil has not been so liberally manured as it ought, weak manure-water may be used. The ranunculus likes a moist and generous soil, but nevertheless it is a mistaken notion to water it either frequently or copiously. Artificial watering never does as much good as is expected of it, and if it can be dispensed with it will be better for the plants. It is a good plan to mulch the bed with moss or old tan, or even ancient and well-sweetened manure, placing the dressing neatly along the rows. Such a procedure will frequently obviate the necessity for watering, and carry the plants through till the rain falls.

Fruit Garden and Orchard House.

VINES not yet pruned must be pruned without delay, or the usual result of late pruning—that is to say bleeding—will follow, and this will injure the vine immensely. Vines started will require care during changeable weather to prevent injury of the young leaves by frost or fire, and especially to guard against too high a night temperature. All shoots not required for wood, and on which no fruit appears at the proper time, to be removed as soon as possible; and in cases where fruitful shoots are much crowded, some must be removed—as, for example, it is not well to allow two shoots at one joint, or a cluster of shoots where there is a bend in the leader, as it is quite common for extravagant growths to take place at such points.

FRUIT TREES are on the move, so every delay now in planting and pruning will be injurious. Let any arrears of this work take preference of every other.

WALL TREES may now be pruned and nailed in. Use shreds as small as possible, and prepare the nails by making them red-hot, and throwing them into oil.

ORCHARD HOUSE.—The litter may now be removed from amongst the pots which have been so protected. If the trees look at all shrivelled, give each pot a quart of water, choosing a fine morning for the job. Prevent, by freely ventilating, any undue rise of temperature on fine bright days, and, if possible, keep all quiet till the end of February.

PLANTING must of course go on where it has not yet been completed, and in many places there will be a rush now that February is near at hand to get the work completed quickly, without much reference to the mode of doing it. But as the latter part of January is one of the most uncertain times of the whole year, the planter must be cautious, and avoid taking up more trees or making larger purchases than he can deal with quickly and completely, for in the midst of the work may come hard frost, a deluge of rain, or long-continued snow. Better let the trees lay in by the heels a few weeks than plant them unless the ground is really in a proper condition; if the soil is wet or frozen, all the planting done will be badly done, and the trees will not prosper.

Greenhouse and Conseratory.

GREENHOUSE must have ventilation, or mildew and damping will prevail, and many plants pushing their flowers will cast them unopened. But to give air there must be fire, so for the next few weeks keep the fire going whether the temperature be mild or severe; in the case of mild weather, give plenty of air, and have a look round to see if any plants are suffering by want of water. Be careful not to maintain too high a night temperature, as that is most mischievous, and is the common failing everywhere, both in nurseries and private gardens.

ERICAS want great care at this season, as fire-heat is injurious, and damp and frost are not much less so. Whenever frost can be kept out by means of mats or allowing the fire to go out early, so as to leave just enough warmth to counteract a few degrees of frost, such a course should be preferred to firing. In mild weather give air, and at all times be careful to avoid stopping water about amongst them.

PELARGONIUMS for show must now be encouraged to push with the aid of an increased temperature and as much air as the weather will allow. It is common for them to be assailed with green-fly when the new growth of the season commences, but if the cultivator is on the look-out, and puts a stop to that pest in good time, it may be got rid of for two months to come. Keep as near the glass as possible.

Forcing &c.

ASPARAGUS will force much quicker now than the season for it to grow naturally is approaching. A temperature ranging from 45° to 60° will answer admirably; beyond 65° it should never be allowed to rise. When the heat goes down below 45°, apply a lining round the bed, and cover the lining with straw or thatched hurdles, to shoot off wet and prevent cooling down by wind or frost. Where heat from hot-water pipes is at command, forcing asparagus and seakale is so easily and conveniently accomplished that a child might manage it; with fermenting material the case is different.

CUCUMBERS not yet put out on the fruiting bed must be provided for as soon as they are ready, as the keeping them in pots a day longer than needful is an injury to the plant and a day lost in the cutting of the first fruit, which may make considerable difference in its value. It is important to have heat enough, and also important not to shut the plants up close in a mass of hot steam. If the heat is too fierce and rank, fork the dung lightly, and wait another week. It is much better always to pot the plants singly, and bed them out singly. The system of potting and planting in pairs is no gain in the end, as the plant naturally grows with such vigour when properly treated that single plants cover as much space in a given time as a pair would, for when in pairs they check each other by proximity, and sometimes get injuriously intermingled if neglected during a few days of good growing weather. Plants in bearing will begin to show a few vermin; search beneath the leaves, and if any red spider,

give more moisture and volatilize a little sulphur; if green fly, fumigate. When the roots appear on the surface after the plants have been some time in bearing, give them a dressing of fresh rich soil.

CHERRIES in the forcing house must be managed with great care, or the flower-buds will fall wholesale. Keep a genial and regular temperature of about 45°, letting it down to 40° at night, and after they have made a start raise the heat to 55°, which will suit them admirably for flowering. Let the atmosphere be rather moist at first, but dryer when the flowers begin to open.

STRAWBERRIES require as much air and sun as possible as soon as the fruit begins to colour. Use no more heat than needful to keep them in free healthy growth, or the crop will be worthless; this fruit cannot, in fact, be hurried. Usually a bottom-heat of 70° is advised, but from long observation we have become convinced that 60° is far better, because we not only want fruit, but we want it with colour and flavour, which we cannot have with hard forcing. A plunge-bed of 60°, and the air of the house 45° to 60°, the latter of course with sun-heat, will be suitable temperatures. Feed them well; nothing like sheer solution of dung after the first few fruits are set. But beware of making them too wet at the root, which will be injurious.

PEACHES and other trees in flower may be greatly helped by shaking the trellis, or whisking a light brush over them, to disperse the pollen. Any rough play with the trees will do more harm than good, but any slight agitation, such as a stiff breeze on a sunny day would produce, will assist materially in setting the fruit.

RENOVATING UNSIGHTLY TRAINED ROSE TREES.

When against walls of a good height, rose trees are sometimes very liable to become too naked and unsightly all along the lower portions; even the most careful cultivator cannot always ensure a nicely trained rose tree, and, at the same time, one well furnished with leaves all over its lower portions. It is to be observed, many trees when trained against walls are very liable to run ahead, and thus become too naked about their stem. A little judicious treatment, at a proper season of the year, would go a good way to remedy the unsightly appearance, and be a means of giving quite a fresh look to the tree. There are two ways which we have acted upon, the one differing somewhat from the other.

Firstly, supposing you have a rose tree trained against a wall, covering the latter well for some feet or yards on each side of the root, upwards to the top of the wall—having been for years generally well furnished all over with spurs and flower-buds, but in the course of time the lower portions gradually lessened in their leafy covering, as well as in their apparent ability to produce flowers—if the spurs are not dead, it may be recovered by judicious pruning. Wait and see March well advanced before you attempt to prune it; and when you prune the first portion of it, let this be only the lower part of it, and let some weeks elapse ere you attempt to cut in the higher portion. Indeed, perhaps you had better let all the upper part break away into life before you prune any of the higher part. By doing so you will find that all the buds towards the base of the shoots or spurs remain dormant, while those more towards the points of the shoots burst away into leaf. Well, just let them do so; and in the end of April, or the beginning of May, cut back all those upper shoots to their proper position. By this way of acting it often happens that all the lower parts, where first pruned, will have time to bust away and go ahead before the upper portion can break forth from the eyes, close along the bottom, where you can cut it back to.

Another way can be acted upon; and this we have proved, in several places, to render great service in restoring unsightly rose trees, and to clothe again the lower portions with foliage and flowers. The mania house where we were was about to be renovated, and a portion of its walls painted outside, where there were several rose trees nailed up against the wall. These had to be unfastened, and laid backwards as far as they would admit of. A few stakes were firmly driven into the ground, and the roses tied slantingly backwards. This was in summer, and thus they remained, while the wall was painted over several times; and before all was ready for the rose trees being trained up again it was pleasing to see all the bare lower parts breaking out with a healthy and vigorous covering of shoots, which in due time repaid us with a nice crop of flowers; and by judicious management this kept the trees in very fair condition for several years. Since then we have tried the Gloire de Dijon rose, as well as several others. It is only to put up with the unsightliness of the trees being unfastened and brought forward for a few weeks at most; rather this than allow them to remain unsightly for a yard or two up the wall for years.—G. DAWSON, in "Scottish Gardener."

BIRD KILLING.

The following is the text of a letter addressed to the incumbent of Strood by C. Roach Smith, Esq., the eminent antiquary, through the medium of the "Strood Pariah Magazine":—

Reverend Sir,—All sensible people will feel pleased you have pronounced against what may be called the national vice of bird-killing. It is one of those vices which society does not care to recognize as a vice, because it is so common, and is tolerated or winked at. Where is the parent who does not take his children, for amusement, to find birds' nests, and to carry home with them the eggs and the young? Thus among children this hideous sin is universally indoctrinated as something harmless and pleasing. Thus the hardening of the heart is taught with the child's first lessons in reading and with its prayers; and it grows up callous to all the finer feelings of humanity, and becomes in its turn a "breeder of sinners." In a walk of two or three hours on a fine Sunday morning about two years ago, I saw from ten to twenty parties of boys and young men, actively engaged in birds' nesting. At a moderate calculation they destroyed that day full a thousand eggs and young; and this laughter went on, and yet goes on, in the summer seasons, daily, although Sunday is the favourite day with the large class of uneducated idlers. Even in some schools in this county, I am told, the children are urged to destroy the young of small birds to support by so doing the principles of those cowardly adults who at the festive board produce the heads of their victims as something worthy of boast. See the printed rules of the sparrow clubs. One of these established not far from Dartford is before me. Its objects are thus coolly set forth: "That this Club be established for the purpose of destroying sparrows, bull-finches, chaff-finches, blackbirds, and thrushes, which

abound in and about the various parishes." Then come the "Rules" regulating the number of heads to be produced at their nights of meeting, &c.; and their club also prints the names of its chairman, treasurer, and secretary, who no doubt glory in thus seeing their names in print. But the killing of birds goes on throughout the year. In the winter months when they at times become deprived of food, then their enemies, men and boys, are upon them; and with merciless severity, as if they were hunting noxious animals, shoot them down, or net and trap them. Those who catch them on a wide scale in nets are, I am told, persons who mostly live by poaching, but who somehow ever contrive to avoid legal punishment, and are countenanced at times for frauds of a certain kind, such as stealing evergreens at Christmas for the decoration of shops, houses, and churches. These persons can at any time produce for your table a hare or a brace of pheasants, and for a sparrow-shooting match will catch you any number of birds. I have seen them at work at night with nets catching the birds roosting in the ivy of the Stood national schoolrooms, and since writing this letter, in the ivy of the church. They can earn money easier in this way than by hard, honest working.

Can we wonder at the increase of the insects which destroy our fruits; and at the great loss sustained by those who have extensive orchards and gardens? The birds are the only possible agents to counteract the deadly unseen insects which are every hour being bred almost everywhere. Nature has formed the bird's eye for detecting insects where the eye of man is useless. Wholly destroy the birds, and the fruit is wholly destroyed. At Hartlip, some years ago, in the face of truth and facts, the sparrows were exterminated entirely as being injurious. The orchards were immediately covered with the webs and nests of innumerable caterpillars and other insects; and in two years it was calculated that over £1000 was lost in consequence of this insane slaughtering. But far more startling instances could be adduced; and yet we see no steps taken to stay the evil! I, sir, look more to youth than to the hardened man, who has steeled himself into erroneous convictions; and will never part with them but with life. It is not so with boys; they are to be reasoned with; and if the clergy and schoolmasters would make friends of them and explain the nature and use of birds and their importance in the great scheme of Providence, I am assured they would soon be induced to be protectors instead of destroyers of the birds; and they would thus find doing good much more grateful and profitable than working evil.

I am, rev. sir, yours very truly,

C. ROACH SMITH.

Temple Place, Dec. 18th, 1866.

Correspondence.

ALL PRIZES AND NO BLANKS.—It was with great pleasure I read your correspondent's very interesting paper on this subject, and hope the day will not be long ere we do see all have prizes that are worthy. If managers of exhibitions cared to give more satisfaction to exhibitors, we should have tables better filled with better produce; but I believe that is the very last thing they think about; in fact, it seems to be so while exhibitors are treated as they are at many of our exhibitions both great and small. To satisfy all, I know would be impossible, for we, like other communities, have men that are never satisfied. Perhaps those who exhibit as a trade would not care for your correspondent's "honourable mention" (which I think is a very valuable suggestion), but there are those who would prize them more than money. The humble cottager would be as proud of them as his richer neighbours are of their paintings and engravings. Parliamentary reform is not the only reform we want.

J. T., near Leicester.

CANADIAN FERNS.—Having already been fortunate in obtaining answers to questions in your excellent paper, I apply to you for the names of the few ferns, &c., enclosed. I have lately brought them from Canada, the neighbourhood of Ottawa, among several others, many of which, I am sorry to say, are not sufficiently unmutated to forward. The fern numbered 3 is similar to *Filix mas*, but differs very much in look and habit; in large specimens the stipes are very long. It may interest some of your readers to know what others I found, so I give a list: *Polypodium vulgare*, *P. dryopteris*, *Lastrea thelypteris*, *L. cristata*, *L. spinulosa*, *L. dilatata*, *Adiantum filix femina*, *A. Michauxii* (?), *Asplenium triebomanes*, *A. Adiantum nigrum*, *Pteris aquilina*, *Adiantum pedatum*, *Cystopteris bulbifera*, *C. regia* (?), *Osmunda gracilis*, *O. cinnamomea* (?), *O. interrupta*, *Onoclea sensibilis*, *Struthiopteris germanica*, *Botrychium virginicum*. I also enclose a frond of a variety of *Lastrea oreopteris* which I found this summer at the English lakes. As it is not mentioned in any list or work on British ferns, I think it may be a new variety, and as such interesting, being so strongly marked. The other frond enclosed is one of a series all more or less irregular; and I want to know if it is worth including in a dried collection of British ferns as something distinct.

A. S. M.

[No. 1 is *Polypodium dryopteris*; 2, *Polystichum acrostichoides*; 3, *Lastrea marginalis*, one of the loveliest of the genus; 4, the red-stalked variety of *Lastrea filix mas*, frequently met with in England. The variety of *L. oreopteris* is very distinct; you should have secured the plant.]

VEGETABLE MARKETS.—You have lately touched upon a subject which has interested me deeply, for since I came to London I have not known what it is to have enough of good vegetables on my table. Oh, how I miss the health-imparting fresh-gathered vegetables and fruits which my country garden afforded, for here I positively cannot purchase a supply of such as the shops offer, the prices are so exorbitant. How can it be otherwise, when no less than six greengrocers make a living, after fetching their goods all the way from Covent Garden? yes, six greengrocers within four minutes' walk from my house, in a not over-populous part in a London suburb $4\frac{1}{2}$ miles west of the Bank of England. I plainly see this great metropolis is destitute of markets, and that the market gardeners might do better for us than at present, for we Londoners are starved on butchers meat, bread, and potatoes; I say starved, for who can live properly if denied a sufficiency of good vegetables? If some of the bigwigs of the parishes who spend so much of their time in parochial squabbles would promote the formation of vegetable markets in the more populous suburbs, they would be doing much more good, I fancy, than by beating up a local celebrity by means of small querrrels and big words. You speak of Covent Garden Market as a "dog-hole;" well, as regards the supply of London, and as the central and grand market for London, it is a dog-hole, yet neither east, west, north, nor south does there seem to be enough spirit to start markets in opposition, either to reduce its pretensions or supersede its

questionable usefulness. The whole valley of the Thames ought to be occupied with vegetables and fruits for the London market, and if it were so every scrap could be sold for a good profit. But cultivators, equally with consumers, require more markets.

H. H.

PROTECTING FROM FROST.—I wish your Durham correspondent would say a little more about this matter. How are we to place mats inside a frame? How does Mr. Allason do it? As to the advantage when done, there can be no doubt; but then frames must be very differently constructed, or the matting would do more harm than good, falling about the plants. Some years ago I made some light protectors, like window sashes, of mere lath wood, and covered them with canvas, which I painted. These I used to lay on my frames and fix with a few nails, and they were very useful during frost. I should think they would be just the sort of things to put inside, and it would only be needful to nail a strip of lath along each side of the frame for them to rest upon. Better than all mats or calico would be double lights, with an inch of space between them. They need not both be of glass, as possibly oiled calico would do for these, put on merely to protect, though I should prefer glass, as in case of leaving them on longer than needful, the plants would not suffer for want of light. But here we get into expensive notions, and I say no more.

W. D.

EXHIBITION REFORM.—I quite agree with your correspondent who writes proposing to add "honourable mention" to the list of awards at flower shows. I accept his statement as an echo—and a most proper one—of the oft-repeated editorial statement that it is hard for many exhibitors to go empty away, and deeply injurious to flower shows. The fact is there is too much grab (pardon the vulgarism; it is the only word that can express my meaning) after money prizes on the part of big amateurs and big trade exhibitors, so that the small men are elbowed out. Now I say we ought to encourage the small men; the big ones can take care of themselves. It appears that so long as promoters can secure a show, they care not by what means they do it, even if there are but half a dozen competitors, and the tent is made use of as a shop. I know the value of trade exhibitors, and would not wish to limit their operations; all that is needed is more encouragement for the humbler class of amateurs who can only show small collections, and which small collections would oftentimes take the shine out of the larger ones in respect of quality. More prizes are, I am satisfied, of far less importance than they are usually considered; cups, or more useful objects in gold or silver, or even hooks or valuable plants, would be far better, and these might be backed up with "honourable mentions," as proposed by the writer above referred to. When you have many exhibitors, you not only have more variety, and do more good for horticulture, but you secure the interest of a larger number of persons, and out of that increased interest will arise increased success.

SIGMA.

Replies to Queries.

Salt for Asparagus.—J. G.—Asparagus may be poisoned by the excessive use of salt, as any other plant may, yet it will bear salting to a great extent without injury; and within a certain mark, salt is highly beneficial. The best mode of using salt is to sprinkle the surface of the bed every fortnight, merely applying sufficient to make a perceptibly white coating, commencing in the last week of March, and continuing the applications till the last week in July. If alternately with the saltings liquid manure can be applied, the growth will be much more satisfactory; indeed, it is by combining the two agents that the "giant" asparagus is grown for Covent Garden Market. Some cultivators apply a heavy coating of salt in March, and give no more till the stems are cut down in autumn; but this is an objectionable plan, because the plant has more salt than it can appropriate in the early period of growth, and scarcely any when it is in full vigour, and engaged in forming the embryo buds that are to furnish shoots for the next season. Where it is not possible to apply a thin sprinkling of salt every alternate week throughout the growing season, the system of heavy dressing in the month of March must be adopted, and the quantity applied should be at the rate of twenty-four bushels per acre.

Subscriber.—The articles on Seakale to which you refer are we suppose those published in the magazine of Feb. 4, 1865, and Feb. 18, 1865.

Rockery Plants, &c.—Miss Gurney is advised to apply to any of the nurserymen who advertise in this work. We do not know what is meant by the "Spider-web plant," unless it be *Ouvirandra fenestralis*, the management of which was described in the GARDENER'S MAGAZINE of Jan. 6, 1862.

Dahlias.—S. V.—In the issue for Sept. 8, 1866, we described all the seedlings shown at the Crystal Palace. We see no reason to repeat those descriptions.

Woodwardia radicans.—Lady B.—We cannot hold out any hopes that your large plants of this noble fern that have been left out will survive the winter. It has been tried many times at Stoke Newington, and has lived through mild winters with a heap of leaves over the crown, but severe frosts have always killed it; should yours be found alive next season, we shall be most glad to know. This and other nearly hardy ferns should be taken up and potted in October or November, and be kept in a cool house all winter, and be planted out again in April. They submit to this kind of treatment as patiently as common bedding plants.

BIRD PRODUCTION.—Artificial birds'-nests are now made in Switzerland under the direction of the societies formed there for the protection of insectivorous birds. One of the members of a society of this description, who inhabits Vevey, having observed that many species of that kind select for nests the holes they find in the trunks of rotten trees, and that they, consequently, do not find it easy to settle in orchards, where all the trees are in good condition, began, twenty-five years ago, to set up rotten trunks in his grounds; and since then he has had no need to trouble himself in the least about clearing away caterpillars, that care being left entirely to his winged guests, who perform their duty admirably. His neighbours, on the contrary, who have not had this foresight, have had their orchards laid waste by a host of voracious insects. The Yverdon Society have gone the length of placing artificial nests even in the public walks and communal forests, on the borders of the lawns, &c. All those nests are now inhabited by hedge-sparrows, redstarts, creepers, and tomtits, all which may be found in Switzerland as high up as the perpetual snow-line. The same practice has found its way into Germany.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun rises.	Sun sets.	Moon rises.	Moon sets.	WEATHER NEAR LONDON, 1865.					M imp. avg. of 43 yrs.	Orchids that may be in bloom.		M D	
							Barometer.		Thermometer.		Rain		Grain	1, Indian House; M, Mexican House; G, Greenhouse.		
1867			h. m.	h. m.	h. m.	h. m.	MX.	MIN.	MX.	MIN.	MX.					
27	S	3rd Sunday after Epiphany	7 49	4 38	0 10 p.m.	10 57 a.m.	30.54	30.14	43	30	42.0	.00	34.1	Calanthe vestita rubra oculata, <i>Ymein</i>	1867	
28	M	Wellington College opened, 1859	7 48	4 40	1 23 "	11 25 "	29.97	29.36	50	39	44.5	.06	37.0	C. lutescens, I	27	
29	T	George III. died, 1820	7 46	4 42	2 23 "	11 57 "	30.01	29.26	45	29	37.0	.00	37.0	Cattleya Warscewiczii, M <i>Brazil</i>	28	
30	W	First Lifeboat launched, 1790	7 45	4 41	3 23 "		30.00	29.69	50	39	44.5	.01	37.3	C. delicata, M	29	
31	Th	Phosent and Partridge shooting ends	7 43	4 49	4 16 "	1 13 p.m.	29.95	29.43	54	43	48.5	.38	37.2	Cypripedium insigne, G	31	
1	F	Salmon fishing begins	7 41	4 48	5 0 "	2 1 "	29.36	29.39	55	43	49.0	.37	37.0	Epidendrum vitellinum, M <i>Mexico</i>	1	
2	S	Candemas Day	7 40	4 49	5 50 "	2 54 "	29.74	29.25	59	32	41.0	.00	37.3	Grammatophyllum Eilishi, <i>Madagascar</i>	2	

The Gardener's Magazine.

SATURDAY, JANUARY 26, 1867.

ACCIDENTS ON THE ICE have been so numerous this season, and in one case—that in the Regent's Park—attended with such a lamentable loss of life, that we may properly offer a few remarks applicable to the particular cases which have filled the public mind with horror, and to the general subject of water as an embellishment of park and garden scenes. Probably to a large proportion of skaters, at least of the "male persuasion," there is a positive pleasure in skating over deep water which does not accompany the same exercise on shallow water. Judging by the behaviour of the crowds that have frequented the public parks of the metropolis during the past fortnight, an element of danger is essential to give a thorough relish to the recreation. Whether this be so or not, those who esteem life as of some value, and who object to men plunging themselves into deep water, and their lives and families into deep distress, by one and the same process, will be interested in any reasonable proposals for rendering perfectly safe the waters commonly resorted to by skaters, and for improving in this respect the usual methods by which ornamental waters are formed in parks and gardens. The majority of the proposals made in the daily papers since the terrible accident in Regent's Park, have for their main features the reduction of the depth of all the artificial lakes in the parks, and the covering of the bottom with stone flags or concrete. There can be no question at all that shallow lakes, with beds of stone in place of mud, would be far safer than such deep water as that which engulfed some fifty persons in Regent's Park, and for skating purposes would be admirable. But the proposal is open to several objections. To reduce the depth and have the bottoms of all the lakes in the London parks concreted would be a very costly proceeding. As we have good skating only about once in every four or five years, the expense would be out of proportion to the resultant benefit, save and except for this consideration—that to prevent loss of life, no necessary expense can be too great. But safe skating can be provided in a cheaper and more effectual manner, and therefore we may reasonably contrast the expense of paving the great lakes with the fact that it is only at distant intervals that skating is possible in England. The great cost compared with the rarity of benefit from it is therefore a serious objection. There are yet two other objections worth noting. Shallow waters never have the beauty that belongs to water of some depth. As embellishments of our parks, we desire to derive from great breadths of water all the enjoyment possible; and if the water is clear and deep, it has that steel-like lustre and darkness which makes it reflect every changing hue of the sky, and every object on its banks, in all the charming variety and changeableness which have made it, as a feature of rural scenery, the grandest of the elements. There is yet another object, which we admit is of secondary importance: it is that you cannot keep fish in shallow water. Nevertheless, this *is* an objection, and may stand for what it is worth.

Supposing skaters to be well provided for, it is possible a large number of them would prefer danger to safety. We found this conjecture on what we have seen, and heard, and read. But it is a question of police, not of landscape gardening, how people are to be kept from committing suicide when the skating frenzy seizes on them. The question is as to the substitute. This we think should consist of a space set apart in every pleasure ground expressly for bowls, billiards, and other games in summer, and for skating in winter. A flat grass lawn sunk one to two feet below the general level, and with sloping banks to define it, could be made into a lake for skating in a few hours, during freezing weather, by flooding it with water; and the freezing weather past, could be emptied again instantaneously, and the grass would be none the worse for submergence. In the exercise of our calling, we have several times formed bowling-greens in this manner, securing in one direction a supply of water, and in the other escape for it to an outfall. This plan admits of endless modifications. It can be adapted to undulating ground, provided there is somewhere a definite boundary of extent commensurate with the supply of water at command; and this boundary may be irregular, so as to blend with the natural undulations of the ground, or it may be made to form a succession of separate lakes for separate purposes, or to adapt a small supply to a

great space, provided the frost lasts long enough to allow of filling them all.

As respects the rights of the public to skate where they please, we do not pretend to offer an opinion. But we may ask this question: If bathing, boating, and fishing in this or that lake or river is illegal, is not skating on the same water an act of trespass? The reason that the London parks are dangerous to skaters, and sometimes equally dangerous and obnoxious to decent pedestrians, is that they are under no sort of government whatever. Had there been any kind of government existing, there would have been less loss of life than has occurred, and less disorder when life has not been endangered.

ROSES AND ROSES.—No. I.

I have just come home from a glorious walk beyond the alpine heights of Stamford Hill, laden with an *onus probandi*. One of our rosarians hereabout has thrust upon me the task of proving some assertions that are to be found in the "Rose Book," and unravelling some knots that exist nowhere but in this said rosarian's brain. I really did intend to say nothing about roses this season, but I am assured in the most solemn manner that three old subscribers will look exceedingly blue if their favourite subject is not "handled" frequently; and out of mere kindness I must, I suppose, "handle" the subject, and if I cannot say anything new, I must tell the old story, or any number of old stories, over again. I don't at all suppose there will be a word worth reading in the half-dozen rose papers I have solemnly resolved to let off before the spring bursts upon us. It is not possible, after having ransacked a subject like this, to discover anywhere a new vein: if it were possible, I know that O P Q, our particular friend who gives his mind to roses, as Chacornac gives his mind to the asteroids, would order half a dozen extra copies of this week's number if he knew that such twaddle as this were in preparation under such a heading as "Roses and Roses." O P Q lives in a perpetual dream. He dreams of winning gold cups, silver dinner services, cases of stuffed birds of paradise, infallible chronometers, and all sorts of elegant and useful things by exhibiting roses; and he has gone so far already as to have planted largely according to the directions in the "Rose Book," and in the atmosphere of delightful rosy dreams awaits the day of triumph. Now if I tell him he may expect a few thirds or fourths, that in a year or two he may aspire to a second, and if he still perseveres, remembering Bruce and the spider, and all the wise saws and modern instances that bear upon the development of the indomitable faculty, he may dare to hope for a first place, and to be the hero of a hundred battles. If I tell him all this as we walk together, making the hard ground ring under our awful tread, he may suddenly collapse, and lose a pleasure through aiming at more than is within his power. But O P Q may infer anything he pleases from what appears in print, and I can gently hint to him in this place that no one can expect to be an impromptu veteran; there must be toil before triumph—work before winning; the best workman never attempts to leap on to a roof; he is content to go up the ladder a step at a time; and so it must be for those who intend to mount the pinnacle of fame. The fact is, O P Q has made mistakes which are easily rectified, and the foundation mistake is that success in rose-growing is a question of money. Depend upon it money does not purchase a tenth part of the happiness it is reputed to do. I know a poor tailor who has a few rods of ground on which he grows to perfection the old double white rocket, and some fifty first-class pansies, and two or three dozen hollyhocks, and who dare not spend more than a shilling a week on gardening, and he derives from his little plot more real delight than many a would-be floral magnate who dribbles out gold upon his ground like water. This is not to discourage O P Q—not a bit of it: he is my most particular friend, and I do wish he had not made up his mind to win by a *coup de main* where there must first be an investment, next a regular siege, and lastly close fighting hand to hand against bravery, skill, and resources equal to any we can take into the field. I don't put faith in any man to accomplish great things in rose-growing unless he can grow them throughout. To buy and plant are very essential operations, and those who will do so much may make sure of roses in any quantity and at all seasons; they may sleep in the midst of rose leaves, and have the rose of health on the cheek to testify that Flora is a beneficent goddess. But to win at great shows is another

matter. The ambition is honourable; but the distinction is only to be achieved by first mastering the business in all its details, for those who already lead the way have done so, and we cannot hope to walk abreast of them, much less to outstrip them in the race, unless we bring to the encounter equal skill and equal knowledge, with all the moral qualities requisite to success, not the least being earnest love and unwavering determination.

O P Q put to me a question that he thought was new, but which is as old as rose-showing: Why is there usually such a distinction between the stands from first-class nurseries and stands from amateur cultivators? Generally speaking, there is a difference; but occasionally we see amateurs put up stands that eclipse in splendour the best that the trade have ever done. You may always consider an amateur a master of the whole business, if he can manage a first 48 or 24 in an open competition that is at all spirited; for mere buying and planting are not sufficient for that. As I am rather hard upon O P Q (for his good solely), I will endeavour to make amends by presenting him with a few suggestions. First I say, read the "Rose Book" again, and pay great attention to the chapters on propagating (nothing like leather). Those chapters were not written in the style of those gentlemen who do horticultural papers in the peat, loam, and sand style: they were worked out in detail during many years of experiment and practice first, and were not committed to paper until it seemed that there remained nothing more to discover or communicate. Success in showing turns very much upon skill in propagating; and hence it is that the nurseries, where propagating is the chief business, pour into the rose shows such wondrous stands of flowers. But about the particular question. The nurseries have an advantage: first, in quantity. An exhibitor with a sharp eye and an acre of roses in bloom, has two advantages to begin with, and ought to do some thing respectable in an exhibition. You just walk on, using the sharp eye, and from time to time you see a bouncer, and it is but a moment's work to off with his head and put it in a basket. Mere quantity is something. Ask Mr. Hedge, of Colchester, if quantity is of any consequence; and he may perhaps confess that he has plenty to cut at. Ask Mr. Perry, of Castle Bromwich, if amongst a thousand roses, all receiving good treatment, there is not a better chance of cutting a good twelve than amongst a hundred equally well treated. Another advantage the cultivator has over the mere possessor of roses is a predominance of youth amongst his plants. Your great-headed standards of twenty years of age may be glorious to look at from the windows, but what will they do for you on the day of exhibition? Not much, I trow. You see we are getting warm now, as the children say in the game of hot boiled beans and plenty of butter. "Youth is always beautiful," some poet has said (it matters not who). O P Q had better dabble in briers, manettis, and own roots, mastering for himself all the details of propagating, and he will get finer roses than by merely buying and planting. He will get used to roses, and roses will get used to him, and the two principal agents in a rose show, the exhibitor and the thing exhibited, will be place *en rapport*, as the French say, and we shall probably hear of both again. It is a fine thing for an exhibitor to have a plot of ground apart from the rosarium proper, and therein to follow the noble art as an amateur in the proper sense of the word, for to buy and plant is at best to be but a *dilettante*. In such a spot there should be always some sort of propagation in progress to transfer the new varieties from manetti to roots of their own, and to put a few of all the best roots, new and old, upon young briers every year. To obtain the finest possible rose that can be cut, that is the question. Now I think we shall come near to that accomplishment with free-growing sorts when we take the second or third bloom (sometimes the first) from a young brier rose worked early the previous season, and which has not been lifted since the bud was put on. Let O P Q lay this to heart. Rosarians of all ranks and degrees, what do you think of budding young briers with a view to allow them to remain undisturbed till three years old, cutting what you can from them in that time, and then making the stems into flower-sticks, and the tops into cuttings to put into frames in October? To do this in the flower garden, is to convert a drawing-room into a workshop. If the nursery appears to enjoy a *prestige* in the exhibition, let us have nurseries too, and cut from young plants, combining in the scheme quantity and youth. I trust that O P Q will find enough in this to think about for the present; I hope to address him again shortly.

S. H.

JOHN SCOTT, MERRIOTT NURSERIES, CREWKERNE, SOMERSET. *Catalogue of Vegetable, Flower, and Agricultural Seeds.*—Well arranged, comprehensive, and trustworthy.

HOOPER AND CO., CENTRAL AVENUE, COVENT GARDEN. *Spring Catalogue 1867.*—This is a very interesting work, full of information, with a few useful woodcuts; and in the several sections enumerates many subjects of special interest and value. The arrangement appears to be confused, and is certainly capable of improvement; in all other respects it is a first-class catalogue.

THE GOOSEBERRY TREE AND ITS TRAINING.

Quite a revolution has taken place within the last few years in the style of training fruit trees, especially standards. Perhaps it may have originated with the introduction of orchard-house and miniature trees. By some the system is considered to be very profitable, because you are enabled to grow a greater variety within the space formerly occupied by a less number, and the fruit they yield is much superior in size and flavour compared with the former practice. The idea of their introduction may have been first gathered from observing the methods of planting and training in our market gardens. Having in my boyhood been employed in a market garden, I have always felt a peculiar interest in watching their operations. In later years, uniformity of planting and training is much more closely practised there than in private gardens. That market gardeners should economize space is not surprising, for every square yard of land must contribute to the profit of the concern. The regularity which you observe in the growth of whole acres of fruit trees is to be attributed in some degree to the large quantities which are cultivated of one particular variety, and thus their habits being alike they present a very even surface. Yet with all these advantages, the management of them is entirely conducted on scientific principles. When residing in the county of Kent, I have witnessed large plots of the Warrington gooseberry so carefully pruned that one plant might be taken as a *fac-simile* of the whole. The knives they employ are specially made for the purpose. They are sheath knives, and much larger than those commonly used by gardeners. In private establishments where the extent of ground is limited, we cannot expect to realise the same uniform style throughout, because there are many difficulties to contend with, and which are decidedly opposed to such a practice, such as the variety of habits which abound even among plants belonging to the same class. The gooseberry is an example of this. Yet I am induced to think that we could do much by studying, and thus practising, some peculiar mode of training, and so seek to overcome the difficulties connected with the constitution of the various varieties.

My thoughts thus far have been suggested by a unique but small plantation of dwarf pyramid pear trees now under my charge. Growing beside them are some luxurious bushes of gooseberry trees. The object of their culture has been to obtain ripe fruit for dessert. They have been so trained that nearly all the lower portion of the bush must, by reason of the weight of the fruit, come in contact with the soil; and thus quantities, especially in showery weather, will be rendered unfit for table. Why not endeavour to save this fruit by training them into a somewhat pyramid shape by fixing stakes to each tree? It may be said it is not worth the trouble, or rather impossible, to adapt every variety to that style. Now I can prove from actual experience that it is not only beneficial to the tree, but profitable, by enabling it to produce a much larger quantity of good sound fruit. In my last situation I successfully adopted the above plan of training, and whoever saw the trees were delighted with the mode. I had upwards of a hundred trees tied to iron rods, many of which were 5 feet in height. Among them were a great many of the well-known Lancashire varieties, and several bushes of Warrington, which is one of the most useful in cultivation, alike for dessert as well as culinary purposes. Of course, in thus training them, a good deal of patience and perseverance is requisite in the commencement. In pruning, you must ensure a clear stem for some little distance, and thus give every encouragement to an upward growth. Selecting a vigorous leading shoot, it will be necessary to suspend the lower branches with tared string to the stake, as some sorts, in spite of your efforts, have a disposition to produce the growth of their shoots towards the earth. If those of our readers who are interested in the subject will try the system, I am satisfied they will as time progresses be delighted with the result.

JOHN F. M'ELROY.

T. SAMPSON, YEovil. *Catalogue of Flower, Vegetable, and Agricultural Seeds.*—A good local list, containing everything useful; and a good table of quantities for the guidance of purchasers.

DOWNIE, LAIRD, AND LAING, STANSTEAD PARK, FOREST HILL, LONDON, S.E.; AND FREDERICK STREET, EDINBURGH. *Catalogue of Flower, Vegetable, and Farm Seeds for 1867.* A very important book in respect of its selections and specialities, and admirably got up for reference and usefulness. We find in the list of potatoes those excellent varieties Rintoul's Early Don and Moffatt's Prolific. The selections are amongst the best we have seen.—*Descriptive Catalogue of Roses.* Comprehensive and truthful, and very judiciously restricted to classes and varieties that are really useful and in general demand.

LONDON SEED COMPANY. *General Price Current of Kitchen Garden, Flower, and Farm Seeds.*—A good businesslike list, equally adapted to gardeners and farmers. In the flower-seed department there are some very tempting offers. It is a curious thing that it is impossible to discover from this "Price Current" where the offices of the society are situated.

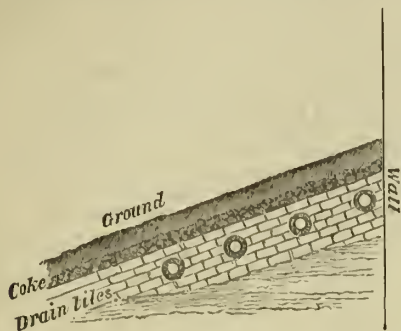
G. GIBBS AND CO., 25, DOWN STREET, PICCADILLY. *Catalogue of Kitchen Garden Seeds.* A large sheet list, with spaces for customers to fill in the quantities required, which saves all writing of orders.—*Catalogue of Agricultural Seeds.* In this, besides the subjects ordinarily in request, is a list of selected meadow, pasture, and lawn grasses—a class of plants on which Messrs. Gibbs have bestowed much attention, to the immense advantage of the community.

NOTE ON BORDER-HEATING.

BY THE REV. W. KINGSLEY.

(From the Journal of the Royal Horticultural Society.)

The border which I have the means of heating is about 120 feet long and 10 feet wide, and is at the foot of a south wall 12 feet high, with a cross wall at each end. Four pipes run the entire length, and are in the midst of a mass of drain-tiles, which are at right angles to these hot-water pipes, and lie in lines sloping upwards towards the wall, with rise enough to secure the flow of the water, and the circulation of the hot air; upon



the drain-tiles there is a layer of coke. The result gives me a temperature about that of a very gentle hotbed. I do not think I should construct the bed in the same way again; but I had been doing a good deal of draining, and the defective tiles were good enough for this purpose. My fruit-trees are in pots, some as large as 2 feet across, but most of them 15 inches. The pots stand upon the coke, or very little above it. In winter they are covered with earth and dry litter, so as to keep the frost off completely; but in the mild weather they are little more than half buried, and in the heat of summer are raised to the surface to let the sun give them as much heat as possible, and at the same time to allow the roots during the summer months to pass out of the bottoms of the pots into the ground.

The way in which I have applied the heat is, as far as I can, to encourage the growth of roots in winter, and to give a temperature to them when the fruit is setting above what we get from the sun in this climate; and then again, when the heat begins to fail in early autumn, to give warmth to ripen the wood and get the trees put to rest early, by their having heat and no water. Perhaps it will be best to state how the trees are heated throughout one year. During the sharp frosts of winter the hot water is kept going night and day, and I have heat enough to thaw any snow that falls, but I do not raise the temperature of the ground so high as this, but only enough to prevent the roots being so much checked in their growth as to destroy the young spongioles. Whenever the weather is mild the fire is not lighted; and by the end of February there is rarely any occasion for artificial heat. As soon, however, as the trees are in full blossom, the fire is again lighted, and the heat steadily increased, and kept up till the sun warms the ground thoroughly. At this period the fire is lighted early in the morning, and allowed to go out at night, and so gradually till artificial heat ceases, about the middle of June, or later if the season be cold; and if a few cold days come, I give heat again during the day. During the blossoming season the trees have a wide piece of netting over them. The trees now will have got a very great advance upon those in the open ground so far as the ripening of the fruit is concerned, but they do not open their blossoms more than a very few days before them.

Then again about the end of August I give heat during the day, and, according to the nature of the fruit give water or withhold it, as I would encourage growth or ripen the wood. In the latter case it is necessary to cover the pots with slates or wood, to keep the rain off. My rule is to withhold water and give heat as soon as ever the fruit is ripe. When the terminal buds are fully developed, the pots are lifted and the protruding roots cut off, the soil taken out half-way down, and the roots so far cut within a few inches of the stem; fresh soil is put in, a little water given to the tree, which is placed on the hot border again for about a couple of weeks, and then kept dry till the leaves fall, and for some time after. The root-pruning is going on from the end of September to the end of October (I believe it should always be performed before the leaves fall); and by giving water and heat the trees do not flag for more than a day, and heal their wounds at once. No doubt much has to be learned here, and it will require many seasons to find out the best treatment. My object is to get the trees to cast their leaves very soon after the wood is mature, and to stop the long herbaceous growth that our damp autumns produce. I need hardly mention that close summer pinching is practised, so that very little winter pruning is needed. The dry heat soon sends the leaves off, and a long rest is given to the trees during the autumn. Some are placed under glass to ripen their fruit; and all would be, if I had sufficient extent of it; for as the trees are merely resting, a small space accommodates a great number, as they may be packed close together, and, the pots being dry, no mildew need be feared, as they have at this time plenty of air. Finally, as soon as the rains of autumn are over, and the cold weather sets in, the hardy trees are again put into the hot border.

As may be expected, the flavour of the fruit is first-rate, and the additional length given to our summers allows many kinds to come to perfection that otherwise we cannot ripen. A month or six weeks is certainly thus added. We have plenty of light from our long days in summer; but excepting for July and part of August we have no heat in the ground, and during our long cold and wet autumns the rootlets of our trees rot and die, and they have to grow again before the trees have strength to swell their fruit. I tried three trees of *Beurré Superfin* last year, all grafted at the same time and equal in vigour—one in the open ground, one in the orchard-house, and one with root heat and no glass. The pears from the open border were about the size of walnuts, those from the orchard-house fair-sized and good, but those from the hot border were larger and finer than I have ever seen in the south of England; and it must be remembered that the season was one especially favourable for the open border, the trees in which had not been disturbed for three years, and were kept well mulched during the hot weather.

I first began the system of bottom-heat by plunging strawberry plants

in an open hotbed, and planting them out after giving them a rest in the autumn; and the result induced me to try the plan on a larger scale with very various kinds of fruit. One very useful application of the hot border is for grafting young trees. The stocks potted early in the autumn, and treated like the other trees during the autumn and winter and early spring, are quite vigorous enough then for grafting, and they push strongly and get no checks, and so there is no trouble in keeping back the scions till the stocks are ready.

Last year I put a row of potatoes just over one of the hot-water pipes, at the same time that the ordinary crop was planted. Some time afterwards my man (who is not learned in gardening, though thoroughly trustworthy and interested in his work) came to me and said, "The tatties on the hot pipes are not thriving like those in the ground." I asked him what made him think so; and then it came out that he was judging by the tops. However, in a few days more the ground over those in heat swelled and broke up like molehills, and we had in the beginning of June the best potatoes I have had at any time since I came here six years ago.

I am now making preparations for giving bottom-heat with glass overhead, and I shall be very glad to work out any systematic experiments on the use of heat without glass, glass without heat, and heat and glass united; but I am sure that unless our experiments are based upon some principle to begin with, they will never be of value for making correct inductions; and so I shall be glad to give some time to experiments of a scientific kind in order to obtain results that, as an individual, I should never live long enough to see, but which by the united efforts of many may be arrived at in a very few seasons. So please do not think that in the account I am giving you I suppose my system to be anything more than an experiment, or that I should consider it otherwise than a hasty induction to declare from it that the principles which for the sake of clearness I have stated, are in anywise proved to be correct.

South Kilvington, Thirsk.

HEAT.

One might ask the question, "What is heat?" but it would be difficult even for the philosopher to make reply. Whatever we see, feel, taste, and smell is in some degree or other filled with it, and the properties of organic substances are in great part produced by heat. We see and hear of the power of heat always and every day wherever we go. Whence came this powerful and wonderful principle that connects together all the phenomena of the material world?—the grand foundation which furnishes the earth with a regular supply, and makes it capable of supporting animal and vegetable life? If we torture or imprison it, or do what we may with it, its power and effect remain the same—unchanged and unchangeable. We devise means to extort heat from water, in order that we may make ice. We also force it into water to warm our apartments, and in our pineries, vinerias, and stoves, to enjoy the productions and growth of tropical luxuries. Heat gives wings to the ships, and bids defiance in a great measure to the waves of the sea, for even if the wind is contrary, steam is usually its master. It is also as horses to the locomotive, and enables it to outstrip the flight of the swiftest bird in the air. Heat is every way present, and every material in existence contains it. When we sleep at night, we require a due regulation of it, and by its influence our food contains its nutritious and enriching qualities; and without its presence our fruit and grain would be as tasteless and insipid as the roots, branches, leaves, and grass that held and protected them.

In health, heat is our mainstay and support, and in sickness it is our physician and medicine. Under a high degree of heat we languish; in severe weather, without it we shiver. If heat is allowed to accumulate around us in undue quantities, we burn with fever; and if taken from us too quickly, it leaves behind many maladies to testify to its loss.

Heat is a good servant, and lends its power and influence always and at all times, ever ready to do good service for man's enjoyment and welfare. We have conductors and non-conductors of heat, and by their aid we keep ourselves warm in winter and cold in summer with the same sort of coverings. Woollens or flannels are among the worst conductors, cotton and linen the next. All these three kinds of wearing apparel may have the same temperature of heat, yet to the touch one may feel warmer than the other. Metal is the coldest material we have in the house, stone next, and wood still less, and woollen feels the warmest of the whole. Good conductors have a lower temperature than our body, and thus feel cold when we handle them. Other things with a higher temperature than we possess feel hot. So it is with this most wonderful thing heat, and the phenomena connected with it. The earth possesses a certain amount of heat, but the sun must be regarded as the principal source of it. Heat may be produced by different ways and means: a nail may be made red-hot by the application of a hammer; by the friction of two pieces of wood, by boring or turning of metals, by rapid or powerful compression, and by the process of combustion. Decomposition of food in the human body is noticed as an abundant source of heat. I asked the question at the commencement of this article, What is heat? Well, what is it still, after so much is said concerning it and its production? By the term "heat" we mean sensation. If we touch fire, or anything hotter than our flesh, we call it hot. Fire is the cause of burning. A hot fire, a hot place, a hot house, hot weather,—these are terms indicative of the presence in this or that place of more heat than is congenial to our feelings. Heat raises the temperature in proportion as it increases, and the philosophical instrument called a thermometer tells us the number of degrees of heat. The force with which the particles of a body cohere is entirely dependent upon heat. The existing adhesive force decreases proportionately to the increase of temperature. Burning gas produces heat and raises temperature while affording illumination. Some small greenhouses are heated with coal-gas. Heat has been described as an extremely *subtle fluid* or *molecular motion* of matter. Whatever it may be, it must be regarded as pervading all space, entering into combination with other bodies, and producing wonderful effects of expansion, fluidity, ebullition, and evaporation. Without heat, nature itself would be lifeless and inanimate; and the recent frost has suggested to us that as water, the emblem of fluidity and mobility, becomes as hard as rock when a certain amount of its latent heat is abstracted from it by the atmosphere, so if its heat were to be all radiated from the earth the whole mass must become a crystal, and life would cease utterly upon its present life-covered surface.

A. D. ALLASON.

CRYSTAL PALACE.—It is not improbable that in the changes consequent on the destruction of the tropical department at the Crystal Palace a spacious concert-room will be built on the site of the magnificent courts beyond the screen, and the Handel orchestra removed thereto from the centre transept. Such a scheme is under consideration.

KITCHEN GARDEN SOILS AND THEIR MANAGEMENT.

LIGHT, DRY, SANDY SOILS.

One of the worst soils that a gardener has to contend with in the production of fine vegetables is a light, open, porous surface resting on gravel. These soils may be described as of a peaty nature, as they more generally abound on spots that have been at some time reclaimed from adjacent open waters, in which both hog-earth and peat are often found in any quantity. Such is the case in some of the residences that encircle Blackheath, and also in some of those that skirt a portion of Wimbledon Common; so that we see when they do occur, they are only made up of the same nature as a portion of the surrounding land, and consequently are ill adapted for vegetable culture, and it is not often that the right measures are adopted to increase their stability. Very generally there are not more than ten to twelve inches of surface soil, and this too often of that light open texture, that it may be said that it has not the power of retaining one-half of the sustenance that vegetable life requires (even when it is liberally supplied) because the first few hours' rain, after a dressing of manure has been given, washes down into the gravel below all the nutriment that the manure contains, and which a soil of a more calcareous nature would retain, to the evident benefit of the crops.

I am aware that much can be done by good management to make its character more retentive, and consequently increase its fertility, but to improve the staple of the whole requires expensive measures in many places. The chief secret in management in the first instance is to avoid deep trenching, for where there is only about twelve inches of soil suitable for cultivation, it can do no good to loosen up a bed of gravel beneath it; in fact, it will do harm, as it will be the means of allowing greater facility for the water to get away out of the reach of the roots of the plants, which must be prevented as much as possible in this case, as having only such a limited space to ramify in, they require too often more moisture than these kinds of soil have the means to retain. The aim of the cultivator, therefore, must be to retain so much moisture in the soil as he can during the summer months, and not make channels for its escape out of the reach of the roots of plants, that they may have the full benefit of every summer shower, and the gardener the satisfaction of seeing two or three days after that the supply of moisture is not quite exhausted.

With the case of fruit trees, and some permanent crops, as asparagus and rhubarb plantations, it may be desirable to specially prepare these spots by taking out the gravel and supplying its place with a better and a more suitable soil: but only in such cases would I advise the subsoil to be loosened up more than two or three inches, unless a portion of it could be removed, and its place supplied with better soil. This may be done more often than it is when lawns and gardens are first made, for I have seen good soil used for making lawns that would have been a permanent benefit to the kitchen garden, had it been removed there, and the worst soil from the kitchen garden made to do the same duty on the lawn, which it would with proper management. But where measures have been neglected to improve it in the first instance, the gardener will have no difficulty in doing so, provided he has the means. But here is the difficulty, for, as I have before stated, at this stage it requires expensive measures to do it effectually, for nothing short of a good coat of loam from six to eight inches thick will make a good job of it. But once given it such a dressing, and it will increase in fertility for years afterwards. Of course a less quantity would have a corresponding effect, but anything less than six inches will waste away in a few years, when a second application would be required to maintain the character of the staple that was given it when first applied. In choosing loam for this purpose, I would prefer it to be rather heavy in its nature, as a sandy loam would not do the same amount of good as that of a closer and heavier character.

The next best thing to improve such a soil would be two or three inches of clay strewn all over every vacant spot in autumn. This by being fully exposed to frost and all other influences of the elements, would by early spring so crumble to pieces, that if carefully forked in, it would get well incorporated with the natural soil; and if the same quantity was applied for two or three years successively, it would do a vast amount of good, by enabling the soil to retain more moisture, and consequently more sustenance for the crops to feed upon.

Chalk in a small state may be used advantageously in small quantities, but its chief benefit would result from its being of a cooler nature than the natural soil, and it would so prove highly beneficial in the hot summer months. But anything may be applied that will assist the staple to retain moisture, and reduce its burning character. But anything that will tend to make it more porous should be avoided; even very long dung should not be put into the soil unless it be early in the winter months, that it may get thoroughly decomposed before spring.

In closing, I may remark these kinds of soils are generally the earliest, as being so naturally well drained they are the warmest, but the quality which ensures their reputation for earliness is, later in the summer, a great enemy in preventing the satisfactory maturation of any succulent crop as compared to a soil of a colder nature. J. C. CLARKE.

THE FROST BROKE UP ON TUESDAY LAST, agreeably to the anticipations expressed in our note on the weather last week. About midday the wind veered from E. to nearly due S., and soon after settled in the usual manner at S.W., and after a fall of sleet, rain followed, and the temperature rose about 25° in the course of about six hours. It begins to appear that the recent frost tried vegetation as severely, or nearly so, as that of 1860-61. It is certain that Chinese and Japanese trees and shrubs in our gardens have been considerably injured. We should be glad if our readers will contribute information on this subject as opportunities occur for ascertaining the extent of the injury done. Reports from districts far apart, and variously situated as to geological formation and relative shelter or exposure, will be of lasting value, for the frost of 1867 will undoubtedly serve as an extreme test of the hardiness of plants, as well as of the possibilities of the climate of Britain.

GEELONG AS A GRAPE-GROWING DISTRICT.—Nearly one quarter of the area under vine culture within the colony is within the immediate vicinity of Geelong; and of the superiority of the Geelong grapes for wine-making purposes some notion may be conceived from the fact that of 110,000 gallons of wine made during one year within Victoria, nearly 50,000 gallons were made in this district.

When is literary work like smoke? When it comes in volumes.

ON LAYING DOWN LAND TO GRASS.

I have adopted a plan which with me has been successful, and I think would be so generally on soils of a similar character to mine, which is a clay, interspersed more or less with round stones, on the formation of the variegated marl. The fields on which the trial has been made had been prepared the previous year by cleaning thoroughly and manuring heavily, for Mangel or Swedes. In the spring, at the usual time, I have sown, with the corn crop, a mixture intended to remain down two years, consisting of cow-grass, common white clover, a few pounds of Alsike clover, Italian rye-grass, and sometimes a very small proportion of Timothy grass. The grass seeds are usually sown a few days after the corn, in order to secure a fixed tilth, and great care is taken that the land is in a proper state—neither too wet nor too dry. My first year's seeds are commonly mown, and are, as a rule, a more than usually abundant crop. The second year I generally find that the yield of herbage is nearly, if not quite, equal to the first. I ought to have stated that, after mowing the first year's crop, I generally pasture the after-growth with sheep, which are supplied with cake or corn. I continue this system during the following years, usually contriving that the field in question shall be pastured during some portion of the year by either sheep or calves which have a daily supply of artificial food. In this manner I have been induced to leave fields down year after year, because the supply of herbage which they yielded was so abundant that they were more profitable in this state than they would have been under a corn crop. Of course I do not wish to draw a general inference from my limited trials; but in this district, or in others which have a similar soil and climate, I should feel no hesitation in practising it on an extended scale. It is a great recommendation that the yield of herbage is so considerable during the first few years; and according to my observation, the more permanent grasses indigenous to the district gradually introduce themselves into the vacant spaces left by the dying out of the biennial species. Of course this process is greatly accelerated by putting on a compost in the spring, and sowing hay or mixed grass seeds among it. I have at this moment a field divided into two equal portions, half of which was laid down according to the plan I have described, and the other half with permanent grass seed of the most expensive description. Wishing to give this portion every advantage, it was limed previous to the corn and grass crop being sown. Its high condition was proved by its yielding, in spite of exceptionally thin seeding, a very heavy crop of barley. The first year's mow of grass was, however, miserable; and the subsequent herbage, notwithstanding repeated manurings, has continued most scanty. The other portion of the field is a complete contrast to this, presenting in the fourth year after it was laid down every promise of becoming a valuable permanent pasture. Most persons, in walking over this field, imagine that the facts are the very reverse of what is actually the case, namely, that the worst portion was sown with temporary grasses which have died out, and that the other was sown with permanent grass seeds. A friend of mine in this neighbourhood laid down a field without a corn crop some years ago, with permanent grasses procured from an eminent seedsman. Although neither trouble nor expense had been spared from first to last, the result was so unprofitable that, after waiting in vain during seven or eight years for improvement, he has broken the field up. During the last year or two he has adopted my plan, with every prospect of success. On a large proportion of strong lands, the practice of keeping clover and rye-grass down for two years presents many advantages. It is a saving of expense both in seed and labour; it rests the land, and improves its condition, while it allows of a rotation during which clover occurs at longer intervals. If the relative prices of mutton, wool, and corn, which have prevailed during many years, continue to hold, an acre of good sheep pasture pays better than an acre of corn. Whether or not it is advisable to extend the time during which land is allowed to remain in grass will of course depend upon many circumstances which will occur in different cases. But it is important to know that the occupier has it in his power to do this without incurring loss. I consider the Alsike clover quite essential to the success of this plan. In selecting the proportion of cow-grass and Italian rye-grass, the farmer will, of course, be guided by circumstances. Where the clovers are certain to stand, the proportion of rye-grass may be reduced very low.—MR. WILLOUGHBY WOOD, in *Bell's Weekly Messenger*.

CATALOGUES.

F. AND A. SMITH, WEST DULWICH. *Retail Catalogue of New and Choice Plants*.—In this are comprised all Messrs. Smith's novelties for 1867. In the lists of Cinerarias, Geraniums, Fuchsias, Azaleas, and Pelargoniums, are some valuable new varieties.

W. CUTBUSH AND SON, HIGHGATE, LONDON, N. *Catalogue of Vegetable, Flower, and Farm Seeds for 1867*.—A capital list, neither overladen with varieties, nor deficient of anything really good. A selection of flower seeds, and Gladioli, Anemone, and Ranunculus bulbs, is added. Amongst the novelties is Cutbush's variety of *Lilium auratum*, the flower of which has bands of red, in place of the usual bands of yellow.

WHEELER AND SONS, GLOUCESTER. *Little Book, or Select Seed List for 1867*.—A pretty and amusing trade list, containing many specialities, and good selections of standard subjects. The cultural notes are brief, but quite to the purpose; and there is a good paper on pasture grasses.

RICHARD DEAN, EALING, LONDON, W. *Catalogue of New and Choice Vegetable and Flower Seeds*.—A very interesting list, containing perhaps more novelties than cautious people will care to invest in, and too many quotations of a class suggestive of R. D.'s obsequious anxiety to propitiate an influence. Pity that some useful information should be mixed with what looks like toadyism; but every one to his taste.

H. CANNELL, FUCHSIA NURSERY, STATION ROAD, WOOLWICH. *Floral Guide for 1867*.—This is a capital little book, for which Mr. Cannell has the courage to charge 3d., a much more sensible proceeding than giving it away, and quite as likely to bring trade as if sent about free and broadcast. It contains descriptive lists of Fuchsias, Verbenas, Petunias, Tropaeolums, &c., &c., with discriminating criticisms on their respective merits, and some racy bits of information for those who can be taught by a merry word as well as by a prosy essay.

There is now in the aviary at Knoulesley (says the *Liverpool Albion*) a turtle-dove which hatched two young ones, in a tree in the open ground, on Christmas Day morning. The same pair of doves hatched on Christmas Day last year in the same tree, and on New Year's Day the year before.

ODDS AND ENDS.

TALLIES.

I once knew a lady, blessed with a large family, who, in reply to the urgent solicitations, at dinner-time, of her numerous offspring for more copious supplies of the succulent juices of pie or joint, was accustomed to remark, "Well, my dears, you can't have it *all gravy!*" It always struck me that this axiom was so applicable to almost every condition and occurrence of daily life as to deserve to rank by the side of Franklin's celebrated phrase of "Paying too dear for one's whistle." In gardening especially, it is impossible to have it *all gravy*. There are insect pests, animal pests, atmospheric pests, and all sorts of natural pests and discouragements; but to amateurs, at least, there is not a greater nuisance than the artificial one of "tallies." More ingenuity in a small way has been expended on this subject than would suffice to construct a reasonable code of laws for a nation, yet with utterly unsatisfactory results. Our esteemed Editor, with his usual acumen, has devised a plan for meeting his own purposes. He uses a four-cornered wedge-shaped piece of wood about the size of an ordinary rolling-pin. This is painted white, and contains on one side, in large letters, the name of the variety; the other sides are devoted to chronicling the date of its introduction, and any other remarks as to its cultivation, habits, and the like desirable to be preserved. These are thrust into the ground by the side of the plant. Now this may do very well for an experimental garden, but is totally beyond the appliances and requirements of ordinary amateurs; besides it requires great care and watchfulness to ensure their being placed correctly, during alterations and removals. Zinc tallies are patronized by many, but however enduring, they are very indistinct at a distance, and are apt to come off the plants from the corroding of the wire by which they are attached. Wood and parchment labels soon rot and decay. I shall now proceed to detail a method I myself am adopting to overcome the difficulties of the tally question, with strong hope of success. For the sake of brevity and precision, I shall give the method in the form of a recipe after the manner of Monsieur Soyer, or the venerable and respected Mrs. Glasse.

First get some spoiled blind laths (such as are used for Venetian blinds), before they are painted: they are cheap enough! Take a strong sharp knife and flat ruler, and cut them into strips the size you require: they will cut as easily and pleasantly as bread and butter. Then with a thick *indelible* garden pencil write upon the strips the name of the plant, and the first step is completed. Next, procure a few pennyworth of *hard white varnish*, with which coat the tallies two or three times as they dry. Bore a hole with a small awl at the end in each, for the insertion of some thin galvanized wire, to fasten on the tallies, and I venture to predict a tally will be produced of an enduring constitution, capable of sustaining any amount of winter and wet weather. A thin hard cord of the texture of whipcord, thoroughly *tarred*, would perhaps be the best material to tie on labels with, and the ultimate saving of labour and confusion would amply repay the trouble of its preparation. The above manufacture would form an interesting and useful occupation during dull evenings for the young ladies and gentlemen of the family, provided they did not cut their fingers too often through too rash use of the knife.

THE FROST AND THE ROSES.

"Then Winter came: the wind was his whip;
One choppy finger was on his lip;
He had torn the cataracts from the hills,
And they clanked at his girdle like manacles."

We have lately had a tolerably sharp visit from the above-named formidable potentate, and he does not seem in any hurry to take his departure. "I tell you what, my friend," said an enthusiastic rosarian to me the other day, "our roses will catch it as badly as in 1860." I fear this is too true: they were so green and growthy up to the very day that King Frost set his iron grasp upon them, that they were as utterly unprepared to resist it as a man clad in a dress coat, white vest, nankeen trousers, and patent leather boots is to clear away the snow from the housetops. Happy the farsighted and cautious individual who prepared for emergencies by coating up his tender favourites with coats of mulching and comforters of haybands. I frankly confess myself to have been caught napping. I shudder to look at my Mareschal Niels, and dare not even think about Madame Falcot and other delicate fairies of our summer affections. One good result, however, will accrue from our losses, be they what they may, which is that the constitution of our newer favourites will undergo such a trial as they have never experienced before. If Mareschal Niel, in particular, comes forth from the ordeal triumphantly, it will enhance the value of the variety to the highest pinnacle of merit. For protecting tender roses on their own roots, nothing is better than a few handfuls of charcoal scattered round the collar to dissipate damp, over which should be laid on 6 or 8 inches of cocoa-nut refuse or flaky manure. For the same

kinds on the brier, nothing is superior to a good wrapper of haybands about the bud and lower branches, leaving the long shoots to be killed back or not as it may happen: there will be plenty of new wood formed from the protected parts.

From the shivering pinched-up appearance of aucubas, and other choice evergreens—all but hollies, whose crisp leathery leaves appear to defy any amount of frost—it is to be feared there will be no little havoc among tender winter shrubs, as well as among the roses, should the present severe weather not soon break up.

PERMANENT EDGINGS OF VARIEGATED PLANTS.

Is it not possible to devise some improvement in the method of constructing variegated edgings or borders to beds, so that they may become permanent articles of garden furniture? The various kinds of white and yellow variegated geraniums are pretty enough while they last, but they are a constant source of trouble and perplexity and expense to the gardening public in their annual propagation, preservation, and renewal. If the same neutral greys could be produced in hardy subjects that would stand the winter, it would afford us something to look at in that bare and dreary season of the beds, and form a basis as well for spring as summer planting. There are some of the varieties of striped-leaved periwinkles, ivies, the variegated euonymus, &c., that would rival any border or ribbon of Attraction or Golden Chain. I throw this out for the consideration of our talented Editor, or the able O'Shane.

WINTER FLOWERS FOR SMALL CULTIVATORS.

From December to January is the most trying period in the whole year to the amateur florist who wishes to keep the shelves of his conservatory or greenhouse interesting, or to furnish plants or flowers for the decoration of the hall, the drawing-room, or the dining-table. Late fuchsias and chrysanthemums have become utterly scrubby and unpresentable; camellias are scarce in small establishments; scarlet geraniums, if any puny specimens are left, have blossoms like the shreds of red list whereby trees are nailed to the walls; our little bulbous pets are scarcely forward enough for decorative purposes,—so that the pretty Quakerish primulas are almost the only subjects to be relied upon for floral enlivenment of our winter-bound habitations. In this dilemma, foliage plants are too much lost sight of, although there is as much real interest, and beauty in elegance and peculiarity of form, as there is in brightness and variety of colour. Succulents also, particularly of the cactus and sempervivum tribes, might perform a much more important part as ornaments than they do. The various kinds of the melocacti, with their grotesque and abnormal configurations, would be objects suggestive of many a quip and joke congenial to the mirthful season of Christmas; nay, I have some serious thoughts of appearing with one attached to my button-hole, in lieu of a camellia or rosebud, at the next party I go to, just by way of peculiar experiment.

With a view to see what might be accomplished in winter flowers, I paid a visit a few days ago to the show-house of my friend Mr. John Fraser, Lea Bridge Road Nurseries, making sure if anything noteworthy was to be found it would be met with there. When we find a sparse number of subjects—that is, suitable for small cultivators at an establishment like this—it only exhibits the truth of the assertion with which this paper commenced, and renders the few suitable subjects we can discover of the greatest value.

The first I noted down was a foliage plant, *Centaurea argentea*, admirably adapted for a table centrepiece, being of a branching, fern-like contour, of the colour of *Cineraria maritima*: *Centaurea gynnocarpa* closely resembles it. The next was the variegated *Euonymus*, tolerably hardy, and which, if kept low out of doors, would I should say make a pretty edging. Then *Yucca filamentosa*, its sword-like leaves beautifully striped with white, a splendid thing for a hall or dinner-table as the central point of decoration, to be surrounded with forced hyacinths, tulips, or primulas. Then there were *Chorozemas*, *Leschenaultias*, *Correas*, even *Aphelexes*, all of them capable of being used as foliage plants till their flowering period arrives. *Araucaria excelsa* is a fine decorative plant for indoors, if not grown too large—something like those small firs used for that most charming arboreal production, in youthful eyes, the "Christmas tree." Several kinds of *Ericas* are applicable as ornamental plants, even before they flower, from the diversity and delicacy of their conformation; and with them may be joined the old favourites as they come into season, the *Acacias*, *Coronillas*, *Cytisuses*, *Deutzias*, and *Daphnes*. I remarked also an excellent nearly hardy, bushy plant, suited for a cool greenhouse and for indoor ornament, named *Thuja Donneana*, grown like a little compact tree, the foliage resembling some rich *Lycopodium*. Of course there were many other subjects of a more important character than those I have noticed, but such are not for the minnows of horticulture, for whom I have just noted down the above few subjects as likely to supply a want during a special but brief period of the year, and which are moreover inexpensive and easily managed.

London Road.

W. D. PRIOR.

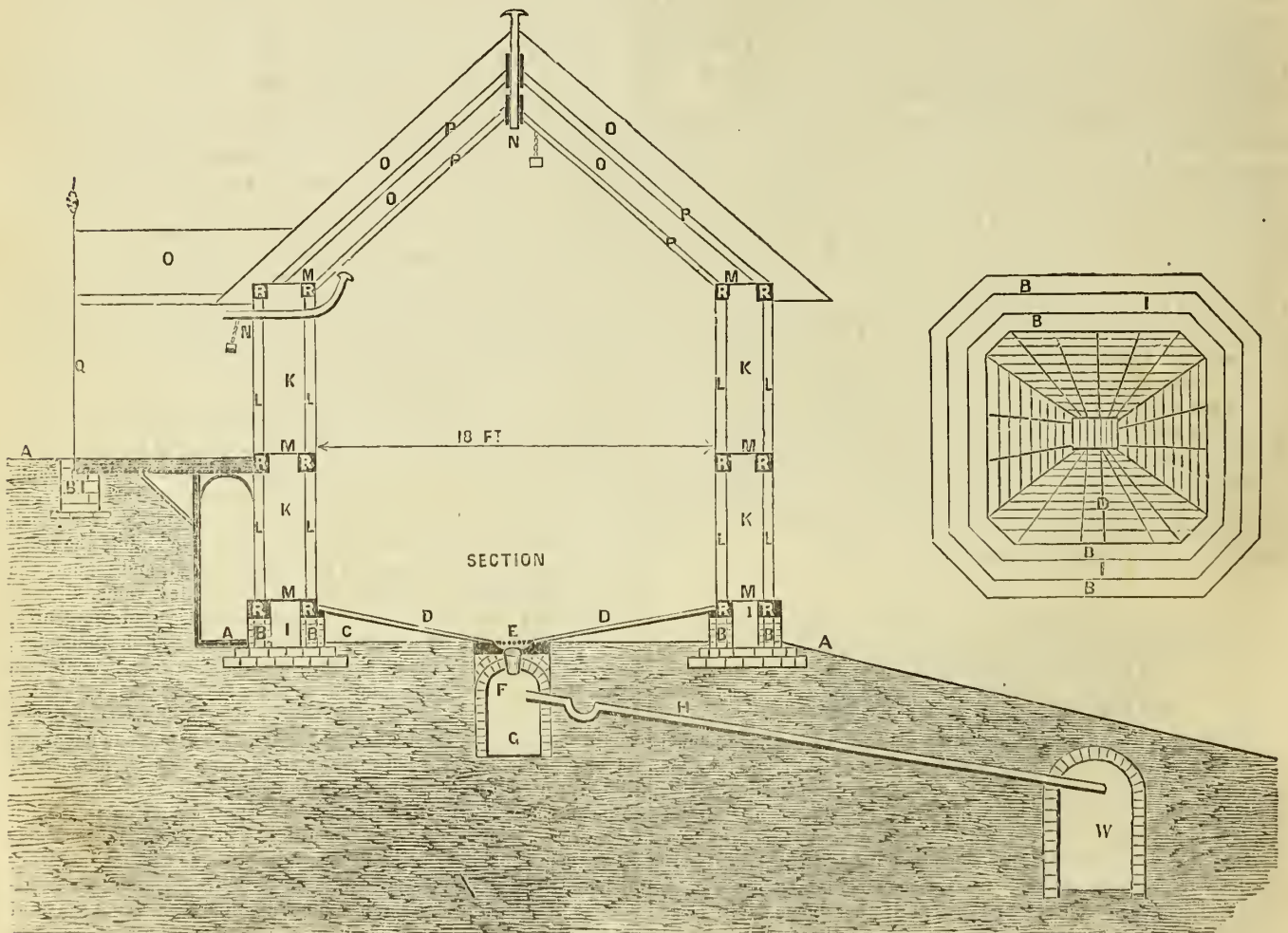
ICE-HOUSE AT THE SEAT OF THE EARL OF CLARENDON, NEAR WATFORD.

In my notes from this place made in the summer of last year, I briefly referred to the ice-house of which a sectional figure is subjoined; and I have great satisfaction in laying before your readers the following details respecting it, because in its construction there are embodied some new principles that have proved eminently successful in securing the conditions essential for the keeping of ice. My satisfaction is the greater because these new ideas originated in the mind of my worthy friend Mr. J. Myers, the able gardener there, whose ability on a previous occasion it was my pleasing duty to speak of in no measured terms of praise at the time of my first visit to this place, and I now refer again to the subject of the ice-house as seen at that time, and of its condition on a more recent visit.

The position of the house is at the foot of a north bank well shaded by large trees. In the first place, all the earth for the size and depth of the house and foundations was excavated and thrown up to form the entrance or roadway to the porch, as shown on ground-line at letter A. The house is 18 feet wide, with 1½ feet of brickwork above-ground, and from the brickwork to the angle of roof is 14 feet. For the better understanding of it, we will now take the ground-plan for our consideration. It will be seen that in shape it is a square with the sharp angles cut off. Casting the eye back for a moment to the plan of the house, at bottom we have letter G; this is a dry well, the bottom of which is chalk. F, bell trap; and E is an iron grating 2 feet square, covered with 4 inches of birch faggots. At D on ground plan, strong rough oak slabs are nailed to stout rough oak joists at B B; on each side are brick walls. At I is a space between, which is filled up with einder-ashes. Then again at B B are the outer foundation walls, the space between these too

walls being filled up as just stated. We have now to go back to the other portion of the plan. If we first trace out the ground-line at letters A A A, we shall better understand the details. Considerably below the level of the bottom of the house, and under the ground-line, is a dry well (W), 12 feet from the front of the house; the dimensions of this well are 4 feet by 6 feet, down into the chalk. The object of this well is to act as the receptacle for the overflow of water, should any quantity accumulate in the well beneath the house at G. It is conducted by pipes from G to W, as shown at H. This is an admirable feature, as there is a perfect system of drainage secured to the house, without the possibility of air being communicated to it, as a current of air at this point would be highly injurious to keeping ice. The spaces at C C, beneath the floor, previously referred to on the ground-plan, are filled up with sawdust to prevent the heat from ascending from the earth. The letters B B on each side show the brick foundations, and I I the space between the foundation walls, as I explained when referring to the ground-plan.

This now brings me to the building as it stands above-ground. The most remarkable feature here is in the fact that it is constructed solely of non-conducting materials, to which, combined with the excellent arrangements which I have already explained, may be attributed the success that has attended the efforts of my friend to secure a perfect ice-keeping house. The internal and external walls—as I shall for convenience sake call them—are hollow; but they are actually built of timber—that is to say, there are two rows of uprights at 15 inches apart all round. These uprights rest upon stout plates, which plates are built on the brick foundations. To each side of these uprights stout boards are nailed: inside walls, 1½-inch oak boarding; outside, 1-inch yellow battens; and the spaces



ICE HOUSE AT "THE GROVE," NEAR WATFORD.

REFERENCES TO PLAN.

- A A, Ground level. B B B B, Brick walls.
- B L, Brick foundation to front of porch.
- C, Sawdust beneath floor to prevent heat ascending from the earth.
- D D, Strong rough oak slabs nailed on strong rough oak joists.
- E, Grating 2 feet square covered with 4 inches of birch faggots.
- F, Bell trap. G, Dry well, bottom of which is chalk.
- H, Four-inch tile drain.
- W, Dry well, 12 feet from front of ice-house; dimensions, 4 feet by 6 feet, down into chalk.
- I I, Coal ashes between brick walls. K K K K, Best wheaten straw.
- L L L L, Sawdust between uprights, which are 15 inches apart all round.
- M M M M M M, Strong ties dovetailed into sills: middle and top plates at equal distances all round.
- N N, 1½-inch gas pipes for ventilation, with caps suspended, for screwing on or off at pleasure. O O O O, Thatch.
- P P P P, Rafters. Q, Porch. R R R R R R, Sill middle and top plates.

SUBSTANCE OF WOODWORK.

	Inches.	Inches.
Sills	8	5
Middle and top plates	7	4
Centre uprights	7	4
Intermediate Studs	6	2½
Outside angle posts	7	7
Inside angle posts	5	6
Roof rafters	5	2½

Inside walls, 1½-inch oak boarding; outside walls, 1-inch yellow battens. All the woodwork except the battens is good oak, two years cut.

In forming the foundation all the earth removed was thrown to the upper side, to raise still higher the embankment which naturally was there, and to form a roadway for carting, also foundation for porch.

left open, as shown at L L L L, are filled up with sawdust, while the hollow space between the two walls is filled up with the best wheat straw that can be had, and trod down as close as four men can get it. M M M M are strong ties dovetailed into sills; middle and top plates all round, at equal distances. R R R R R R sill; middle and top plates.

We now come to the roof, and it will be best understood when I say there is a double roof. P P P P are the rafters, and O O O O the thatch; but if my memory serves me correctly, there is an open space of confined air between the two roofs. But if I should be in error in this matter, I hope Mr. Myers will correct me, as well as in any other of the details. N N, 1½-inch gas pipes for ventilation, with caps to screw on and off at pleasure, that the ventilation may be regulated as desired. Q is the porch, and it will be observed that there is a kind of air-chamber beneath it, so that no earth is allowed to come in contact with the building, which would not only sooner destroy the woodwork, but it would generate a certain amount of heat, which would find its way by conduction into the house. I shall now complete the details of the construction by giving the substance of the woodwork, not previously noticed. Sills, 8 inches by 5; middle and top plates, 7 inches by 4; centre uprights, 7 inches by 4; intermediate studs, 6 inches by 2½; outside angle-post, 7 inches by 7; inside ditto, 6 inches by 6; roof rafters, 5 inches by 2½.

I hope now I have made it sufficiently intelligible, so that should any of your readers desire to build a house on the same principle, they will find no difficulty in understanding the details. They will understand that this is a large house, computed to hold 180 cubic yards of ice. The manner of securing ventilation, although simple, is an excellent one, as although air is constantly admitted into this house, it enters the house at a point above the ice, but sufficiently low to secure a current that dispels all accumulated foul air, and in its course carries it out at the opening at the top. If the advocates for non-ventilation in ice-houses dispute this, let them go and see for themselves: I am sure Mr. Myers would have great pleasure in showing them; and if that fail to convince them of the utility of ventilating ice-houses, then they ought to be locked up for a week in one of those foul ice-melting houses where you can almost feel with your hands the thick, warm, stagnant vapour with which the ice is surrounded. Surely then they would see the importance of securing a dryer and a colder atmosphere for their ice-houses. For myself, if I had not been an advocate previously for ventilation, I must most certainly have become a convert after seeing and learning the excellent keeping qualities of the house under notice; for at the time of my last visit to see it, it was one of those very damp mild days at the close of last November, when even the external atmosphere was damp, with no movement in it; yet the internal air of this house was dry, with not the very slightest appearance of damp; indeed, so dry and clean were the inside walls, that if you had wiped them with a white cambric handkerchief, it would scarcely have been soiled.

This house was half filled with ice in the first week in March last; from that time until the end of November it had wasted and sunk 3 feet 4 inches. From the sides of the house it had wasted 8 inches; but in the first instance nothing was placed between the walls and the ice; but as soon as it had wasted about 4 inches away from the wall, the space was filled up with dry sawdust. The top of the ice is covered with 6 inches of sawdust, with a good thick layer of dry straw upon that. Both these top coverings are changed about twice or thrice in the year, according to the degree of damp they contain, and fresh dry coverings of the same materials put in their place. As to ventilation, I learnt from Mr. Myers that excepting on one week he always left the ventilators open, for he found as soon as he closed the house there was a thick damp vapour accumulating. I find, on reference to my notes, that I have omitted to give the thickness of the walls. From inside to outside, including the spaces which contain the straw and sawdust, it is 2½ feet.

The small hours of the morning now warn me that I must seek some repose; but I cannot do so without first tendering my thanks to the individual with whom many of these bright ideas first originated as to how and with what materials an ice-house should be constructed; and I would tell the reader that to reduce these ideas to practice must have cost much labour, much thought, and necessarily a corresponding amount of anxiety, until they had actually been proved in practice, as it is now our good fortune to have them before us. Nor is this the first useful lesson that has emanated from the same active mind, as these pages can testify.

In closing, I can only hope that the useful structure which has brought forth these remarks may long remain a serviceable instrument in administering to the wants and pleasures of its noble owner, as it will remain a fitting witness and testimony of the ability of the man under whose instructions it was erected.

J. C. CLARKE.

ABOUT WEATHER.

I, like many others, was taken aback last week when I read the short article in which our Editor explained that he must discontinue the system of forecasting the weather on account of the necessity of producing it so soon. Well, it is a great and all sufficient reason, and I only wonder that he has done so much and so well. Then at best it is a very bad mode of forecasting when it is practically for ten days instead of a week, and I do not wonder at the industrious camel breaking down under the extra load of another day; so it set me thinking that as I had a few notions about forecasting, and as the gardener and farmer must just as much need a knowledge of the future weather as heretofore, it would be just as well to put him on his own legs as far as possible; and so, too, I should hope our Editor, if he leaves the practice of the art, will still at intervals give us a short note or an article upon forecasting, upon the present weather whatever it may be, or upon the probabilities of the next "turn-up;" for if we must have no absolute forecasts, we will, if possible, get Hobson's choice as a sort of compensation. Now, also, let no one laugh at the matter, as so many people do, for it is, and always will be, a serious thing to all main producers of health, wealth, and prosperity; and if a man does not want to be a fool, he will keep his opinions quiet until a thing is done which would otherwise soon distinguish him disadvantageously from his fellows; this has been illustrated a few times, has it not? And now, to waste no more words, I will simply state my opinion—and more than my opinion, my belief, as I believe in my own being—that in all things there is a right way, and a right truth; also that we may find both, if we only go rightly about it.

I a short time ago purchased a small book upon weather. I dare say many readers of this magazine have it; it is a good little book: amongst other things, it sets forth fully the system followed by Admiral Fitzroy, and gives general rules for various meteorological phenomena; but it is too general—more suited to the sailor than the farmer; and then, when it comes to the more detailed practice which would be most useful to us, it is unsuited and loose. What we want is, if there is such a thing, a rule as simple as A B C, and as unerring as a beam of sunshine; or in lieu of this, the next simplest thing, whatever that may be.

Now the grand axiom of modern meteorologists is that there are only two winds, these being S.W. and N.E. for our latitudes; and right they are. They have also modes and rules for finding the results of collisions of winds, and, above all, what winds are blowing in all parts. But the farmer or gardener has none of this, and he must use his eyes to tell him what is going on; happily, if he does this as well as it may be done, he will not lack much. Now, first, I am going to show a few simple results of the rule of the winds as above stated; then I shall proceed to the subject of interlacing currents, and the way in which the barometer shows them. Now, first, if these two winds oppose each other directly, and the line of contact (the "crease," as I shall call it) lies at right angles to the currents, we see at once that the said crease will be a region of calms—a fitful calm, however, with devious gusts from any possible quarter. Now, then, suppose that the crease is E. and W. while the winds are N.E. and S.W., as above stated, then the calm will still be there; but if the winds are not entirely or almost evanescent, this crease will be very narrow, and will be bordered by winds—on the south border a W. wind, and on the north an E. wind, caused by the annihilation of the N. and S. forces of the two winds; but these cases never or very seldom occur, and I have only given them to show the next case, which is one of constant occurrence. The two winds as given above, the N.E. and S.W., are made so by the rotation of the earth, otherwise they would be N. and S. To explain this would be foreign to my purpose, and I shall tax no one with a thing which he does not need to know; but all will see that if by any force the wind is diverted from its true course, the wind will be less diverted if it is strong, and more so if it is weak: so we come at once to a grand truth, that the strongest winds are nearest N. and S., and the weakest are nearest E. and W. But this is not all. When a S. wind has gradually died away into the W., we may look for a sudden inrush of wind from due N., or a fresh rush from due S., and *vice versa* with a N. wind, as often occurs in winter time. But I am a little ahead of my subject. I showed that if the crease between two opposing winds is inclined to the winds themselves, there will be on each margin a current running parallel to the said crease, and in a direction agreeable to the wind on that side. Now, however, suppose the winds are *not opposite*; then, whether the crease be inclined or perpendicular to the currents, there will be a *differential wind* running down the said crease, and in a direction compounded of the said winds; and the less opposed these winds are, the wider will be this crease, and the steadier will be the wind down it. Now note this especially, for it is the fate of our happy land to be almost continually under one or other form of this differential wind, and the reader would be astonished if he knew what prophecies may be made upon this knowledge. The next thing to know is that this "crease," with its qualities, moves about according to a simple rule to be now shown. In this last autumn, and in nearly all autumns, this differential wind, with its crease, runs nearly E. and W., arising from a due N. (*i.e.*, a strong N.) wind opposed to the constant S.W. trade wind of the South Atlantic; and so down this broad crease there is a W. wind, and going from it northwards there is a rather quick turn of the wind to due N.; but going southward, there is a more gentle turning of it to S.W. This crease, then, is over our country in autumn; but as the sun declines, and its power to drive the S.W. wind up *decreases*, while from the same cause the N. wind *increases*, the crease of W. wind gradually retreats southward, and the wind turns N., but this not evenly, like a clock finger, but varying and capricious—ever and anon the sun getting the mastery, and driving it northward; then the cold getting the master, and driving it southward. Even every day, as the sun has power, it sends it northward, to return only at night; so, too, at this crease, between hot and cold, moist and dry, there is *constant rain*; so as it moves about we get first rain, then cold; or, being driven north again, first rain, and then warm; and if the daily motion takes place, we see at once the cause of the old saw that at the end of September, if it is a fine morning, it will be a wet day, and if a wet morning a fine day. If the seasons are steady this rule will apply with strictness *somewhere*, and generally so over the British islands. Now reverse all the above positions for the spring months, and in the increasing due S. wind opposed to the weakening N.E. wind you have a crease of due E. wind, as we all know occurring in the early spring. Then the sun grows powerful, and drives it northward. Now observe one thing, that when the mastery comes on it is *abrupt*, because the curve which the wind makes on that side is much shorter than it makes on

what we may call the "ice" side of the crease. Now bearing this last thing in mind (the abruptness of the changes), I shall consider the effect of temperature in producing interlacing and overlapping currents. The first thing to note in this part is that well-known law that warm air ascends, while cold air descends, and so we should not be far wrong in guessing that cold winds chiefly run along the ground, or in the lower regions of the air, while the warm winds occupy the higher regions; and this is the fact. So now we may at once deduce a very useful conclusion, that we always get long notice of thaws and west winds, because the currents run in the very highest regions of the air, and at once affect the barometer, while they may be days before they reach the ground level. At the present time (January 17, evening), the barometer, in spite of the frost and north wind, has fallen for about sixty hours, and it is not until now that I can detect the least bit of S.W. motion, even in the highest clouds. Judging, therefore, by the slow fall of the barometer, and the tardy results of it, we shall have a lasting thaw, and it will not come on, I suppose, before the end of the week. Not so, however, with the north winds; they come down upon us with little or no warning, and all we have to do is to be ready for them—this fact being, of course, more notable during the earlier part of the winter than the latter part. During early spring the overlapping of opposite currents is often most notable; I fancy that nearly all our cold cloudy east winds in the spring would be clear and fine but for the overlapping warm S.W. wind; at least, this was the case most especially during the last spring for weeks together. A lot of this will not seem quite to the point to the ideas of some, but I have introduced it chiefly to show a very important thing—that is, *where to look* for the wind which shall next obtain.

So one result of observing the weather with notions like these is that you seldom or never look at the weathercock, but instead of this you look at every cloud, and especially at every different stratum of cloud. Here, now, is a case: suppose the winds have been cold N.E., with frosts at night, bringing down peach blossom by the thousand, and you are anxiously waiting for release; well, look out S.W. every day, and when you see a small faint white streak in that direction, you may return, and you will find your barometer beginning to fall, if it has not already done so, and in a day or two, perhaps three or four days, the weather will turn. This rule applies equally well to the scorching summer weather we sometimes have—that is, if the wind is east. On the other hand, always be on the look-out for cold north winds running along at a low level, these especially in the autumn; it will often come down in half an hour, and woe to you if you have thousands of stock out, and it is Saturday afternoon; the worst of it is that this wind, as I have said before, will often come on without any regard to the upper currents, so that you cannot look out too vigilantly. Now in reference to all the above, it will be felt that we have no guide to tell us what the wind is doing in other parts, and so it is useless writing; but this is not the case. I can tell any one that they would be astonished if they knew the amount they would soon learn by careful attention to the subject. Especially learn to look well to windward, and always at the highest clouds, in every case except in the autumn, when after a long mild time you expect a change for cold. I do not exactly know how far off the very high clouds may be seen, but I generally reckon, under favourable circumstances, about 150 miles, and this gives an arc of 300 miles across, over which, if it is fine, you can tell at once whether anything particular is doing, for it will be well to observe that there is no great change in weather without a visible result (or rather cause) in the highest regions of the air.

It will now be time to show a more detailed view, especially as concerning the invaluable indications of the barometer.

Now first observe that a sudden fall or rise will indicate a quick result, but an early relapse into the original state; while a slow change will give long notice, and a corresponding length in the time which the new state will continue.

Now I will give a few indications of its results under the various conditions and seasons, as far as possible. First, for Spring: If frosty, a slow fall shows a tardy thaw, which will last long; a quick fall, a quick thaw, and of short duration; a slow rise, N.E. long-continuing wind; a quick rise, cold wind for a short time. A very cold strong N.E. wind will often be scarcely indicated at all, because the cold makes it rise, but the strong wind makes it fall as much. If fine and mild, a slow fall, long rain; quick fall, high W. and S.W. wind, with rain; slow rise, fine, warm or cold indifferently; quick rise, fine, most likely very cold and dry. Summer: Slow rise, S. wind, long fine weather, but colder if wind near E.; quick rise, as above, but not so durable; slow fall, wind W. or thereabouts, rain in a few days; quick fall, storms, shift winds, heavy rain, &c. Autumn: Slow rise, general motion of wind northwards, most likely by W., with cold freshness; quick rise, either cold and fine or warm and fine; slow fall, long rain, often very cold, from W. and N.W.; quick rise, high gales and mild, with wet. Winter: Slow rise, long frost, very fine if very high quick rise, very cold, fine, N. and N.E. winds; slow fall, mild and wet from W.; quick fall, much wet, and high wind from W., or perhaps snow.

The above is very rude, but may be useful; it is a most difficult thing to say exactly what shall follow certain motions of the barometer without knowing all the accompanying circumstances. And this led me to a new idea with respect to weather; and that is to make a table of several columns to indicate the change of wind, its force, direction, present weather, past weather, and at the end the resulting probable weather for the next few days. This I tried, and although very roughly I found it to give results which I have no doubt would warrant the trouble of preparing a more elaborate one, and by this the most inexperienced person might to a tolerable certainty ascertain the probable weather for from two days to a week to come.

I have not thought it needful to give a description of the various winds, as every one knows that tolerably well; but it is very necessary to note the change which will take place in the character of the various winds during the year; thus the north wind in summer is at its most rainy, and when it is we have plenty of it; so also with the east wind; but when these winds are rainy, it is because of an opposite warm wind running overhead, and the contact of warm moist air with the cold causes a continuous discharge. This is a notable thing which must always be remembered, that a wind will run over or under another for hundreds of miles without mixing with it; and you must never let your barometer deceive you when you find it is so, for it often varies without altering the weather, and this is the cause.

I think now I have given a few of the most leading points, and shown how to obtain the rest; for it is hopeless to teach it all, or even learn it all,

so that all deficiencies may be excused. I have also treated more of the winds, because they are the true causes of the weather, and if we know the wind, we need ask for little else.

Now, in conclusion, I will show the fallibility of prophecy on one point at least: it is now Saturday night, and my prophecy of Thursday in a former part of this article has turned up good for nothing. Scarcely had I written it, when the glass ceased to fall, the weather ceased to soften, and now the glass has gone up ever so much, and the frost, though not so sharp, is here still. Now all this arises from the grand truth above noted—that cold comes on almost without notice, and the change which should have reached us by now has been stopped by a thing we could not see or know of.

I hope to hear many more opinions about weather matters, and I also hope to convince many that they must learn all they possibly can for themselves. A. D.

Calendar.

WORK FOR WEEK COMMENCING JANUARY 26TH.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Early sowings of seeds of summer crops should be made on warm, rather dry soils, the earlier the better. But on cold, damp soils there is really nothing gained by early sowing; for if bright weather brings up the plants, the next change to cold and wet kills them off, and the vexation is greater in proportion to the extent of the original promise of forwardness. Take advantage of fine weather to get all digging and manuring completed; in fact, let outdoor work now take precedence of everything else, even to the neglect, if it cannot be helped, of other matters. Crops that are specially valued for earliness, such as saladings, may be greatly helped by means of warm borders under good walls, and protection by means of borders covered with straw or reeds.

Flower Garden.

ANNUALS may be sown on open borders and in reserve beds. Any that are wanted in large quantities had best, to make sure, be sown in pans also, and placed in a pit.

AURICULAS to have water freely now that they are pushing into growth. Give air without stint. This is the best time to sow seed. Use for the purpose large shallow pans filled with fine soil, consisting chiefly of loam from rotted turves, leaf-mould, and peat. Press the soil firm in the pans, and soak well with boiling water. When the soil is cold, sprinkle the seed on the surface, and lay a flat tile or square of glass over each, and place the pans in a cold frame. Leave them alone for a fortnight; then if the soil is getting dry, place the pans in a vessel of water, so that the soil will be moistened by absorption, without washing the seeds off the surface. The seedlings will begin to show in about four weeks.

ROSES may be planted now to advantage, and plantations that need treshing and manuring may be lifted for the purpose. Put strong stakes to all newly planted standards, as if they rock about in the wind they may suffer so much injury by straining of the roots as to die in the course of the spring. Be in no haste to prune roses yet; a few for early bloom may be cut back, but the general stock should remain unpruned a few weeks.

RANUNCULUSES and **ANEMONES** to be planted now in beds of sound loam, well drained and well manured. Place the roots claws downwards, two inches deep. The safest method is to open trenches, which are to be sprinkled with coarse sand, on which the tubers are to be placed, and then covered with the soil that was taken out.

HARDY GARDEN FLOWERS.—*Eranthis hyemalis*, *Tussilago farfara*, *T. fragrans*, *Hepatica triloba*, *Leontodon taraxacum* (lovely now, though a "weed" by-and-by), *Caltha palustris*, *Primula vulgaris* in variety, *Ruscus aculeatus*, *Cheiranthus alpinus*, *Sanguinaria canadensis*, *Arabis alba*, *Draha cuspidata*, *Scilla hifolia*, *Galanthus nivalis*, *Pulmonaria officinalis*, *Vinca minor*, *Saxifraga crassifolia*, *Viola odorata*, *Eranthis Siberica*, *Iberis sempervirens*. *Frans*: Snowdrops, Squills, Hyacinths, Tulips, Crocuses, *Helleborus niger*, *Cyclamen coum*, *Ornithogalum fimbriatum*, *Bellis perennis*, various; *Coronilla emerus*.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Prune outdoor vines, and train only ripe, hard wood; the distances between the rods to be eighteen inches. Complete all pruning and nailing of wall trees not yet done, and lay a good mulch of fat dung on old borders that have not had such refreshing for some time. Trees that bear well must be fed well. Many cultivators are afraid to manure fruit trees for fear of inducing a gross habit, but this is seldom the result of manuring trees that have acquired age and a fruitful habit. Of course a gross habit is not to be encouraged, but, on the other hand, if fine fruit is desired, the roots must have food enough to furnish it. Do not be in haste to begin grafting; it is best to see the stocks actually moving before putting grafts on, as in that case they take directly, and the losses are fewer than when they get a little shrivelled before a junction takes place.

FRUITS IN SEASON.—*Apples*: Ashmead's Kernel, D; Barcelona Pearmain, D; Beachamwell, D; Borsdorffer, D; Boston Russet, K; Bringlewood Pippin, D; Claygate Pearmain, D; Court of Wick, D; Count Penduplat, D; Dumelow's Seedling, K; Fearn's Pippin, K; Federal Pearmain, D; Golden Harvey, D; Golden Russet, D; Hall Door, D; Hanwell Souring, K; Holland Pippin, K; Keddleston Pippin, D; Kuke's Lord Nelson, K; Lewis's Incomparable, K; Loan's Pearmain, D; Lucombe's Seedling, K; Minehall Crab, K; Pommo Gris, D; Reinette blanche d'Espagne, K; Ribston Pippin, D; Rosemary Russet, D; Round Winter Nonesech, K; Russet Table Pearmain, D; Stanford Pippin, D; Sykehouse Russet, D; Tower of Glanmisk, K; Wadhurst Pippin, K; Winter Codlin, K. *Grapes*, same as in January. *Pears*: Bergamotte Esperen, Bueré Duhaume, Bueré Gris d'Her, Bueré de Rance, Bueré Sterckmans, Chaumontel, Colmar, Colmar van Mons, Easter Bueré, Elisa d'Heyst, Forelle, Princess Royal, L'Inconnue van Mons, Jean de Witte, Josephine de Malines, Ne Plus Meuris, Notaire Minot, Prévoist, Prince Albert, Rousse Lench, Shobden Court, Suzette de Bayay, Vingoleuse, Winter Nellis.

PEACHES and other orchard-house trees will set their fruit more freely if there is a good breeze through the house every day; the atmosphere at the same time to be kept as dry as possible. Those that have set their fruit

may have liquid manure. Peaches that have set fruit to be thinned partially, so as to leave room for another thinning. Cold draughts or excessive damp may cause the fruits to fall. Keep the temperature steady, and give air freely on fine mornings. Start another lot by syringing the trees frequently, and giving their roots a good soaking with warm water. Pot up maiden trees for fruiting next year; use strong turfy loam, with nodules of clay and a small proportion of rotten dung. Ram in the stuff as hard as if for a barn floor. Leave two inches of clear space at the top of the pot for a mulch of fat dung, and give a good soaking of water. Put the trees in the orchard-house or a cool pit; it is not well to force them into growth immediately after being newly potted.

OUTDOOR VINES must be pruned without delay. If there is any choice as to method, as will be the case with vines only a year or two planted, and which have only one or two strong rods, then the long rod system should certainly have the preference, but old fruitful wall vines must be taken as they are, and first be cleared of the shoots that bore fruit last year; next have laid in a regular distribution of last year's shoots shortened back to three or four buds; and lastly be cleared of all superfluous and crowded wood, so as to leave the bearing shoots at an average of eighteen inches apart. Pull off the loose ragged bark from the old stems, brush the wall clean, and if the roots are in an open border lay on a mulch of four inches of rotten manure, but this is not on any account to be dug in.

GOOSEBERRY CATERPILLAR.—Removal of the earth three inches deep, and as far from the stems as the branches extend, and the burial of that earth in a trench, will be as effectual a way of getting rid of this pest as any. The grubs are now in the soil, in a helpless state of hybernation, and if deposited at the bottom of a trench a foot or eighteen inches deep will never see the light again.

VINE BORDERS.—Any vine border would be benefited by being covered at this time of year; for though the vine is hardy, it is quite contrary to its nature to be so wet and cold at the roots as vines must be in this country during such weather as we have had lately. In making a fine border, take six parts good loam—if rather stiff no matter—and one part each of sand, broken bones, old plaster, and charred rubbish. It must be borne in mind that such directions as these are given in order that beginners may have a rule sufficiently definite to prevent any outrageous mistake; practical men never weigh and measure the ingredients for composts. A vine would thrive in half clean lime rubbish and half loam; or in half sand and half loam; or in four parts loam, one of sand, one of rotten dung, and one of broken bones. We have a tremendously robust Chasselas Musque growing in a walk which consists of clay trodden hard like a pavement, over which there is about a foot of coal ashes. Mr. Glendinning used to grow good grapes in a border which consisted in great part of coal ashes. To be in the full sun, and to be tolerably dry at the root, are the two golden rules for the growth of vines.

Greenhouse and Conservatory.

GREENHOUSE to be kept clean and airy, and the whole of the stock to be revised, that there may be no propagating of useless stock, and no delay in securing stock of things really desirable. Nearly all the small plants from cuttings of last autumn will now require to be repotted, and as they are now intended to grow, a generous soil may be used, rather rough, turfy, and quite sweet. Fill in round the roots with fine sandy mixture. Keep close till they make fresh roots. If convenient, have all the lights cleaned inside, and be on the lookout for slugs and woodlice, which are now coming out hungry from their winter retreats, and will do great havoc among pans of seedlings and tender vegetation of all kinds.

GREENHOUSE PLANTS IN BLOOM.—Azaleas, various Camellias, Tree Carnations, Cinerarias, Primulas Cyclamens, Hovea splendens, Acacia unciata, A. grandis, A. floribunda, A. holosericea, A. Drummondii, Brachysema lanceolatum, B. hybridum, B. undulatum, Cytisus filipes, C. proliferous, C. Atteana, C. racemosus, Dielytra spectabilis, Epacris impressa, Pelargoniums Gauntlet, Crimson King, Desdemona, Alba multiflora, Blanche fleur, James Odier, and others.

ERICAS IN BLOOM.—Petiveriana, hlanda, vernalis, melastoma, transparen, exurgens, bicolor, cocinea, echiniflora, imbecilla, Linnæana, elegans, præstans, physodes, sebana, Plunkenetiana, gracilis, peziza, assurgens, versicolor, bandoniana, grandinosa, pellucida, pinea, radiata, triumphans, viridescens, Cavendishiana.

AZALEAS to be treated as in former directions. Those coming into bloom to have a moist air and a temperature ranging from 55° to 70°. Any that are pot-bound, give a shift before starting them; the pots to be two sizes larger, plenty of drainage, and the soil turfy loam and peat, equal parts, and enough sand to render it porous. By turfy loam we mean thin slicings from a loamy meadow laid up for twelve months, with no clay or chalk in it, and full of fibre, so as to be tough and elastic. This will be very nourishing, and make finer plants than peat alone, which is of a starving nature, though essential to all these fine-rooted plants.

CLIMBERS in conservatories require attention now to remove dead wood, rub away any pushing buds that are badly placed, and to train in young shoots where desirable. Many of our conservatory climbers require a liberal heat now to start them into growth, with a free use of the syringe to keep down red spider.

FUCHSIAS are now growing freely in houses that are tolerably warm, and they must be encouraged. The Fuchsia grower should remember that the faster they are grown the better. Repot at once, using a mixture of three parts turfy loam of a mellow hazelly description, and one part each of leaf-mould, hothed manure rotted to powder, and silver-sand. If the loam is of a stiff, ungenerous nature, and no better to be got, use only one part of it, and add two parts of peat to complete the mixture. It is easier for writers to order "hazelly loam" than in some places it is for cultivators to obtain it. A temperature of 55° by night and 65° by day is best for Fuchsias newly potted at this time of year, with frequent syringing. A lot of beautiful conservatory plants may be got up with very little trouble by striking cuttings now, and growing them on fast. Shift as often as they fill their pots with roots till they are in 32-size, and then allow them to flower. If not stopped at all, but simply kept growing, they will make handsome plants, averaging two feet high and two feet through, covered with bloom in July.

HERBACEOUS CALCEOLARIAS ought now to be growing freely, and nothing will suit them so well as a warm moist atmosphere. A cool orchid house would bring them on heatfully at this time of year; but as every one has not such means of advancing them, we give a general advice that the temperature should range from 45° at night to 60° by day, the plants to

be syringed daily with tepid water, and if any indications of vermin on them to be fumigated immediately.

ORANGE TREES to be well cleaned before new growth commences. Top-dress with fat dung, and give the roots a good soaking with tepid water.

PROPAGATING BEDDERS.—As hedders of all kinds may now be propagated in quantity, the reminder may be useful that, generally speaking, cuttings put in now make fine plants, and bloom early; but if deferred beyond this time, the plants must be comparatively weak when put out, and an early bloom is out of the question.

RHODODENDRONS.—Treat the same as directed for Azaleas, but less heat will suffice to bring them out. The Sikkim Rhododendrons will do best in the Camellia house, or in a lean-to with north aspect.

HALF-HARDY ANNUALS to be thought of in earnest now. Sow according to the probability of future requirements, Phlox Drummondii, Mignonette, Stocks of all kinds, Cockscombs, Egg-plants, Tomatoes, Thunbergia, Balsam, Globe Amaranthus, Jacobina, Lobelia, Marigold, Sweet Peas, Alonsa, and any others, with the exception of Asters, and it is too early for them.

Stove and Orchid House.

ORCHIDS IN BLOOM.—Epidendrum vitellinum, Grammatophyllum Ellisii, G. speciosum, Lælia elegans, L. Maryanii, L. superbiens, Lycaste Deppii, Skinneri delicatissima, Miltonia cuneata, Odontoglossum maculatum, O. membranaceum, O. pulchellum, O. triumphans, Dendrobium moniliforme, D. nobile intermedium, D. nobile pendulum, Oncidium Barkerii, O. Cavendishii, Phajus grandiflorus, Schomburgkia crispa, S. undulata, Sophronites cernua, S. grandiflora, Cælogyne cristata, Brassavola glauca, Cattleya Walkeriana, Ansellia Africana, A. gigantea.

ACHIMENES must be started now, and the best place for them is the propagating house. But these and Gloxinias may be well done in common frames with dung-heat, with seeds of melons or cucumbers, where room can be found for a few pans of them. If they can be kept going till the end of May, with a temperature of 55° to 60° by night, to 75° or 80° by day, they may then be taken to a warm greenhouse, and will do well.

GLORIOSA SUPERBA to be shaken out and repotted in equal parts fibry loam, peat, and leaf-mould. Place in strong bottom-heat, and give little or no water till growth has commenced. It will be seen that the new growth starts from the under-side of the root, so in repotting reverse its position.

GLOXINIAS started now will make rapid growth. In planting these use the compost in a moderately damp state, and give no water until the bulbs begin to grow, after which supply it with caution until the plants have a pretty good show of leaves.

KALOSANTHES.—These showy succulents are as easily grown as any ornamental plants in our houses, and they pay well either for house decoration or exhibition. Shift now to pots two sizes larger, using turfy loam two parts, turfy peat one part, leaf-mould one part, dung rotted to powder one part, silver-sand one part. Plenty of drainage, and a layer of charcoal the size of walnuts over the crocks. Temperature to range from 45° to 60°.

ORCHIDS will in many cases require to be repotted, and after which they must have the warmest end of the house. Those that do not need a shift should have a little of the old surface material removed, and its place supplied with fresh; at the same time make fastenings safe, and repair blocks and baskets.

Forcing Pit.

CUCUMBERS are growing freely now, and as the days lengthen they will benefit by a little extra heat. No harm now in the fruiting bed rising to 80°, if care be taken to lower the temperature at night by admitting a little air, if the weather is mild, and no fear of cold wind occurring. If the weather is severe, there will be no need to cool down the bed; natural radiation will do that sufficiently. It is important to have the plants quite ten or twelve inches from the glass; if nearer, the leaves get broken every time the lights are moved. Water the bed freely with tepid water, and as soon as fruit shows stop one joint beyond it. Only allow one fruit at a joint.

FIGS to have plenty of liquid manure as they advance in growth. Pinch the shoots at the fourth joint.

PINES.—During the dull, damp, and sometimes cold weather at this time of year, pines are often injured by careless watering. It is impossible to avoid the lodgment of water in the axils of the leaves if they are syringed as freely as they ought to be; but unless that water is evaporated before dusk it will certainly do mischief. If the cultivator keeps this fact in mind, he may be able to manage so as not to incur any risk in this respect; but it may be as well to add that in the after part of the day, if there is much water lodged in the hearts of the plants, it would be advisable to draw it off with a syringe fitted with a nose instead of a rose, or by means of a piece of sponge attached to a pointed stick.

VINES started now will not need so much caution as to raising the temperature as those started in December and January, as there is now more solar light, and vegetation is active. Use the syringe freely among vines nowly breaking, but sparingly, or not at all, to vines in flower. This is a good time to put in eyes for raising a stock of pot vines. The best plan is to put the eyes singly in a mixture of turfy loam and leaf-mould, and plunge the pots in a bark bed or dung frame, with a bottom-heat of 70° to 80°. Vines in the early house to be thinned as soon as the berries are of sufficient size. Tie in the young shoots, and remove laterals early, so as to accomplish the pruning as much as possible with the finger and thumb. Be particular to lower the temperature at night. Very many of the failures in grape-growing arise through too high a night temperature.

MELONS to be put out on their fruiting beds as soon as they have filled 48-sized pots with roots. They are too often starved in pots, under the fallacious notion that when planted out they will soon recover; they should be kept in vigorous growth from the first, and when turned out have an ample and healthy foliage. In making up the fruiting bed, use very little manure. The dung-bed should be in a sweet condition to give a lasting and steady heat, and the soil for the surface should consist chiefly of rotted turf and loam. Melons require nearly the same treatment as cucumbers. They are not quite so thirsty, are more in need of sun, and should never be shaded; and they may have ten degrees more heat, if it is convenient to give it them. As melons require a more free ventilation than cucumbers, a few degrees more heat will allow of ventilation without any risk to them.

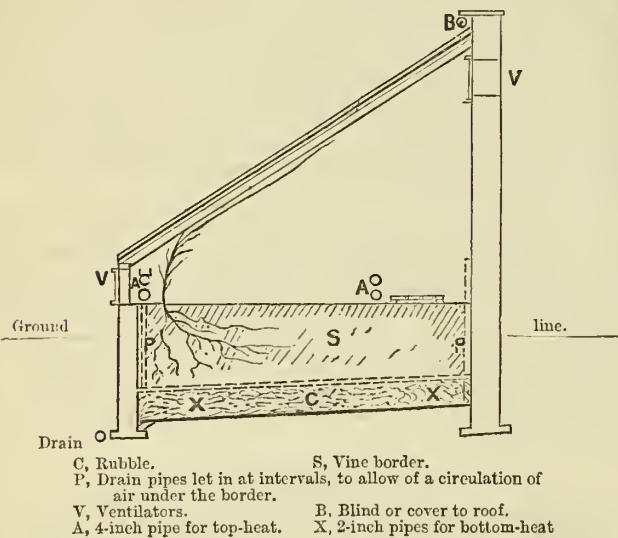
STRAWBERRIES coming into fruit need abundance of water, and occasionally liquid manure. Give as much air and light as possible, to ensure well-flavoured fruit, and those that set heavy crops thin to a moderate number, or the berries will be small.

Correspondence.

HEATING A VINE BORDER.—I have a small vinery which I am about increasing to 25 feet by 14 feet. In your number of 17th November last, you have an able article from Mr. John F. McElroy, and in the week following a leader on the same subject, both strongly recommending bottom-heat for vines. I do not want to force very early—say middle of February to beginning of March—but I wish to grow grapes in the best possible way. Do you advise hot-water pipes under the vine roots, and how many 4 inch pipes in my house? The plan I think of adopting is, that after the flow pipes have heated the top air, for the return pipes to pass under the vine border in the rubble. The vines will be planted inside, and the roots not allowed to go outside for some years. Can orchids be grown with success in the same house with vines? If so, how must they be treated in the winter when the vines are at rest?

A SEEDSMAN.

["A Seedsman" desirous of growing grapes in the best possible way cannot do better than bear in mind Mr. McElroy's advice, and take the article referred to as his main guide for preparing the compost, planting, and general management; but he may do better in the matter of warming (not heating) his border than by following the plan he describes in his letter, as a vine border should not be heated, in the common acceptation of the term. It is from the fact of too great a degree of heat having in many cases been applied to borders, coupled with the want of a compensating amount of moisture to the soil which excessive heating renders necessary, that border warming by means of hot-water pipes has found so little favour, but which judiciously applied is undoubtedly beneficial. We should advise "A Seedsman" to use 4-inch pipes for top-heat, and 2-inch pipes for bottom-heat, and further to use valves so fixed that the one may be used independently of the other, for the following reasons:—1st, the bottom



warmth should be first applied, in order to awaken the dormant energies of the vine, by setting in motion the feeders or roots. By such a course, when the leaves begin to develop, and the shoots to elongate, they will not have to wait for supplies of nourishment through lack of root action. 2ndly, In forcing in early spring, the mornings are often overcast or cold, and a fire is thought necessary, when presently a bright sun breaks out, and the heat from the fire becomes unnecessary for top-heat; it is then a matter of economy to be able to apply it to the soil, which, unlike the air of the house, when once heated, does not so soon part with its warmth; consequently, the opportunities such as above described may be taken advantage of. In order to secure the greatest benefit from pipes placed under a border, care should be taken to regulate all the adjuncts systematically, so that the heat may have fair play, surplus water be provided with a proper outlet, &c. About twelve inches in depth of thoroughly open and clean rubble, such as large flints, waste tiles, &c., from the kiln, or large burrs from a furnace, should be piled around the pipes, care being taken to exclude all fine particles, that the circulation of heat and air be not impeded thereby. Over these place evenly a thin layer of wheat straw, then a layer of soods, and upon them the mass of soil. The above diagram will show the kind of arrangement that would enable "Seedsman" to force early grapes economically. As to growing orchids under vines, we know that Mr. Robert Warner does so with success. If "Seedsman" is disposed to try the experiment, we should advise him to do so with a few only of the most inexpensive kinds, and these will have to be removed to other quarters whilst the vines are resting.]

Replies to Queries.

Gas-heating.—G. G.—When gas-heating is properly done, it answers perfectly. Mr. Lynch White, of Upper Ground Street, Blackfriars, manufactures a gas boiler which is cheap, efficient, most easy to manage, and suited for a house of any size, up to 30 or 40 feet in length.

Heating.—G. F.—A house 8 feet long by 4 feet wide can be heated to perfection by one flue. Being on a sunny south wall, this house ought to grow good grapes, though there is no length of rafter for much in that way. We should be inclined to take two rods the whole length across the rafters, instead of up them in the usual way. You could not do better than have a Black Hamburgh with two rods, or if you want two sorts, that and Buckland Sweetwater, one rod each.

Small Greenhouse.—J. Gindrod.—There are plenty of nice subjects for the greenhouse when the bedding plants are taken away; with some growers cockscombs and balsams are the mainstay, and if well grown are very beautiful. The seed of these should be sown in March, in heat; the plants will

not occupy much room till the season is sufficiently advanced that some of the bedders can be removed. As you are not rich, and want amusement, one of the very best things you can do is to get up a stock of plants from seed and cuttings, both of which you can obtain very good at low rates through the trade. The subjects you will probably find most suitable are the following, which may be raised from seed:—Herbaceous Calceolarias, Balsams, Cockscombs, Cassia tenuifolia, Datura chlorantha, Globe amaranth, Ipomea rubro-erulea (must be sown on a brisk heat), Salvia argentea. Procure also a few cuttings of the best varieties of Fuchsias and double Petunias. Many of the subjects named will be as useful in the borders as in the house. You had best not attempt raising Camellias and Azaleas from seed; it is not profitable work for beginners. Ferns you may raise from spores, with a certainty of a reward for your trouble (see reply to "Zeno.") You will not obtain seed of Variegated Alyssum; it must be grown from plants by cuttings or divisions. The green-leaved form of it may be grown from seed to any extent. Verbenas and Calceolarias raised from seed now, would bloom this season with good management; all the showy bedders may be treated as annuals, as we long ago advised for Geraniums.

Ferns from Spores.—Zeno.—There is no mystery at all in raising ferns from spores; in fact, in all well-managed fern-houses, some kinds become a nuisance in consequence of the myriads of seedlings they produce from self-sown spores. Fern spores only need to be kept constantly moist, in a still warm air; and if it be possible to raise them at all, they will germinate without special care. Some kinds are most unwilling to increase this way, but then they make amends by the facility with which they may be cut up and divided. Your simplest way to raise the spores sent you is to prepare a few shallow pans and bell-glasses. Fill the pans with very small potsherds, the top stratum to be broken to the size of peas. Over this put about an inch of a mixture consisting of equal parts fine peat and silver-sand, and water with a fine rose. The water will carry the fine stuff in amongst the uppermost crocks, and make a firm bed with minute points of crocks projecting all over; sprinkle the seed on this surface, and put the bell-glasses on. The proper place for these pans is some warm and rather dark part of the greenhouse, or the cool part of the stove will do. If they must be placed in full light, smear the glasses over with wet clay, to render them semi-opaque. To obviate the necessity of watering again, bed the pans to the rim in cocoa-nut fibre, which keep constantly moist. There are a thousand ways of raising seedling ferns if a warm, damp, and rather dark place can be found for them.

Roses.—Amateur.—If you want six to grow as standards, take Gloire de Dijon, Charles Lefebvre, Beauty of Waltham, Comtesse Chabrand, John Hopper, and Madame Alfred de Rougemont. If by three to grow to a summer-house, you mean such as may be trained on a trellis or wall, you cannot do better than have Red Rover, Boursault Crimson, and Noisette Triomphe de Rennes. The white cluster rose you inquire about is probably Aimee Vibert.

Brown and Green's Stove.—T. H. D.—From the figures and description of Brown and Green's Patent Ventilating Stove sent, we should consider this a perfectly safe and economical heating apparatus. Knowing nothing of it from experience, we cannot advise in a definite manner how you are to obtain from it a moist heat; but it appears that if the loose top is removed, and an earthen pan filled with water and put in its place, a kindly vapour would be generated that would be beneficial. One of the largest seed-pans would probably serve the purpose.

Sigma's Hoe.—R. H.—The Draw-shave hoe of Sigma is a first-rate implement. We had one some years ago of Mr. Powell, of Hurst Green, Sussex. This is the best address we can give, and we feel it to be insufficient. You might try Mr. Gidney, of East Dereham, Norfolk.

A. B.—You will find in the last number of each monthly part a *prospective* Calendar, which will enable every subscriber who takes the work monthly to sketch on the course of operations for the month to come.

J. Hurdle.—No remembrance of your letter. If it turns up, it shall have attention.

Sub-tropicals.—Alice must not expect us to advise on the best plants to grow in the centre bed referred to in her letter, because what we might think tasteful, Alice might consider horrid; and besides it is impossible to select plants for a garden one has never seen. But as we are asked definitely about raising sub-tropical plants from seed, we gladly reply that with the aid of hotbed and a few such other appliances as are required in the propagation of bedding plants, Alice may have a great variety of sub-tropicals. If canas are to be sown, the seed should be started at once. March or April will do for the first sowing of castor oil plants, as they grow very fast. The following are a few of the best varieties in the several classes named, which may all be raised from seed. We make a short list, under the impression that it will be more useful than a long one. *Canas*: *Annei, *Musæfolia, *limbata (this is the one that has stood out winter and summer several years past at Battersea Park), floribunda, nigrescens, metallica. *Solanums*: giganteum, *auriculatum, *marginatum, amazonicum, *robustum. *Nicotiana*: *Virginiana, *Wigandoides, glauca, Havanensis, Marylandica. *Ricinus*: *borbonensis, *compactus, *macrophylla atropurpurea, pulcherrimus, sanguinea, glaucus. The following plants are also invaluable, and may be raised from seed with very little trouble: Striped-leaved Maize, *Bocconia rotundifolia*, *Chamaepuce diacantha*, *Cineraria maritima*, *Ferula communis*, *Gunnera scabra*, *Wigandia caracasana*.

Peaches, Nectarines, and Plums for Pyramids.—Ernest should have given a hint of the part of the world he lives in, as we are always guided by considerations of climate in making selections. At Strood, near Rochester, Kent, where Mr. Illman has so admirably succeeded in the cultivation of these fruits as open bushes and pyramids without any aid from walls or glass, the following have been most uniformly fruitful, and except in very exceptional seasons have ripened their fruit well:—*Apricots*: *Alberge de Montgamet, *Breda, *Homskirk, *Large Early, Masculino, Orange Early, Roman, Royal, Shipley. *Nectarines*: *Downton, Duc de Tolliers, *Elruge, *Newington Early, *Murrey, *Pitmaston Orange, *Roman Red, *Rivers's Orange, Hunt's Tawny, *Violetto Hativ. *Peaches*: *Late Admirable, *Barrington, *Bellegarde, Early Anne, *Early York, *Grasso Mignonne, *Red Magdalen, *Royal George, *Violette Hativ. *Plums*: Coe's Golden Drop, Jefferson, Purple Gage, Reine Claude de Bavay, Coe's Late Red, De Montfort, Early Orleans, Mitchelson's, Belle de Septembre. Those to which * is attached are the best of their several classes.

"When was Rome built?" inquired a school inspector. "In the night, sir!" "In the night! How do you make that out?" "Why, sir, you know Rome wasn't built in a day."

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.			M. Imp. avg. of 41 yrs. Growth	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D
			rises.	sets.	rises.	sets.	Barometer.	Thermometer.		Rain						
1867			b. m.	h. m.	h. m.	h. m.	MX.	MIN.	MX.	MIN.	MR.					
8	S	4th Sunday after Epiphany	7 34	4 50	6 31 p.m.	3 53 p.m.	29.80	29.53	49	31	40.5	.25	37.7	Grammatophyllum speciosum, 1	Java	1867
4	M	New moon 6h. 16m. p.m.	7 36	4 52	7 6	4 56	30.00	29.66	47	35	40.0	.05	38.4	Laelia elegans, M	Brazil	3
5	T	Day breaks 5h. 38m [1685	7 34	4 54	7 38	6 2	29.93	29.74	50	46	40.5	.02	39.0	L. Maryanil, M		4
6	W	Charles II. died, and James II. acceded,	7 32	4 57	8 7	7 11	29.78	29.65	55	46	51.5	.00	39.2	L. superbiens, M	Guatemala	5
7	Th	Charles Dickens born, 1812	7 30	4 59	8 32	8 20	29.75	29.54	44	35	39.5	.10	37.2	Lycaste Dippel, M	Zalapa	6
8	F	Execution of Mary Queen of Scots, 1587	7 29	5 0	9 0	9 33	29.96	29.84	53	36	44.5	.14	39.0	Skinneri delicatissima, M	Guatemala	7
9	S	Length of day 9h. 42m.	7 27	5 2	9 25	10 44	29.70	29.59	52	39	45.5	.48	38.7	Miltonia cuneata, M	Brazil	9

The Gardener's Magazine.

SATURDAY, FEBRUARY 2, 1867.

THE ROOTS OF VINES ARE OUT OF SIGHT, and mostly out of mind. Hence, perhaps, the reason that nine-tenths of all the maladies that assail the grape have their origin below ground, though it is above ground really that we see the results. Were the roots as visible as the leaves, we should perhaps quickly discern the beginning of mischief, or, better still, detect the presence of causes before any effect could be produced, and so save the whole plant from disease, and escape the calamity of a loss of its generous fruit. But the roots are out of sight, and if causes inimical to their welfare exist in the soil, we are ignorant of the fact until it is advertised to us by blotched leaves, shanking bunches, or badly coloured and watery berries. In plain truth, the roots of vines are very much abused, not always directly; nevertheless the abuse is great, and in any hundred instances of vines doing badly we should find probably at least ninety where the evil, of whatever kind, had its commencement at the root. Take the case of vines crowded in houses with a view to secure many varieties in a comparatively contracted space. The rods are kept closely spurred (which is very proper), but the space allowed them is out of all proportion to the natural vigour of the plant, whose nature it is to spread far and wide, to riot luxuriantly, and to produce large crops of leaves and fruit, small crops of either being the mark of artificial treatment. We may restrain and regulate a plant like this to a certain extent, but we may be sure that nature will not be turned from her course overmuch, that she will resent all attempts to alter the characteristics of her children, and therefore if we restrict the growth of a plant which is naturally of rampant habit, some undesirable result must occur. In the issue for Dec. 8, 1866, we directed attention to the importance of giving a vine plenty of room, for the simple reason that it loves space and grows luxuriantly, and when a vine is allowed to cover a large space it is at once a noble object, and makes a grand return in good fruit for all the space and care afforded it. Now we call attention once more to this matter, and we invite practical men to consider that when they pinch in the shoots of a pear tree they also take care to prune the roots, but when they restrict a vine to a few rods, and perpetually check its growth above-ground, they do not prune the roots. Suppose we have a vine now before us. It has been allowed, say, to grow much as it liked, but now we approach it knife in hand, and are about to reduce it a fourth, a third, or even to one-half of its present self. We may be sure, if we reflect at all, that its roots have extended themselves in a manner proportioned to the wide ramification of its rods. Consequently, in the next season of growth it has a superabundance of roots. "And a good thing too," some practicals will say, "for now, by close pruning we shall have those roots to swell the berries, instead of feeding mere leaves and wood; by restricting the area of the vine we shall throw the strength of the plant into the fruit." That is to say, you practicals think nature a fool, in which, depend upon it, you are mistaken. Nature makes no mistakes, though we may make enough of them both in interpreting her meaning and in our endeavours to turn her from her course. What do we see in closely pruned fruit trees that are not root-pruned? Simply that they produce enormous gross rods in spite of us, and are shy of fruit. It is well known that in climates and soils thoroughly adapted to it, as for example in the Madeira and Cape de Verde Islands, and on the volcanic tuffs anywhere in the south of Europe, the grape-vine produces fruit that is truly voluptuous, while its roots are embedded in dry rocky stuff, and have literally only cinders to travel in; so fat roots are not absolutely essential to the production of fat berries. Who can doubt that a vine that is perpetually cut back and restricted as to space far below its natural requirements, must become plethoric by supplies of aliment from the roots, and so manifest some signs of disease proper to a plethoric condition? Cultivators of grapes are invited to consider this point as bearing directly on the results of their labours. To grow many vines in a house is, as we all know, quite possible, and those who take an interest in the study of varieties will carry to the nicest point possible the crowding of the space in their command, limiting each vine perhaps to one rafter. Physiology teaches that with such a system there must be combined a system of root-pruning, and

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perhaps the next best thing would be to restrict the roots of each vine to a certain space, instead of allowing them, as is often the case, to ramble far and wide in highly nutritive borders to pick up more sustenance than the leaves can elaborate. Over-feeding is quite as disastrous in its results as under-feeding, and the happy medium for either plant or animal is to have enough, and no more. We shall never have fine grapes from vines that are gorged with sap, any more than we shall have courageous dogs, fleet horses, or strong and healthy men if either have more food than the circumstances of their several lives require.

THE EMBELLISHMENT OF FLOWER BEDS IN WINTER is a matter generally neglected, and it is only on rare occasions that the parterre is occupied with ornamental plants except in the height of summer, the prevalent notions about "bedding" being of a most narrow description, and serving in horticulture for a parallel to bigotry in religion. There would be no warfare against geraniums and the rest of the popular bedders if those who love such things were actuated by a catholic spirit, and were as ready to make good use of hardy plants as they are of tender subjects that can face our climate only during the most favoured months of the year. If we look about now in the gardens, we shall see that as a rule they are destitute of beauty except in so far as they are permanently furnished with evergreen shrubs, deciduous trees of elegant outline, green grass, and sheets of frost-defying ivy. To render them as beautiful as they might be all the winter through, a great expansion of the system of decorating is needed, and nature is so kind that she offers us thousands of subjects suitable for temporary decoration, and that therefore may be grown so as to be portable, to be taken to the dressed grounds when wanted, and removed thence without harm when the season arrives again for spring or summer flowers. It is a matter of fact that at this moment, after a terrible frost, there are some gardens that look as bright and fresh and warm with winter dressing as if winter were unattended with circumstances inimical to vegetation in Britain. The reason that many gardens are not as beautiful as a certain few is that there are not many persons who know what may be done, and of those only a small proportion carry their knowledge into effect. There are unquestionably difficulties in the way of carrying out a completed system of winter decoration, and perhaps the greatest is the number of plants required and the consequent space they must occupy, and the labour necessary to keep them in condition. The extent to which winter decoration is carried must be regulated by the means at command; but there are thousands of persons who are simply niggardly in respect of the beauty of the garden in winter, and simply prodigal in respect of the summer display. The system of a feast and a fast is not a reasonable one; perpetual enjoyment is preferable to alternations of excessive gloom and excessive gladness. Generally speaking, plants intended to occupy flower beds in winter must be grown in pots and tubs, and removed to and fro as required; but this, which appears a vast labour, is less than it is commonly accounted, and during the summer the stock need not be in the way, but may be actually employed to heighten the effect of a display of flowers. We would just mention a case in illustration of this. A garden in which matters of this sort are systematically studied is made rich and pleasing all the winter through by means of coniferous trees, ivies, berry-bearing shrubs, and miscellaneous hardy subjects, all in pots. At the first break of spring, and as soon as weather permits, potted bulbs are introduced to light up the fronts of the groups. When at last the trees are removed, they are not set back in a wood yard, or as an embellishment to a muck pit, to be half killed by a roasting sun on the pots, and a miserable insufficiency of water, but are plunged in the rear of flower borders and make a rich background for displays of colour. Thus plants especially grown for winter are made useful at all other seasons, and being always in sight are always in mind, and obtain the attentions they require to keep them in health and constantly improving in size and beauty.

This winter has put to the test many subjects that have been used in this way, and to their serious injury. The golden-leaved Euonymus, the grass-green Grislinia, several of the Mahonia and Berberis tribes, and the holly-like Osmanthus have suffered severely, yet the general scheme has not been impaired, because the principal bulk of the stock consists of coniferous trees, ivies, and hollies, which no frost in this country ever seriously injures. And here it occurs to us to say that it is a downright pity that the

varieties of ivy are but little esteemed for such work as this. The variegated forms of *Hedera canariensis* and *H. helix* are equal in beauty to the most refined variegated varieties of geraniums, and during the most severe frost their leaves never shrink or look as if they had been parboiled, as the leaves of rhododendrons and aucubas do. The ivies of the *helix minor* group which branch off from the beautiful *marginalis* variety, are severally equal in beauty of variegation to Flower of the Day geranium, and indeed some of them, when cold weather brings out their tints of red, are almost rivals of the tricolors. They are sadly neglected by amateurs, for at a merely nominal expense, and with no more skill than is required to train them to neat pyramids or any other form that may be preferred, they may in a few years be grown into compact and handsome bushes, and indeed the fruiting forms of ivies naturally form elegant trees, and their leaves glisten with health, and have the freshness of a May meadow all the winter through.

We have lately seen some garden vases which it was the custom of the proprietor to furnish with flowers all the summer, and with nothing all the winter. But having read some articles in these pages on the "plunging system," he tried his hand at a little plunging with these vases in order to judge how far he might carry it in the treatment of the flower garden. The vases were cleared of the mould in which the summer plants had been grown, and were filled with cocoa-nut refuse instead. During the autumn they were furnished with hardy ferns in pots plunged to the rim, and with a sprinkle of the fibre to hide the pots from view. The first frost spoiled the look of the ferns, but of course did them no real harm, and they were removed, and collections of ivies were employed in their place. The effect was fully as charming as before. Some of the trailing ivies were untied and carefully pegged down, so as to appear as if grown *in situ*, and towards the centre were placed neat dwarf bushes of the fruiting or arborescent ivies. These are now as fresh and unhurt as if there had been no frost, and in one of the vases is a central plant of a new variegated tree ivy, supplied by Messrs. Lucombe, Pince, and Co., which is really equal in colouring to the best creamy-leaved geranium known, and as respects contour and leafage, a vast deal handsomer, for it is a symmetrical tree, densely clothed with neat small leaves that appear to be disposed in a regular system of imbrication all over. There are myriads of plants adapted for such work—the *Skimmias*, the gorgeously berried *Pyracantha*, the new *Aucubas* with their splendid liveries of gold and silver; indeed to begin to name would be to enter upon catalogue making, and we content ourselves with having once more directed attention to the subject, and in doing so we invite our readers to observe now the beauty of the commonest ivies and hollies, and from their fresh and unscathed appearance to conjecture what might be done with selections of varieties of hardy plants grown expressly for winter embellishing.

A SIMPLE MODE OF GROWING POINSETTIA PULCHERRIMA.

This beautiful plant is usually recommended to be grown in the stove and tan pit, as our great-grandfathers used to grow them, when at the completion of their growth they generally measure from 5 to 10 feet high, with two or three leaves on the top, and a few red bracts a little larger than a mouse's ear. I went over to see an old friend the week before Christmas. There I beheld the most delightful group of Poinsettias ever seen. The plants were from 2 feet 6 inches high, with every leaf perfect; some of the old plants had five or six heads of bracts on them, measuring from 1 foot to 15 inches across; and as there were two or three dozen plants together, they made a perfect blaze of colour. These plants are cut down at the usual time in spring, and are placed in a cold frame, kept rather close, until they begin to grow. When the new shoots are about an inch long, they are shaken out of the old pots, and repotted in smaller pots, in a light rich soil. Again they are kept close for a few days. They are next fully exposed to the weather by removal of the lights altogether in fine weather; but the lights are replaced in wet or cold weather. They are shifted into their flowering-pots when they require it, and the strongest shoots are stopped as soon as they begin to take the lead. They must have plenty of water; if allowed to flag, they will lose their foliage. They must remain in the cold frame until the end of October, when they require a little heat, with plenty of light. A little liquid manure will help them as soon as they begin to form their bracts. When treated in this way they are splendid objects for winter decoration.

E. MITCHELL.

Lower Broughton, Manchester.

THE POTATO AND ITS PARASITES.—It is stated in *La Patrie* that "the microscope reveals to us the existence of a small black spot of the diameter of a pin's head, in the potato. In this small space can be detected some 200 ferocious animals of a coleopterian form, which bite and tear each other with continued fury. It is easy to comprehend the potato disease when such an intestine warfare is raging." [This is BOSH. Ed. G. M.]

BEDDING GERANIUMS.—No. XXXVII.

To return to a well-worn theme is something like making a visit to an old friend. It may be so for both writer and reader, and for both it may be otherwise. Writers of newspaper leaders have to return to well-worn themes hundreds and thousands of times, and are always expected to say something new about them, and too oft perhaps they and their readers are alike sick of the occasion that calls them together. Wanted of Ipse Dixit, Esq., his 437th leader, full of sound and fury, on the absolute necessity of making parochial officials sign the Thirty-nine Articles, and swear allegiance to the Brunswick family. The learned chiel can do it, perhaps, like the good wife in the "Cotter's Saturday Night,"

"Gars old claes look amast as weel's the new."

for the quick-brained man who watches events finds in them new and endless illustrations of any doctrine he has espoused, whether in theology, politics, or morals. But we are eternally absolved of the possible miseries of the dispenser of political opinions. Nature is a kaleidoscope into which we may peep for nothing, and if we want to be wise or happy, we scarcely need do more than carefully write down the nature of the patterns and the colours shown us. Thus our theme, which has now dragged us into No. XXXVII., is of necessity as fresh as ever; for the kaleidoscope has gone round, and a new chromocosm looms upon the view for our delight, astonishment, instruction, and amusement. As Horatius sighed for Glyceria, and as a scalded poet of these times would sigh or cry for Glycerine, so the present scribe is inclined to sigh for Geranos or Pelargos, or any other —os that the complications of the chromocosm may reveal—"the same as 'twas, yet differing altogether." Ah, Horatius, you have the best of it, for in your days there were not so many varieties of geraniums as now, and Glyceria may have been the emblem of the genus, and a microcosm of all its beauties.

*Mater seva Cupidinum
Thebanæque jubet me Semcles puer
Et lasciva Licentia
Finitis animum reddere amoribus.
Urit me Glyceræ nitor
Splendentis Pario marmore purius:
Urit grata protervitas,
Et vultus nimium lubricus aspici.
In me tota ruens Venus
Cyprum deseruit; nec patitur Scythas,
Et versis animosum equis
Parthum dicere; nec quæ nihil attinent.*

(Carmen xix.)

No, farewell slumberous ease, and the cultivation of obesity. The winter is past and gone (at least for the present), and I seek the flowery nymph whose velvet cheeks, whose bright green robes, whose eyes of inimitable lustre have charmed me so oft, and who, unlike "the shining maid" that Horatius doted on, offers her charms to all, and yet remains an emblem of virginity. Come ye, and behold my beloved. She has already crowned herself with a chaplet of flowers to hail the newborn spring (that is, if the spring is come, which is doubtful); and we cannot say that other loves have made our eyes insensible to charms that are matchless, and that are ever renewed and renewing. But why go back to Roman bards that were half their time fuddled, and when quaffing purest Castaly were oblivious of the properties, and had never seen the nymphs they maundered about! Wanted, a floral laureate for the modern time, to sing the praise of every flower; and in respect of this, the most wonderful of all to startle humanity with such a song as this:—

Of all my talk this is the sum,
I speak it plain, without a hum;
And were I at this moment dumb,
I'd blow the trumpet, beat the drum,
In praise of the Gerani—um.

Well, we are getting now into the heart of the subject, through the help of imagery and allegory, and by the time we arrive at No. 100 we shall be perhaps enabled once more to discuss, as we have been wont, the merits of the candidates in this department for favour and for fame. We must bear in mind the relations of things as Cicero has so plainly and prettily put it (*pro Archia*), *Etenim omnes artes, quæ ad humanitatem pertinent, habent quoddam commune vineulum, et quasi cognatione quædam inter se continentur.* Thus we get a hint of the way to go; the arts that concern some of us as cultivators of polished life, and of flowers as pertaining thereto, are held together by a common tie, which is the perception of beauty. And a house that I could show you now—I mean a plant-house with a thousand varieties in all the freshness of first trusses and new leaves—would prove the postulate, for they are like the members of a mutual improvement society, each contributes to the illumination of all the rest. *Italia Unita, Rainbow, Luna, Countess of Warwick*, and fifty more of the tessolated series, unke an Alhambra flooring, above which shine the rosy, orange, scarlet, white, and purple flowers of hundreds of varieties that burn the brightest in the wondrous chromocosm that the geranium has

discovered to us, and which has (as per example above) lifted us out of prose into poetry. Now let us look at the case from the utilitarian point of view. A good collection of geraniums will afford amusement for all seasons, and on every day throughout the year there will be amongst them something worth looking at. If well managed, there will be more or less of flowers all the year round: fewest in December and January, abundance from April to July, a blaze of any colour—red fire, orange fire, purple fire, any kind of fire from a dull red to a white heat, in the open ground, from the end of May to the end of September; and when flowers are scarcest, some of the variegates will make a display that may be likened to the poetical bottom of the sea, which of course is paved with rubies, topazes, emeralds, and other gems that dazzle the beholder (especially if his name be Endymion), and convince him (if he has any sense) that he may seek far and wide in the constituency of Flora for a coterie to match them for variety, splendour, and perpetuity of attractions. I have just gathered trusses of *Eugenie Mezard*, *Amy Hogg*, *Beauty of Brixton*, *White Perfection*, *Excellent*, *Stella*, *Madame Barré*, *Herald of Spring*, *General Pelissier*, *H. W. Longfellow*, *Kate Anderson*, *Wiltshire Lass*, *Lady Cullum*, *Indian Yellow*, *The Clipper*, *Le Grand*, *Magna Charta*, *Madame Werle*, and *Amelina Griseau*, and I have grouped them in vases with a foundation of leaves of *Alma*, *Cloth of Gold*, *Lady Palmerston*, *Mrs. Pollock*, *United Italy*, *Mrs. Benyon*, and *Countess of Warwick*, and it is summer somewhere, for who can talk of winter with geraniums in flower? and who can grudge the cost of such a bouquet when to keep a thousand plants through such a frost has not cost one pound sterling for consumption of coke? Iago was nothing (or at least a scoundrel, which is nothing) if not critical, and I am nothing if not practical. I liken myself to that wretch, to cut from under the feet of any possible traducer the smallest argument that might be used to prove me vain or egotistical, and I give you "facts that winna ding, and dinna be disputed." An airy house, abundance of light, a good 4-inch piping, a trusty boiler, a man who despises sleep on the night of January 3, 1867, a batch of specimens, and a nursery of young plants, and there you are—

Where you would ever be,

The blue above and the green below,
And the flowers around you wherever you go;
And nobody near to say it is wrong
In the way of geraniums to come out strong:
Which lines from the text are a little altered
From Barry Cornwall, who never faltered;
For he sang of the sea, and that you see,
Is all the better for you and me,
Because the remoteness of his allusion
Relieves us at once of all confusion.

The rush in the spring, amongst buyers of geraniums, is always for bedders. The broad petals have not yet taken the fancy of the crowd; they were too good for the million, and like all the lave (pure Scotch) of florists' flowers, are for the enjoyment of such choice spirits as have been admitted to the courts of the Queen of Beauty. Yes, the rush will be for bedders, and to please the million (whose twopences are acceptable) I will just delicately hint that in the list of the novelties there are a few bedders that will shine like remainders of the last meteor shower, a few of which fell into the geranium world, and took root in the catalogues. The best of all the new bedders is *Lady Constance Grosvenor*, a burning and a shining light amongst the nose-gays, the colour nearly that of a ripe orange seen through blood-red glass when the sun shines fiercest on the longest day; and so free to flower that it doubtless comes up to the standard of extreme possibility that way. Next best, and a bedder all over root and branch, is *Duchess of Sutherland*, in the way of *Stella* as to growth, in the way of *Amy Hogg* as to colour, but passing both in richness, softness, purity, profusion—lustrous as the best moments of a dying dolphin (*vide* Byron, somewhere), and persistent like folly, which is always in full bloom except in uninhabited islands. After this dash at two glorious subjects for the garden, I cast about, and in the way of a butterfly settle upon *Christine Nosegay* as worth five shillings a plant anyhow, though I know not what is to be the first price of it. If you want to realize it, you may picture *Stella* without a change, except that the flowers are Christine colour; or, better still, go to Wellington Road, and coax one of the foremen to find a plant in bloom; and, as a rare fact, there is one in bloom now, and if you are quick you may see it ere it is discovered by the propagator, whose sole business in life it is to cut these things down with the same impartiality that literary critics cut other things up. For a large bed which shall shine like a streak of auroral lustre, and persuade Venus, as she saunters by dreaming of love, that roses have flung away their glories for ever, Christine Nosegay has no match, and Christine herself must end her days in weeping. The benign fosters of Wiltshire Lass will offer *Fair Helen*, captivating as her of Troy, but demanding less blood for her vindication. Downie, Laird, and Laing have nothing better than this in their glorious collection—nothing more chaste, more delicate, more like the coy beauty of blushing fifteen. Shall we call it blush warming to tender

pink, or shall we leave the cultivator to discover the colour, and name it if he can, giving him meanwhile this encouragement, that at any figure under a guinea a plant of it will pay him some day? Yes, that is the course; read Homer while it is still possible to sit by the fire; and when Fair Helen offers to smile upon you, turn not away from her bewitching glance. I like *Blue Bell* for its gentle, hinted, but not expressed, mauvy shade of lively rose; *Crimson Perfection* for its depth and richness; *King of the Nose-gays* for its dwarf habit and abundance of orange-scarlet flowers, beating Harry Hicover, Harkaway, and all that set; *Lord Lyon* for its fine round trusses of pure scarlet, combining the best qualities of *Stella* and *Boule de Feu*; *Mrs. Laing* for carriage and effect, which are the result of a combination of good qualities—good growth, neat leafage, large trusses, dwarf habit, and the colour crimson-scarlet, and the petals broadest of the broad for a true nose-gay; *Pink Queen* for good average qualities, the trusses medium, and plenty of them; and there my list of bedders for 1867 comes to a close. I have selected ten out of a crowd that are preparing for a rush, and I say those ten are good, and of the rest I say nothing, for many of them may be good or bad; but in this business we guess at nothing, and we hold to the doctrine that seeing is believing, if you know what you are about. If you want a pick of six, my choice is *Lady Constance Grosvenor*, *Duchess of Sutherland*, *King of Nosegays*, *Christine Nosegay*, *Fair Helen*, and *Mrs. Laing*. Some of the novices will, as always happens, order in all the new varieties. We must not, dear friends, present to the world illustrations of the adage about the fool and his money; we must write in the first page of our note-books a motto from Virgil, *Moniti meliora sequamur*. S. H.

THE MICHAELMAS DAISIES.

How often was the mixed border filled with thoroughly weedy and dingy Michaelmas daisies, and solidagos that are not worth a place in the wildest of shrubberies or rubbish-heaps! Ill weeds grow apace, and so did these wretched species of American aster in our old flower gardens. They monopolized the border to a great extent, and no wonder that, with other herbaceous plants allied in ugliness, they helped to drive out of cultivation this charming source of interest to the horticulturist. But there is a great amount of beauty in the genus, and that of real utility for a British garden of hardy plants, as some of your readers must be well aware, and my object is to endeavour to select and recommend the very best only. "Selection, not collection," must be our motto, particularly in such large and monotonous genera as the aster, although if we select all the really good things that may be had in the hardy plant way, the "collection" will not be very limited.

I have gathered flowers this day (October 6) from what was the prettiest plant in flower in a botanic garden, and that was *Aster elegans*, a plant growing about 4 feet high, and producing masses of rather small flowers of a delicate pale lilac, the shoots having a somewhat pendulous graceful disposition, and the effect being of the most charming kind. I consider it the most valuable of all the asters, and one worthy a position in every garden where hardy plants are grown, because it has a peculiar merit in flowering regularly and profusely, coming in before *Novæ Angliæ* and *Novæ Belgiæ*, and thus having a much better chance to open than these kinds, which often get knocked out of all health before their flowers come to anything. It would associate beautifully with the last blooms of *Tritoma glaucescens* and the best of *T. grandis*. Its distant effect is better than any other aster I know, because at once graceful and producing a shower of pleasing colour, while closely examined it is also good—good enough to go among baskets of cut flowers and the like. It is named *A. cordifolia* in the scientific collection at Kew, though in the mixed border it will be found under the name of *elegans*. There is a large-flowered form or distinct variety of this plant, not so pretty as *elegans*, and with somewhat larger leaves, that I propose to call *cordifolia*, and let *elegans* distinguish the most graceful and densely flowered kind, as it is certainly the most elegant of the genus I know. *A. turbinellus* is a beautiful species, with a somewhat spreading and refined habit, and large-rayed delicate mauve-coloured flowers. It grows nearly 3 feet high, and blooms profusely in October. A most respectable species for the mixed border.

I like variety, and therefore will at once descend to a species about 7 inches high—from a horse to a harvest mouse in fact—that is *Aster Reevesi*. I don't know its native country, nor do I care much, but such pretty little stiff bushes of starry flowers are quite a novelty in the genus, and it is most worthy of a spot in the front edge of a mixed border or rockwork, or even for an edging for an autumnal bed of some kind. Cheap and plentiful at Wellington Road. Near it in point of size, showing large blue flowers, is *pulcherrimus*, rather straggling, but still good and distinct while not yet in flower, and always extremely pleasing to me from

the remembrance of what pretty bushes of it I have seen on fine autumn days. Equally good is versicolor. A round, dense, neat little plant, the flowers changing from white to a pale rose (don't be too precise about the colour nomenclature); the two-coloured flowers have varied blooms, producing quite a distinct and novel effect for an aster; a most beautiful plant for the front edge of a mixed border, a large rockwork, or indeed for many positions about a tasteful garden, coming in to give us a little hope and beauty just when the sun is giving way to fog, and the clear air to the "evil humours" of our nasty winters. A capital plant, too, to make an edging round a bed of Tritomas—grandis being in the middle to look grand to the end of the season, and this being used for an edging. It grows about a foot, or a few inches over it, according to soil and situation.

Aster linifolia is a pretty and dwarf species, flowering rather early, worthy of a place in an extensive collection—though where a limited selection is only grown it may be left out with advantage. Aster repertus is a very free and fine species, growing about 4 feet high, and bearing most profusely pale lilac flowers with yellow centre; a valuable species. A. laxus is a very good kind, with large flowers; A. Drummondii, a very tall kind, and rather good; A. mutabilis, somewhat like turbinellus, but smaller, suited for a full collection; A. dramosus, a most dense-flowering fine kind. A. lævis is a very good blue kind, somewhat over medium size, a nice border plant.

That fine one with the rather large simple leaves and boldly rayed flowers, of a good honest blue, is A. amellus, one of the best dwarf, medium size, free and early flowering; among the very best, and pretty well-known therefore. We will pass on to those equally well worthy of an introduction. I cannot say that I know as much about the genus as I should like, though I have for a long time kept my eye on the better kinds, but I do not know a more interesting one among them than grandiflorus. It flowers very late at Christmas, and to see it in full beauty we must plant and nail it against a low warm wall: just such a place as many devote to myrtles would suit it to a T, and it would look very well indeed among chrysanthemums in such a position. I have never tried it in a pot, but it may be worth that trouble. A. coccineus has been named to me as a good one, but I don't know it. A. ericoides is pretty good; horizontalis middling; lævis and patens highly recommended, but I have not seen them in good flower, and therefore cannot positively say. One I saw just opening its flowers to-day, named A. Shortii, I have much hope of; it is of spreading, elegant habit, and has medium-sized flowers of a delicate mauve.

A. Novæ Angliæ has long been known as a fine strong kind, especially its reddish variety of ruber, and Novæ Belgii is also fine, though for my own part I don't care about either, as they come in a little too late, and get hurt—never make a good free head of flower in fact. A. puniceus and pulchellus are said to be good, but I have not grown either of them. As for the names, you must take them *cum grano salis*. To name and find the differences between a large plantation of asters would be about as easy a task as finding specific differences between the hairs of one's head. I am looking for the most distinct and beautiful of this and all other hardy plants, and should be much obliged to any of your readers who can recommend a really good addition to the genus, or throw any light upon the matter. Mr. M'Nab, Mr. Niven, Mr. Osborne, and not a few others of your readers would be able to assist in this matter, I have no doubt. Only we want a higher standard of excellence than has been yet applied to such plants. It is the bad scraggy plants that have ruined the cause of hardy subjects in this country; but once let people know what a mine of precious wealth there is within easy reach of them in this way, and you do more for their taste and gardens than by any other means that I know of.

In conclusion, I saw a very pretty dwarf kind, named "monstrosus," at the Wellington Road Nurseries the other day. A. sericeus is pretty and distinct; A. foliosus, neat and late; multiflorus, white, neat, and diffuse. Alpinus has solitary flowers, with large purple rays, dwarf and neat. The white variety is also good, and the variety altaicus; and that is all I can call to mind of real merit among a host of kinds utterly devoid of any beauty that would make them worthy of a place in a garden.

ASTER ELEGANS.

THE POET LAUREATE ON THE STUDY OF NATURAL HISTORY.—Mr. TENNYSON in a letter to Mr. White on this subject, says:—"I heartily agree with you in the desirableness of encouraging the study of natural history, especially among children, whose eye can be so easily educated to observe, and whose restless natures must have some occupation—and that, too likely, harmful if not good—at an age when nothing can be indifferent, it indeed, at any age anything can be really indifferent. The dullest country can scarcely be dull, if, as child or man, the human being can look with seeing eyes on the things around him; the most difficult outward circumstances can hardly be without remedy if he be aware of even a small portion of the mystery and might of the nature that surrounds him. He ought to learn this practically."

ACHIMENES.

We may and do often differ in our modes of cultivating particular classes of plants—not so much as a matter of opinion, but from the circumstances which influence our practice. However, if we accomplish our object, it matters little as to the plan we have pursued in attaining it, although we must not too easily content ourselves by supposing we have realised it. The treatment of our various popular flowers has constantly exercised the pens of our horticultural writers, and yet we cannot deny but there are some facts we were not previously acquainted with to be gleaned from each of them as the reward of experiment and observation—for example, as with architecture, each architect invents a peculiar style of his own, yet the object sought by all in the main is one and the same, and every man's style bears relationship to models that are common to all. I have often thought when visiting some of our great metropolitan shows that it is to be regretted there is not more encouragement held out in the schedules to exhibitors to compete for prizes with such useful decorative plants as Achimenes, Gloxinias, Cinerarias, and a host of other useful plants which cannot be dispensed with in furnishing our conservatories. I cannot say why they are omitted by the framers of these schedules; whether it is they consider they will not interest visitors generally, I cannot say, but surely if they interest at home, then they must of course be alike interesting elsewhere. The promoters of our local horticultural exhibitions quite understand their value, and therefore they hold out every inducement that may aid the progress of horticulture and floriculture generally—as the exhibitors are not influenced in their competition, as a rule, by mercenary motives, but a desire to excel in the growth of their several productions. And yet notwithstanding the indifference shown towards these classes of plants by the managers of our large exhibitions, their judges are instructed to commend and award prizes to seedlings of merit. But perhaps they consider their cultivation too simple to render them worthy to be exhibited in general collections, as compared with our stove and greenhouse collections, such as Ericas, Azaleas, &c.; but I contend that to manage and grow them fit for exhibition, there is the same amount of care and watchfulness required. And why? Because they have to acquire, in a very short space of time, that healthy vigour which is essential for producing size and abundance of blooms. As regards colour, they have all the delicate shadings which belong to other flowers, and they present us with variety and brilliancy. With me the Achimenes has always been a favourite flower, although when I began my first steps in gardening I only became familiar with one variety, and that was *coccinea*, then known as *Cyrilla pulchella*; afterwards its name was changed to *Trevirania coccinea*, and now we have it named *Achimenes coccinea*. The treatment of the plant in the regulation of its growth was years ago somewhat different to the present method. Many growers never placed more than one plant in a pot, and they were truly examples of superior cultivation, being so managed that by the time their flowering season arrived, one plant would have required an eight-inch pot, and have attained a size measuring nearly two feet in diameter, and upwards of eighteen inches in height, clothed as they were with quantities of scarlet blossoms, and presenting a unique pyramid. The same kind of heat, moisture, syringing, and watering was afforded them as is now adopted, only that by the system of growing one plant in a pot much more attention was required in the training, stopping, &c., as compared with our present practice.

Now from the very ready way in which these roots are increased, and the great number of sorts submitted to us for our choice, we do not pause to bestow so much skill in the growth and training, but grow some eight or nine plants in the space occupied formerly by one. Whether we are the gainers by the thickly planting system, I shall not stop to argue; but one thing is certain, that where there is a crowding of plants together the result must be a weakening process, as contrasted with a single plant grown in the same space. However, in planting a number in pots or pans do not overcrowd them. The distance from plant to plant should not be less than an inch. I have seen them growing in pots manufactured on purpose for their growth, having holes at equal distances perforated round about three parts of the depth of the pots' outer surface, into which the bulbs or plants were inserted. The effect of this method when the plants were in flower was grand, as so growing they were well adapted for exhibition, as when staged nearly all parts of the pots were hidden from view by their foliage.

The present month (February) is about the best time in the year for commencing their culture. If you have preserved them during the winter in their last season's flowering pots, let them now be carefully shaken out, selecting only the strongest and ripest roots. If you can obtain a sufficient number of the latter for your use, you may then place them thickly in a shallow pan of light soil, or put several roots in large 60 size pots, after which put them in a moist bottom-heat. Shade them so that they may need little water till they commence vegetating; when they have grown an inch or more

in height, let them be transplanted into their flowering pots or pans. If you plant them in large pots, let one-third be filled with drainage, placing a little moss or any kind of fibrous matter over the crocks to prevent the soil getting internixed with them. It is not a great depth of soil that they need, so that if there is an insufficiency of drainage the latter is apt to get stagnated, and no after-inducement can persuade the plants to progress. The compost most suitable for their final potting is a mixture consisting of light loam, leaf-mould, and a little peat, with sufficient silver-sand to keep it porous. But the great essential for promoting healthy and vigorous growth is a warm moist bottom-heat, and as they advance in growth they are partial to a gentle syringing when closing the frame or house in the afternoon.

Shading must be carefully attended to, and under no pretence neglected, as the consequence will be that the leaves will be scalded, so that no after-efforts can remove the disfigurement of the foliage. If they are grown in a pit or frame by themselves, it is advisable to admit air freely very early on fine mornings for an hour or so before the sun's power increases, the object being to dry the foliage, and allow the escape of all noxious vapours. As regards what is the best means to be employed for applying bottom-heat for growing them, that must entirely depend on the conveniences at the disposal of the cultivator. It is not every gardener that has the advantage of a pine pit or a hot-water tank. But very few indeed there are that are minus of the primitive but simple mode of applying it by means of hot manure. For the information of my readers I must observe that the strongest and best *Achimenes* that I ever saw cultivated were in pots plunged in a common dung bed, and I have never surpassed them by any other method either in strength of plant or size of bloom. As soon as they require supporting, let them be neatly staked. This should not be delayed after they begin to show a disposition to become straggling in their growth. Remove them to a shady part of the stove, as near the glass as possible, not forgetting to exercise every precaution against scorching the foliage. As the flower-buds expand, gradually prepare them by the change of temperature for the conservatory. When they have ceased to bloom, by degrees lessen the quantity of water, ceasing only when you believe the plants have finished their growth, and produced large and sound roots for flowering in the ensuing year. Then store the pots away on their sides in any out-of-the-way corner of the stove, so long as it is dry and warm. As an experiment, I have allowed them to grow and flower two years in succession without disturbing their roots or otherwise re-potting them, but just thinning out the weakest as they grew. I would not advocate the practice, as I did not gain by it, but on the contrary the flowers, though plentiful, were small, and but of short duration.

The following list comprises some very good old useful sorts. There are improvements on many of them, I have no doubt; but my province is to mention only those I am acquainted with.

Ambroise Verschaffelt.—Fine white, starry centre; early and very abundant bloomer.

Carminata splendens.—Beautiful carmine, and exceedingly free.

Coccinea grandiflora.—A grand improvement on the old scarlet variety.

Longiflora.—Blue, a good old useful variety, free bloomer, early.

Longiflora alba.—Pure white, free bloomer, but weak flowers.

Rosea elegans.—Carmine, compact grower, small but free flowers.

Sir Treherne Thomas.—Strong grower, rich crimson flower.

Viola semi-plena.—Very pretty purple flowers, good habit.

Carl Wolfurth.—Purplish-crimson, profuse bloomer, very good.

Grandiflora.—Rosy-purple.

Longiflora major.—Large blue flowers, very strong grower.

Metcor.—Very brilliant scarlet-crimson, good habit, and very attractive.

JOHN F. McELROY.

ON FURNISHING CONSERVATORIES.

Many thanks to your contributor, Herr Karl Prosper, for his excellent articles on Palms and Cycads. I read them, and was more than pleased with the remarks they contained, and I can bear him out in most that he said concerning them; and as I have been getting a collection of palms and cycads together for these last three years, and have up to the present time succeeded in securing somewhat about forty varieties, you will say I am getting pretty rich with them, and so I am, and in spite of the saying, "One can have too much of a good thing," I don't think so as far as palms are concerned, for I find them the most useful plants there are for furnishing my conservatories; a goodly quantity I have to do too in this neighbourhood, and wherever I introduce palms in them I always please my patrons, especially the ladies, who are no bad judges, mind you, where taste and arrangement of plants and flowers is concerned—

For there is that taste in a lady's mind
That in a man's you can't expect to find.

But to pass on to arrangement of the conservatory. Some three years since, before I tried palms, or, in fact, before I had any to try,

I used to furnish my conservatories in season in the usual way, viz., a few azaleas of different colours, and nicely in bloom, as well as a few camellias, interspersed with hyacinths, roses, mignonette, and such like: all very pretty and gay and sweet withal. Just so; but still, after you gazed on it a few minutes, you could see there was something wanting. It looked gaudy and flat, just like a bouquet would be that was made up with all flowers, and no green leaves about it. Not enough green, I used to think. So I introduced a few Oleanders with one or two large Camellias, also a plant or so of *Rhopalax* and *Grevilleas*. Well, it looked better, but rather too stiff yet. But just at this time chance threw in my way a few large palms. I bought them (a lot of money they cost too; but never mind); and introduced them in my conservatories among my flowering plants. "There," says I when I had finished arranging them, "There is effect for you now, if you like!" and there was effect indeed, for the dark green of *Chamærops excelsa*, and the light green of *Seaforthia elegans*, with the bold exotic appearance of *Latania Borbonica*, with their drooping leaves overhanging and blended with the gay azaleas and geraniums, was a sight worth seeing; for there was perspective now as well as groundwork. My palms certainly were large, somewhere about six feet in height, so there was something to look at. Well, from that time I have gone on increasing my stock of palms, and I always recommend them for furnishing, feeling confident they will please wherever they are used. And another grand thing about them is, you may do just as you please with them; they never seem to have too much knocking about. I have had them out for six months in a stand in a room where but little light could get at them, and after the lapse of that time they came out none the worse. Now I don't think I can say more in their favour than this. Touching the matter of the soil they require, that has been so ably set forth by Herr Prosper, that I will only just add, I have used more peat and leaf-mould than he recommends for them, and I find they like it, but they are not very particular, for soil that would do for a fuchsia would suit them.

I now come to their hardiness, and the weather we have had lately enables me to say something on that score. I had out in a conservatory near here the first week of this year the following sorts, viz., *Latania Borbonica*, *Chamærops chinensis*, *C. serrulata*, *Seaforthia elegans*, and a large plant of the wine palm, *Caroyta urens*. The place, unfortunately, was badly heated, and we had about 8° of frost in for a short time on the 4th inst. It of course froze the soil in the pots as hard as bricks; but, however, means were resorted to and the frost got out, and has been kept out ever since. But the wine palm is I fear quite killed. All the others appear none the worse—not even the young leaves touched or discoloured. But should any of your readers feel inclined to begin growing a few, it will be best just to mention the place they are to be kept in, that they may be selected accordingly, for if the place be a stove or sitting-room, there are some sorts that will be sure to do for the purpose. But I fear I am running on the palm subject too much for you, and discarding many other plants that are useful for furnishing conservatories as well as them, but we will do them justice in another article another time, for I find my letter is just full. I will therefore wind up with a little episode I noticed at the workman's exhibition of plants at the Agricultural Hall in September last. As you are aware, I exhibited some palms and tree ferns, and other plants, and amongst them several nice tufts of *Sibthorpia Europea*, or Cornish Moneywort; I use it chiefly for covering over the tops of the pots or tubs that contain the palms, &c. I had one nice tuft of *Sibthorpia*; it quite covered a 16-inch pot, and also hung down over an inverted 24-inch pot that the plant stood on; in fact, it was just like a wig. Now this was strange to most of the visitors there, and especially to a hard-working looking couple, about 26 or so, who stood for some time in front of it looking at the mass of green. At last the woman said, "Why Bill, that's mustard and cress, growing all of a lump, and upside down." "Get out!" says Bill, "that's a new sort of musk—can't you smell?" "No," says she, so she leant forward and poked her nose close to the mass of green, an opportunity for mischief not lost on Bill, for at the moment Bill's hand was at the back of her head, and bob went her head, or rather her nose, amongst the green. Of course the bystanders laughed heartily, and I was as bad in that respect, but still there was no harm done, but at the close of the show there were evident marks of other noses having been buried there. But more anon.

JOHN BURLEY, F.R.H.S., &c.

Albert Nursery, Pembridge Place, W.

GARDENING FOR COLD WEATHER.—During the present inclement weather, don't set anything—not even your foot—in your garden. This is rather too early for sowing, but a little darning may be done. The chief operations after Christmas will be found to be pruning your outlay and cutting down expenditure. If you don't like this, and prefer hoeing, you can (h)ove your butcher's bill. Things are apt to be backward with such variable weather. If your crops don't come up, there's no remedy for it. Should your dinner, however, not come up when you ring, you can ring again. It is too early to stick peas yet, but your pigs may require it.—*Pun.*

GROUND VINERIES.

It was in the tenth edition of Mr. Rivers's entertaining and useful little work, the "Miniature Fruit Garden," that the first description of a ground vinery was made public. It then bore the objectionable designation of "Curate's Vinery," which neither indicated anything of its character, nor established between it and curates any necessary relationship. The term "Ground Vinery" is at once descriptive and appropriate, for it consists of a glass frame laid on the ground for the protection of a grape vine which is trained beneath it in immediate contact with the earth. Originally the frame was designed to cover a furrow lined with tiles or slates, the vine being trained along the furrow with the aid of a few sticks laid across to support it, and the bunches of grapes were suspended in the furrow, and derived benefit from the heat reflected upon them from the slates, while the glass above protected them from sudden changes and ungenial weather. Mr. Rivers improved upon the original construction in 1860, by placing a frame on the ground without making a trench for it, simply providing a few slates for the vine to rest upon, and placing bricks a few inches apart to keep the wood of the frame off the ground and allow of ventilation.

The ground vinery has become popular by its merit. Experience proves that this simple and comparatively costless apparatus possesses advantages for the growth of grapes that render it worth the attention of every person desirous of tasting the best of fruit without incurring the expense and labour attendant upon the modes of production usually resorted to prior to the adoption of these vineries. They do not indeed supersede the vinery proper, but as adjuncts they are invaluable, and in the majority of cases where they have been adopted they are substitutes for grape houses, where because of the expense of such structures, grapes of good quality would not be grown at all.

During the past few years these vineries have been improved in various ways, but radically they remain the same as constructed by Mr. Rivers in 1860. They are made in lengths of 7 feet each, and may be so connected as to make vineries of any length that may be desired. The usual width of the frame is 2 feet 6 inches for a single vine, or 3 feet 6 inches for two vines trained side by side under the same roof, 14 in. apart. In order to present to such of our readers as are unacquainted with these structures a clear account of them, we subjoin figures of three separate forms, with a few particulars respecting them.

RIVETT'S BARLESS VINERY.—This is the Rivers form reduced to the extreme simplicity. There is the usual frame, but it is destitute of sash bars, the squares of glass being fixed in their places by means of grooves top and bottom, and putty is used at the bottom only. The squares are placed so as to meet edge to edge; that they should fit exactly is of course not necessary; indeed, there is perhaps some benefit in the way of ventilation derived from the unavoidable absence of an air-tight arrangement. These vineries are made by Mr. Rivett, Railway Bridge, Stratford, Essex. They are usually sent out unglazed, so that there is no risk of damage in transit, but the purchaser may have suitable glass sent with them securely packed, or may have them without glass, and get them glazed as he may see fit. No. 1 is 7 feet long, 2 feet 6 in. wide, 1 foot 3 inches high inside, and costs for woodwork 5s. 6d., and for glass 7s. 6d. No. 2 is intended for two vines; it is 7 ft. long, 3 ft. wide, 1 foot 6 inches high inside; the cost of the woodwork is 6s. 6d.; the glass costs 9s. 6d.; closed ends cost 1s. each. When put to use, the frame rests on a row of bricks, which are simply laid upon the ground at a distance of a foot or less apart, the open spaces between the bricks serving for ventilation.

DENNIS'S PEOPLE'S VINERY.—This is an excellent construction made by Mr. Dennis, the well-known horticultural builder and engineer of Chelmsford, Essex, whose iron plant-houses have quite established the fact that metallic frames are superior to wood in lightness, elegance, and durability, and free from the vices alleged against them in respect of injurious drip and rapid conduction if the houses are properly constructed in the first instance. These vineries are constructed in both wood and iron, the dimensions being the same as above stated, and the prices range from 10s. to 20s. each. They are light, substantial, elegant, and durable.

WELLS'S PORTABLE FOLDING VINERY.—This is a very finished structure, its principal peculiarity being that the two sides are hinged together, and every separate 7 feet length may therefore be folded like a book and carried

under the arm from one part of the garden to another. It will be seen presently that portability is a matter of the highest importance, and that therefore the folding method is not a vain invention. To be sure all these things are portable, and a 7-foot length cannot be a serious matter for removal; but Mr. Wells had in his mind originally to adapt these vineries to two distinct purposes—the growth of grapes in summer, and the protection of such things as cauliflower, lettuce, endive, &c., &c., in winter; and to promote this double use, he made them in such a way that if needful a lady could fold them and carry them with ease. It will be seen by the figures that the ends fold as well as the sides, so that they may not only be carried with little trouble, but may be packed away if needful in a small compass. These vineries are made in the best style possible, and are sent out complete and finished—a 14-foot length, with slates for the bottom, costing £5 10s. for a single vine, and £7 10s. for two vines, with some addition for cases if packed for transit.

It is best to place these vineries so that they stand north-east and south-west, as in this position they obtain a maximum of sunshine. Level ground is to be preferred to trenches, for not only are trenches liable to become filled with water, but they are less beneficial to the fruit than level ground, because when resting on

slates the fruit is subjected to a great degree of heat, the slates becoming so hot in the height of summer that the hand can scarcely be kept upon them more than a few seconds at a time, and it is on hot rocky surfaces that grapes attain perfection in countries where the vine is more at home than here. It would be a still further improvement if instead of placing these frames on common bricks placed a foot apart, they were placed on perforated bricks placed close together, or separated only by a few inches, for then there would still be good ventilation, and rats and other vermin would be excluded. As rats are fond of grapes, this is a consideration of some importance. These vineries may be adopted for the cultivation of vines to any extent that may be desired by the cultivator, and if it is intended to form a large plantation, 7 feet

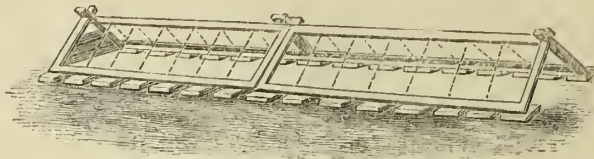
lengths may be used to begin with, and these may be increased in length as the vines extend, so as to have ultimately rods of 14, 21, or 28 feet in length, or more than that if needful; indeed, we hope yet to see 50 feet rods in such vineries, and it only needs patience to produce them.

In planting it is well to prepare the soil at the end where the roots are to be, so that the vines will be

encouraged to grow freely, but without rankness. A luxurious growth is not to be desired, therefore persons who contemplate burying carcases or loading the border with manure are less likely to obtain good grapes than those who adopt a more reasonable procedure. Sandy or calcareous loam deeply dug and enriched with amoderate dressing of rotten dung, will in most cases suit the requirements of the grape vine. Where the soil is clay or rank gravel, or any other staple not adapted for the vine, a mixture should be prepared consisting of sandy loam three parts, old mortar or lime rubbish one part, and rotten dung one part. Such a mixture, two feet deep on a dry bottom, and half a square yard in superficial extent, will suffice admirably, and ensure a healthy growth without excessive luxuriance.

Supposing vines to be turned out of pots, which is perhaps the best way to begin, all that is needful is to shorten the rods about one-third, and by means of a few pegs to fix them down upon the slates along the centre of the frame. It is not well to allow fruit the first season after planting, but as most people are anxious to derive immediate benefit from their outlay, two or three bunches may be allowed the first season after planting if the canes are ripe and strong when planted. During the season the shoots should be stopped by nipping

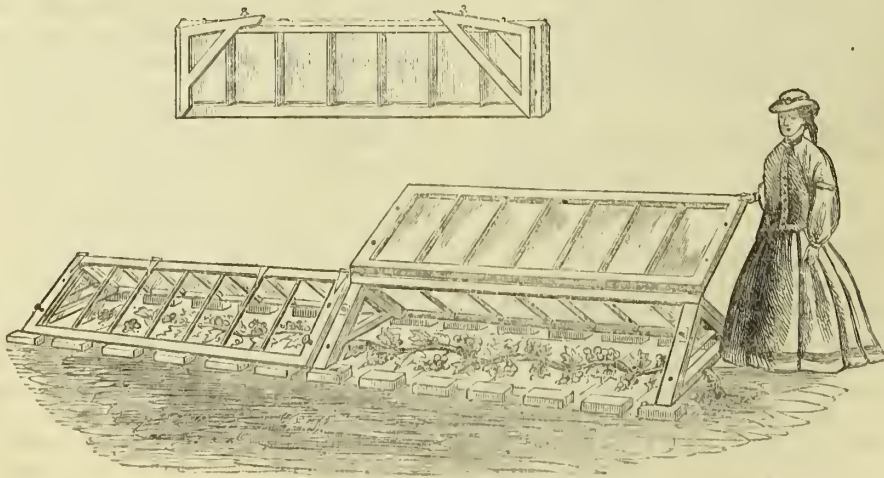
out their points so as to secure a regular growth, and in the winter the vines should be closely pruned back, the laterals that have fruited being removed by a cut to the base, leaving an eye there for the next year's crop. If doing well, the vines will always produce three times as many bunches as should be allowed to swell off, therefore thinning is an important matter. Mr. Wells, the inventor of the portable vineries, has had crops of grapes in his own vineries averaging one bunch for every foot length of rod, and samples of those have been exhibited at Guildhall and elsewhere; but that is rather too large a crop for the future well-doing of the vines. The month of March is the best time for planting these vineries, but planting may take place as late as June, and if the early part of the season is lost, planting may be performed in autumn. All



Rivett's Barless Ground Vinery.



Dennis's People's Vinery.



Wells's Patent Portable Ground Vinery.

things considered, we should prefer to buy strong young canes in pots, and turn them out carefully into good borders in March. As to cultivation, stopping and thinning have been named as necessary. Should red spider appear, sulphur should be sprinkled on the slates, but as a rule vines in these structures are healthy and vigorous, and pretty well take care of themselves.

To grow grapes, however, is only one of the uses to which these structures may be applied. A very important service may be derived from them by combining with the culture of grapes a system of vegetable or flower culture, so as to turn to account the frames during winter, when the vines are not in need of them. True, it is not well to expose fine rods of grape vines to severe frost, but the advantage to be derived from the use of the frames in winter for the protection of useful esculents, will abundantly repay the little trouble necessary to secure the vinea from injury by means of haybands or a loose covering of clean straw during sharp weather. When the frames are used as suggested during winter, the beds should be laid out to suit them in respect of width, and be planted with such subjects as require protection only without artificial heat. The practical cultivator will see that for cauliflowers, endive, lettuce, sweet herbs, and the hardier kinds of bedding plants, these frames are as well adapted as ordinary box frames or pits; but they may be used also to forward early supplies of saladings, strawberries, and for the protection of the forward rows of peas, until it becomes absolutely necessary to place them over the vines again. In the FLORAL WORLD for June, 1866, we gave a plan to scale for a set of twelve beds of 28 feet length, for which six lengths of frames would be required. Those who are desirous of further information on this part of the subject would do well to refer to that.

In respect of the varieties of grapes adapted for these vineries, the cultivator may make free choice according to his wants and tastes, if careful to avoid such varieties as really require fire-heat. The two varieties which have been found most productive and generally useful are *Black Hamburgh** and *Black Prince*.* The following may be planted with the most reasonable expectation of a gratifying result: *Trentham Black*,* *Golden Frontignan*, *Black Frontignan*, *Primavis Frontignan*.* *Chasselas Rose de Falloux*, *Chasselas Vibert*,* *Chasselas Violet*, *Royal Muscadine*, *Early Black Bordeaux*, *Esperione*,* *Buckland Sweetwater*, *Gros Maroc*. In the foregoing the best six are marked with asterisks. S. H.

A RAPID RUN THROUGH THE VICTORIA NURSERY, HOLLOWAY.

The large conservatory facing the Archway Tavern, in the Highgate Road, is known as the east or principal entrance. It is a noble structure, chiefly filled with the grandest subjects it is possible to keep in a cool house, and is never heated more than is sufficient to keep the plants in health during the winter. Taking the centre walk, the first plants we meet are a pair of handsome palms, *Chamærops humilis*, about 12 feet high, in large tubs; next, a pair of large camellias loaded with buds and flowers. Towering above these is the noble palm *Seaworthia elegans*, about 15 feet high, nearly reaching the roof. At the angles, near the fountain, stand a splendid pair of *Dicksonia antarctica*. To match them on the opposite angles, the finest pair of *Dracæna lineata* in the country; this species is certainly the finest of all the *Dracæna* tribe. Following on the centre walk we come to a splendid pair of orange trees loaded with fruit. Towering above these on one side is that enormous *Dracæna Draco Berhavi* that caused such a sensation at the International last year, and which was so beautifully figured in the GARDENER'S MAGAZINE of June 2, 1866. As a match to this is a *Dracæna indivisa*, about 15 feet high, and at the further angles an unsurpassable pair of *Beaucarneas*, one being *B. recurvata*, the other *B. glauca*.

At the bottom of the steps leading to the shop and offices is a remarkably fine pair of *Dicksonia squarrosa*. This is certainly the most handsome and at the same time most hardy of all the tree ferns. It should be mentioned that with the above are three fine pairs of *Yucca aloifolia variegata*. One of the leading features in the system of embellishment adopted in this house is that all the plants are arranged in pairs as near as possible. This arrangement produces a great effect, without looking in any way formal, and the exact balance of forms right and left gives to the scene a spacious, roomy, and artistic air. The centre is filled up with well-grown specimens of camellias, ferns, azaleas, and such striking subjects as *Araucaria Bidwillii*, *A. excelsa*, *A. Cunninghamii*, *A. Cookii*, and other fine plants, with a number of specimen ferns, such as we see at the exhibition. Worth mentioning here as suitable for a cool conservatory are the following: *Todea Africana**, *Cyathea Smithii*, *Dicksonia antarctica*, *Marattia elegans*, *Polystichum ordinatum*, a very handsome new variety, only just being distributed; *Woodwardia radicans*, a glorious plant, the fronds completely covering the pot, which is a large one; with *Lomaria Gibba*, and many others too numerous to mention.

Taking the right-side platform, we have a marvellous collection of Agaves, Yuccas, Beaucarneas, Dasyliurium, &c., filling the whole side, 100 feet in length. Taking a few of the most remarkable, we find amongst them *Agave schidiigera*, *A. univittata*, *A. medio picta*, *A. aurea variegata*, *A. deabata*, *A. heteracantha longifolia*, *A. filifera longifolia*; *Beaucarnea recurvata*, *B. glauca*, and *B. latifolia*; *Dasyliurium acrotrichum*, *D. glaucum*, *D. latifolium*, *Hechtia Ghiesbreghtii*, *Yucca Stokesii*, 3 feet high: a magnificent pair of these meets the eye on entering the house; *Yucca albo spica*, *Y. canaliculata*, *Y. quadricolor*, and numerous others. It is a most interesting group, and presents a beautiful appearance. The left side platform contains some fine specimens of azaleas that promise well to take a prominent position in our coming exhibitions, also the finest plant in the country of *Phormium tenax variegata*; here too is the noble *Cordyline indivisa*. The *Coccoloba scandens variegata* is here growing most luxuriantly, having already reached over 30 feet, and is covering a large space. The winter temperature of this house is 40° to 45°.

Almost joining the conservatory is the large intermediate house, about 100 feet in length, where the temperature ranges from 45° to 50°, the first part of which is used chiefly for tree ferns, which are doing well, and have a magnificent appearance. Here are some of the largest and tallest stems that have yet been imported, some already making splendid heads. Mixed with these are the following: *Livistonia Jenkinsiana*, spreading about 12 feet in diameter; *Alsophila contaminans*, a very fine new tree-growing fern, the fronds as much as 10 feet in length. But the most remarkable plant in the house is *Cibotium princeps*, which spreads over nearly half the house, with *Dion edule*, and numerous Crotons, Palms, Cycads, &c., &c. The other division contains many fine specimen Azaleas,

and the *Agave schidiigera*, with a flower-spiko above 8 feet in length, the only plant that has yet flowered in this country; *Cycas circinalis*, about 10 feet high, and as much through; *Iandanus reflexa*, with leaves completely covering the pot. Close to this is a range of five houses built upon the same principle, and nearly the same size. The first is filled with ferns, containing some beautiful specimens of *Gleichenia sphegnacea*, *G. flabellata*, and *G. semivestita*, &c.; *Thamnopteris nidus*, a new *Alsophila* not yet named, with many other new ferns not yet offered for sale, with other choice varieties not often met with. The cool end of the house is occupied with the North American pitcher plants (*Sarracenia*), some very fine specimens; the Australian Flytrap (*Dionæa*), Sundews (*Drosera*), and many other novelties seldom seen. The second is occupied with New Holland plants, chiefly consisting of *Dracophyllums*, *Hederomas*, *Phenocomas*, *Apheloxes*, *Eriostemon*, *Chorozemas*, *Ericas*, and many sorts, a large proportion of them showing well for flower. The third is called the cool orchid house, where the temperature ranges from 50° to 60° during winter, and contains many scarce varieties of *Lælia*, *Cattleya*, *Lycaste*, *Odontoglossum*, and other orchids suitable for that temperature. The fourth is called the East India house, where the temperature is from 60° to 70°, and contains some very fine specimens of *Angræcum sesquipedale*, *A. eburneum superbum*, *A. e. virgineum*, now full of flower, *Vanda Lowii* and *V. suavis*, and *Acrides Larpentei*, *A. quinquevulverum*, and others; also several *Phalænopsis*—indeed all of the leading kinds for which Mr. B. S. Williams is so much noted. The fifth house contains all the best exhibition plants, such as *Crotons*, *Allamandas*, *Dipladenias*, *Combretums*, *Bougainvilleas*, *Alocasia metallica*, *A. Lowii*, *A. zebrina*, with *Ixoras* of different sizes, *Cyanophyllums*, and a large stock of *Dipladenia ambilis*, the best stove flowering plant that has been introduced of late.

This brings us on to the Junction Road department, where the houses are somewhat small, and well adapted for bringing on young stock. The first is filled chiefly with *Staticea* and some of the new *Azaleas* that have been sent out during the past year, also the collection of new *acubas*. We must not pass over an entirely new plant that took a first prize at the International; it is commonly called a tree violet, but is in reality a full branching shrub which grows about five to six feet high, covered with violet-scented flowers. The name of this plant is *Tinnæa Ethiopica*. This department consists of nine houses filled with hard-wooded plants—with *Geraniums*, *Cinerarias*, *Calceolarias*, *Primulas*, &c. In other houses are collections of pines and vines; these are now being started for the season's growth.

Two ornamental conservatories facing the Junction Road are occupied with specimen *Azaleas*, *Eriostemonas*, *Pieromas*, *Rhododendrons*, &c., which are well coming on for bloom. These when arranged with foliage plants will make the Victoria Nursery worth a visit when they are in bloom, though indeed it is full of attractions at every season of the year. It is well to mention that Mr. B. S. Williams is his own architect and builder, and purposes carrying on that branch of business in connection with the nursery department—an advantage I have no doubt many will avail themselves of.

I wish now to thank the several heads of departments for their obliging civility and readiness to communicate information respecting the collections in their care. I called merely to buy a few plants, and at the same time have a look round, but as I made notes as I went on, I have been enabled to construct the foregoing sketch of the place and its principal features, which I hope will be not altogether unfit for the pages of the GARDENER'S MAGAZINE. E. R. T. (an exhibitor).

LESSONS IN BOTANY.—No. VIII.

CLASSIFICATION.

Having now considered the various parts which go to form a complete plant, it will be well to say a few words concerning classification—a subject we are now in a position to understand, which before we could not hope to do, for it is useless to judge of the whole until we have contemplated its parts throughout: as well might we attempt to form an opinion of the human frame from seeing a man's head thrust out of a coach window.

Very little was done towards completing a system of classification until Linnæus undertook the task. Tournefort had indeed published a scheme which was founded on the corolla; but it is at once evident that a part so variable and so fugitive is very ill-fitted to found a permanent arrangement upon.

Linnæus therefore is commonly called the father of botany, and he well deserves the title on account of the magnitude of his discoveries and his labours, by which he succeeded in reducing to form and method what was before "audis indigestaque moles," although he has undoubtedly left much, very much, to be done by his successors.

In fact, it may be truly said that even at the present day no adequate arrangement of plants has been made, notwithstanding the numerous and ingenious attempts of such men as De Jussieu, De Candolle, and Lindley.

But to return to Linnæus: He was the first to establish the theory of the sexes of plants, corresponding to the male and female sexes of the animal kingdom, with this difference, however—that in vegetables the male and female organs of reproduction are usually found in the same individual.

Thus in the rose the stamens are the male organs, the pistils the female; and as we have seen it is by the fecundating pollen emitted by the former, and caught and absorbed by the latter, that the seeds are fertilised. Starting with this fact, Linnæus built up his great artificial system, as it is now called, of which we shall proceed to give an outline, premising that until within the last thirty years it was in universal use among English botanists, and was improved and adorned by the labours and writings of such men as Sir J. E. Smith and Dr. Withering.

Even now this system remains unrivalled for the facility it affords for classing and finding the name of an unknown plant; but the constantly increasing number of exotics discovered with every year has rendered a more elastic arrangement necessary.

By the Linnæan system all plants are divided into two great divisions, the flowering and the flowerless; or as they are technically termed—(1) Phenogamous; (2) Cryptogamous.

The first division includes the great majority of plants of British growth (with which we are more immediately concerned), from the lovely rose down to the small parasitic dodder, and from the lordly oak to the meanest grass in our pastures.

The second division consists of ferns, lichens, fungi, &c. We shall first, as in duty bound, speak of the flowering plants. They are subdivided

into twenty-three classes, of which the first eleven are distinguished solely by the number of stamens in each blossom, thus:—

1. Monandria	One stamen in each flower.
2. Diandria	Two " "
3. Triandria	Three " "
4. Tetrandria	Four " "
5. Pentandria	Five " "
6. Hexandria	Six " "
7. Heptandria	Seven " "
8. Octandria	Eight " "
9. Enneandria	Nine " "
10. Decandria	Ten " "
11. Dodecandria	From twelve to twenty stamens in each flower.

These names must be committed to memory, and to assist in this operation we will explain their meaning for such as are ignorant of Greek (all of them being taken from that language); for it is much easier to remember a term with some definite idea attached to it, than a mere meaningless symbol.

We observe in the first place that the termination "andria" is common to the whole eleven: it is the Anglicised form of the Greek word *ανδρως* = andros, meaning a man, and is in allusion to the stamens, which we have explained are the male organs of the plant. The prefixes "mon," "di," &c., simply indicate the number in each flower, being the Greek words for one, two, &c.; so that "mon-andria" means "one man" (or stamen); "di-andria," "two men," &c.

A person totally unacquainted with the Greek language may find these names rather difficult to remember; a good way to aid him to retain them is to find a real or fancied resemblance to their English equivalents. Thus by a considerable stretch of the imagination, we may perhaps detect a likeness between "(m)on" and "or(e)," "tri" and "t(h)ree," "hex" and "six," "oct" and "eight," while "hept" occurs in heptarchy, "pent" in pentateuch, &c.

The twelfth and thirteenth classes are distinguished by the manner in which the stamens are inserted.

12. Icosandria Twenty or more stamens inserted into the calyx.
13. Polyandria Twenty or more stamens inserted into the receptacle.

The general features of these two classes are very similar, therefore this distinction should be borne in mind, for it is important—the Icosandrian plants being as a rule extremely valuable and wholesome, furnishing such treasures as the pear, apple, peach, plum, strawberry, raspberry, rose, and many more; while the Polyandrians are often very poisonous, and generally acrid and unwholesome; for instance, the wolfsbane (or monkshood), baneberry, hellebore, and buttercup.

In order to guard against possibility of mistake, we would remind the learner that the receptacle is the top of the flower-stalk, and that in Polyandrian plants the stamens are so inserted on it that the petals and sepals may be pulled off one by one without disturbing them; take a buttercup and try; whereas in the Icosandrians the stamens are inserted into the calyx, which cannot be removed without removing them also. Examine the hawthorn, and you will see this at once. And in this place we will again impress upon the reader what we have already laid down—namely, that he should always apply the principles he may learn to practice: they are no good without. Thus he should find out plants in each class as it is given (when possible), and examine their structure thoroughly.

The prefixes "icos" and "poly," we should explain, mean "twenty" and "many" respectively; "andria" has been explained before.

E. R. V. SHUTTE.

ON PLANTING TREES AND SHRUBS.

A tree is a most beautiful object, often more admired than the most costly building near which it has been planted; its coat may have been a farthing, a few pence, or shillings, and often with no additional expense, but only the allowance of sufficient room to develop its proper natural proportions, it may live fifty, or one hundred years, or more, and during that time he not only an ornament, give an appearance of increased value to the place, and be a source of joy to the owner, his family, and other residents and visitors of the place or neighbourhood, but improve the general effect of the scenery, and be a protection from cold winds, and where planted in sufficient masses, renders a neighbourhood, otherwise barren, poor, and bleak, in appearance as well as in reality, comparatively warm, habitable, and rich. Considering the small amount of labour and expense, and which in most cases is more than repaid in the value of the timber, time and money can scarcely be spent to greater advantage than in following the advice, "Always be planting a tree."

Near the bulk of houses in such places as Manchester, even where erected at great expense, the ground is necessarily much limited, and as no great number or extent of plants can be used, there is no true economy in sparing any reasonable expense in these being the best, sufficiently hardy for the purpose, as a dozen large evergreens from 6 to 10 feet high, costing as many guineas, may make the difference between a place having a poor and rich appearance, and its being not only more beautiful, homely, and enjoyable, but when required to be let, would often make the difference of as much extra rent being received ANNUALLY as the whole of the extra tree had cost. Compared with building and indoor decoration, shrubs are comparatively cheap; yet the first impression on entering a place, and the only one in passing, is received from the garden; and if it be well or poorly furnished, the remainder is generally considered accordingly. Large evergreens may be had for such purposes, regularly shifted every two years, so as to move with perfect safety.

In moderate sized places where no great breadth or quantity of plants can be used, the plants if ever so few should be well selected, of sorts that will do well in the place, as a common thing in health is better than a fine one sickly; and even then the effect in the end will depend almost entirely on the taste used in arranging them, as the colours used by a painter may make a mere daub, or a beautiful picture. In many cases where great pains are taken with arrangement of colours of bedding plants, no attention whatever is paid to the general effect of the entire garden, park, or general scenery about the place, while if a few (not too many) trees were planted here and there to give variety of colour, of such sorts as purple leaved varieties of beech, sycamore, horse chestnut, elm, holly, hazel, &c., the variegated maple, sycamore, and Turkey oak, the white-

leaved poplar, willow, *Pyrus salicifolia*, *Shepherdia argentea*, and the red-brided thorn, area, mountain ash, red and yellow-barked willows and dogwood, common or variegated ivy and Virginian creeper, climbing up trunks of trees, and many other such effective things, they wonderfully and permanently improve the general appearance of the place with one comparatively insignificant outlay, while endless care and expense is bestowed fresh every season on a few flower-beds, which, compared with the above, are often mere details worth comparatively little notice.

In laying out and planting clumps and belts for ornament in places of limited extent, care should be taken that the ground is not wasted, and the appearance of extent diminished, by making them too broad or their covering too much surface. Generally 5 to 10 feet is sufficient if planted thickly with young plants, and leaves more room for grass, giving the place a lighter, more airy, and elegant appearance than if crowded and darkened by being overdone with too much cover. Where large surfaces of grass require relief, it may be done with a few good single specimens, clumps of evergreens, or beds of flowering plants, always remembering that, except sufficiently roomy walks, no bare ground should be seen that can be avoided. Many places are spoiled by having two or three times as much surface covered with trees as they ought to have. To fill the ground well, care should be taken to prevent hedges, trees, or shrubs becoming top-heavy, causing the shade and drip from the higher branches to kill the lower, leaving the ground bare at the bottom; so that it is best while the plants are young (though by no means making them formal, but rather allowing the trees sooner or later to grow in their natural form), to prune all more or less in a conical shape by repeatedly pinching, during summer, with the finger and thumb, several times if required, or cutting in the branches gradually closer near the top, and leaving the lower longer, so that every part of the plant can have equal light, air, and rain, thus keeping the ground covered, and every part of the plant equally furnished with good healthy well-ripened wood, leaves, and flowers. This applies equally whether clipping a hedge, training a hardy shrub or fruit tree, or the choicest greenhouse or stove plant, and enables the cultivator to grow three or four times as many healthy leaves and flowers in a certain space as could be done with loose, broad, flat, or irregular heads. Where the plants have been much neglected, and become thin or bad in shape, a portion of the worst branches may be shortened in one season, which may break during the following summer, and the remainder may then be cut in the winter following. In arranging plants that are distinct in form or colour, in an irregular English garden, they should be distributed at very unequal distances, and in groups of unequal quantities, so that one thing may prevail in one part and another in another; as if planted at equal distances, the different parts of the garden, whether the place be large or small, would be only repetitions of the first few yards planted. Dark purple colours should be used very sparingly, or they give a dark sombre appearance to a place.

Where beds have, during the summer, been filled with bedding plants, to avoid their being bare during winter, small dwarf evergreen shrubs may be planted in autumn and removed in May to some convenient place, and, being regularly shifted, would not suffer with being removed.

The instructions given for planting fruit trees will apply equally to these. Those marked (peat) may be planted in a mixture of about four parts peat, one sand, one well-rotted manure, and one of rotten leaves if they can be easily procured.

Forest trees may be transplanted from middle of October till middle of April, avoiding frosty weather, or exposing the roots to frost, or allowing the roots to get dried (especially beech, birch, Scotch and Austrian pines), cutting clean the ends of any bruised roots, otherwise reducing them as little as possible, as if much reduced the head would require shortening or thinning in similar proportion. For immediate effect, a small proportion of large sizes are in some cases indispensable; for such purposes a quantity are kept regularly transplanted, but in all cases the bulk should not exceed 5 to 6 feet, and in exposed bleak situations only 3 to 5 feet. Beyond this, though forest trees generally require only an ordinary soil that may be on the ground, money would be better spent in making an extra preparation of the soil by deep trenching, breaking and manuring the soil well, and in a few years would produce heavier healthier trees at a much less cost than if all were planted large and requiring stakes. In smoky places a good preparation should be made, so as to assist the plants as far as possible. A statute acre, with plants 3 feet apart, requires 4,840 plants; 3½ feet, 3,556; 4 feet, 2,722; 4½ feet, 2,151.

Evergreens move best at any time of the year when the ground is warm, the bottom-heat causing the roots to commence growing immediately, though of course they cannot be moved when the growth is soft and young, as there is great risk at that time of dry weather killing the young growth; but as soon as the wood is tolerably ripe, which of some things is about the end of July, if settled wet weather can be depended on for a few days, they move well then, but as there is risk during all summer months of drought, they are best planted during September, October, November, April, and May; but plants that carry large balls, like rhododendrons, as most evergreens on this ground do, may be moved at any time in favourable weather. Great care should be taken with all evergreens not to have the roots dried any more than can be avoided, especially hollies and conifers, avoiding planting in frosty and droughty weather.

In moving large evergreens that take up with few or bad roots, and especially in droughty weather, the head should be thinned out, and reduced to a skeleton, or even a stump, if the root is so bad as to be able to carry no more, and may be cut into good shape or otherwise reduced at once, so that the root may have no more to support than it can do safely; it should be planted in good soil pressed firmly to the root, the plant staked if required, and mulched with a little littery stable dung, have one thorough good soaking of water, and if very dry, mats over the plants, and let the plants be syringed in the evening to prevent evaporation from the leaves. This is preferable to much watering near the roots, which when mutilated and dried have less power than usual to take up much moisture, and continual watering in such cases only sours the soil and kills the roots. The ground is cold to move evergreens during the months of December, January, February, and March, though when not frosty, as there is no risk of drought, nor much evaporation, the bulk of evergreens do well enough moved then, and it enables the planting to be done with forest trees, roses, &c., the leaves of which shrivel if moved too early in the autumn.

Deciduous trees require little preparation, if the soil is fresh and good.—*Catalogue of Forest Fruit Trees*; SAMUEL STAFFORD, Hyde, Manchester.

New Plants.

The following have lately been figured and described in the BOTANICAL MAGAZINE:—

Brachystelma Barberic.—A curious member of the natural order Asclepiadæ, which abounds in curiosities. It is a native of Kaffirland, growing in dry places, and is used as an article of food by the natives. The root is a depressed tuber as large as a turnip, the leaves three or four inches long, linear-oblong and spreading. The flowers are collected into a dense globose head, four or five inches in diameter, dingy purple speckled with yellow. The lobes of the corolla terminate in slender tails one inch long, which arch inwards and cohere over the centre of the flower, so that the appearance is that of a globe covered with a delicate and elaborate network.

Nierembergia rivalaris.—A pretty species from La Plata, introduced by Messrs. Veitch. It is of slender, creeping habit, abundantly branched; leaves variable, spatulate; flowers an inch and a half across, white with a yellowish tinge.

Notylia bicolor.—This orchid is a perfect gem. It was first discovered in Guatemala by Mr. Skinner, and has been established at Knypersley for more than twenty years on a small branch of the Cork-tree Oak, on which it never fails to flower profusely in the autumn. The whole plant is usually not more than an inch and a half high; leaves generally five; flower-spikes drooping and graceful, bearing from ten to twenty elegant little flowers, the sepals white, petals lilac, with blue spots towards the base.

Glyphæa monteiroi.—A tropical African shrub, belonging to the natural order Ylacææ. The leaves are four to six inches long, ovate, and toothed; the flowers an inch and a quarter in diameter, bright yellow.

Vanda Bensoni.—An elegant species from Rangoon, sent to Messrs. Veitch by Colonel Benson, and flowered at Chelsea in the summer of 1866. The spikes are upwards of half a yard long. It differs from *V. Roxburghii* and *V. concolor* chiefly in the absence of tessellation, and in the inside of the flowers being richly spotted.

Cypella carulca.—This magnificent Irid was sent to Kew from Bahia by Mr. Williams. The flowers are four inches in diameter; the colour rich blue; claw yellow, with orange bands.

Heliconia humilis.—A superb musaceous plant, a native of Guiana, where it abounds in marshy places. It has a tuberous rhizome, is destitute of a stem, the leaves being all radical; petioles two to three feet long; blade one to two feet long. The scape rises in the midst of the leaves, and consists of about four distichous spathe of a brilliant scarlet colour, each spathe producing five or six flowers, which are of secondary importance, as respects the beauty of the plant.

Cypripedium Schlimii.—A pretty species from New Granada. It blooms in the late summer and autumn months, producing six or more flowers in a scape. The flowers are elegantly spotted crimson on a white ground; the lip has a large blotch of crimson in front.

Heliotropium convolvulaceum.—A beautiful American annual, introduced by Mr. W. Thompson, of Ipswich. The leaves are long, the flowers large, convolvulus shaped, and white with faint shades of blue; very sweet-scented, and opening towards sunset.

Lycaste gigantea.—A stately species of the best of its race with the exception of *L. Skinneri*. The flowers are of great size; the sepals and petals a warm yellowish-olive hue; lip three-lobed rich maroon, with a narrow orange rim.

Combretum micropetalum.—A magnificent climber from Brazil. The leaves are opposite, usually oblong; racemes spreading; flowers densely crowded; petals very minute; stamens three quarters of an inch long, yellow, with orange anthers, each raceme presenting the appearance of a golden brush.

Cattleya Dowiana.—A superb species, and discovered in Costa Rica by Warszewicz, originally and lately rediscovered by M. Arce, and transferred to Messrs. Veitch, in whose establishment at Chelsea it flowered in 1865. The pseudo-bulbs are eight inches to a foot high; leaves one on each pseudo-bulb, from a span to a foot long. Peduncle two to six flowered, very stout; flowers very large and beautiful, nankeen coloured, with the exception of the lip, which is dark purple streaked with gold threads. A fine figure of this gorgeous Cattleya.

Bowiea volubilis.—This is one of the most curious plants ever introduced into Europe, and is perfectly new to science. It consists of a fleshy green bulb, from the apex of which ascends yearly a very slender twining flower-stem six to eight feet high that throws out an abundance of flowerless branches, and above bears numerous small green flowers. Leaves it has none.

Curcuma Australasica.—Introduced by Mr. John Veitch from Cape York, Australia, and flowered in tropical stoves both at Kew and Chelsea last year. Leaves a foot to a foot and a half long, lanceolate; the spike five to seven inches long, many flowered, the most conspicuous of its features being its many rosy-tinted bracts.

Helianthemum ocyroides.—A most beautiful hardy rock rose, native of Spain and Portugal. It is of light and graceful habit, and produces an abundance of flowers, which are the size of a florin, gold-yellow with chocolate-coloured disc.

Grias cauliflora.—A curious and interesting myrtaceous plant, much esteemed in the West Indies as the "Anchovy Pear." It is a tree twenty to fifty feet high, the leaves crowded at the ends of the branches, spreading and drooping, three to four feet long, ten inches broad, dark green and shining. Flowers produced on the trunk of the tree, far below the leaves, on stout branching peduncles; they are two inches broad, pale yellow, very fragrant. A fine palm-like plant requiring the stove, easily managed and highly ornamental.

The following are figured and described in recent issues of L'ILLUSTRATION HORTICOLE:—

Alnus glutinosus, v. aurca.—A finely variegated alder, the leaves richly marked with alternate bars of dull green and yellow, calculated to produce a striking effect in plantations and shrubberies.

Rhododendron Archiduc Etienne.—This beautiful hybrid has superb dark green foliage and large flower-heads; the flowers whitish, and heavily spotted with crimson, chocolate, and red.

Liliputian Chrysanthemums.—A group comprising *Dona carmen*, white; *Soliman*, orange-red; *Aminata*, fiery-red, and yellow tips; *Damiette*, purple, and maroon tips; *Zelitz*, rosy-lilac, the petals striped white; *Lucinda*,

sulphur and white; *Rosabelle*, a large flower (for a liliputian), the outer parts rosy-blush, shading to white in the centre.

Saccolabium curvifolium.—A good figure of this well-known species, which is much and justly valued for its beautiful orange-red flowers.

Pear Bourré de Promentel.—Described as a richly flavoured melting pear which is fit for use in October and November. It is of large size, pyriform, yellow, much covered with russet.

Weigelia Middendorffiana.—A superb hardy shrub, the flowers of which are produced in numerous clusters, the colour deep red with shades of black in the centre.

Promontia Californica.—A fine Californian shrub, which Dr. Hooker has described as one of the choicest things of the kind introduced of late years. It belongs to the natural order Malvaceæ, and has flowers that do not greatly differ from the type of the order; they are yellow with reddish-orange stamens.

Kempferia Roscoana.—One of the many long-known inhabitants of our stoves that have acquired new importance of late owing to the increasing passion for beautiful leaves, which in this plant are richly coloured with pale green crescentic marks on a blackish-green ground. The flowers are white, and are produced one at a time.

Amaryllis (Hippeastrum) Alberti.—A double-flowered Hippeastrum, with very showy flowers, the segments of which are deeply lobed and notched, the colour lively red.

Rhaphia tedigera.—A Brazilian palm of noble aspect, attaining to a considerable height; the stem cylindrical, and crowned with a spreading tuft of cycas-like leaves.

Myosotis Imperatrice Elizabeth.—This is an exquisitely beautiful hybrid, believed to be between *M. azorica* and *M. alpestris*. The flowers are deep blue with orange-coloured eye, produced in dense bunches, and presenting a most charming appearance. If any plant deserves to be likened to jeweller's work, this does, for its flowers are like torquises. The increasing taste for hardy herbaceous plants may be expected to create a demand for this plant when it becomes known, and it certainly deserves a place in every garden in Britain.

Strawberry Perpetual Pine.—A variety described as of great value for its beautiful and highly flavoured fruit, which is produced abundantly in autumn.

Camellia Stella Polare.—Small and neat; colour-rosy carmine, every petal marked with a central pale bar. The colouring and form alike symmetrical, and the flower highly finished.

Calendar.

WORK FOR WEEK COMMENCING FEBRUARY 2.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—There should be no delay in getting ready every inch of ground intended for summer crops. We shall probably have an early spring, and it will be well to risk a little more than usual in early sowings of crops that come in quick, as in the event of late frosts protective measures may be resorted to, and the loss of seeds is not a great matter compared with the probability of extra early produce. Get all plots requiring manure ready at once, as it is much better to have the ground prepared in advance, that the manure may be more completely incorporated with the soil, than to sow or plant immediately after manuring. Ground for peas, beans, onions, cauliflowers, and broccoli must be liberally manured and deeply stirred. Mark out the soil for onions into four-foot beds, and raise the beds six inches above the general level, and leave the surface rough. At sowing time the surface will be nicely pulverized through exposure to the air, and the seed can be sown clean and rolled in firm, which is not always possible where the ground is in a pasty condition, or has been but recently made ready. Choose for potatoes ground on which cabbage, or broccoli, or celery has been grown, and which for those crops was well manured last year. Make up sloping borders under warm walls and fences for early lettuce, radish, onion, horn carrot, and to prick out cauliflower and broccoli from seed-pans, &c. On dry soils plant potatoes as soon as possible; sets should be of moderate size, and with short, stubby, hard sprouts upon them; when the sprouts are long and white it is scarcely reasonable to expect a sound and plentiful production. On wet soils it will best to defer planting the main crop till next month. To raise a few early potatoes, the simplest method is to make up a slight hotbed, and cover it with old lights, or canvas on hoops, or even hurdles or mats will do, as by the time the haulm appears the season will be sufficiently advanced to allow of taking off the covering by day, putting it on at night, however, to keep safe from frost. If there is plenty of charred refuse, use it liberally in making up the bed, and cover the sets with some of it reserved for the purpose. The main crop of potatoes should be planted at greater distances between the rows than is usually allowed; 2½ feet apart and 9 inches between the sets should be the least distance for moderate growers, and 3 feet apart and 1 foot or more between the sets for robust growers. When growers complain that their potatoes have "run all to haulm," it may always be understood that they are planted about twice as thick as they ought to be.

ASPARAGUS.—The beds should be lined, if the heat is declining; the heat ought to be near 60° to ensure a quick growth of eatable shoots. Ground for new beds should be got ready at once, and tolerably manured.

CAULIFLOWERS to be sown in boxes, and placed in gentle heat. It is quite worth while to pot them and give them good frame treatment, as with a well-prepared soil made rich with manure in which to plant them, large handsome heads may be obtained early in the season, when they will be worth three times as much as those that come from sowings on warm borders.

CELERY must really be sown now by all who want a reasonably early supply; in fact, for the first main crop. The seed will soon sprout now if sown in pans and boxes, and put in some odd corner of the greenhouse or forcing pit.

RHUBARB may be forwarded by covering the stools with boxes, casks, sealable pots, &c., without fermenting material, but the latter will pay for its cost in an earlier supply, and the benefit of the crop by forking it in when the heat is spent. Choose fine dry weather for sowing seed.

LETTUCE.—To ensure an early supply of well-hearted plants, those now up in boxes must be planted out in a moderate hotbed, so as to keep them growing, and fit for planting out on sheltered borders in a month or six

weeks' time. They will then lift with good balls, and if aided by a little shelter, and cared for on frosty nights, will turn in when lettuces are valuable, and will be good. But if the young plants are allowed to stifle each other, and get drawn in the seed boxes, they will never make fine plants, do what you will with them.

POTATOES.—Whole potatoes are preferable to cut sets for planting at this season of the year. Cut sets may be used in April or May, because vegetation is then more active, and a set containing one or two eyes will make a plant directly. Potatoes always grow better, and come to maturity sooner, if the sets are sprouted before planting. Long white flexible sprouts are almost useless—perhaps injurious, because such of them as do not get broken in planting are so debilitated as to be scarcely capable of making a good plant. But short, stout, hard green or purplish sprouts, with a frill of roots around them, grow with vigour from the first. The best way to deal with the seed is to allow it to make sprouts about an inch long (not more) in the dark, and then carefully spread them on the floor, or in baskets, or on a shelf, *in full daylight*. They ought not to be more than two deep, and if laid singly all the better. Exposure to light will cause the sprouts to form chlorophylle, which is essential to healthy growth, and the short green or purplish sprouts will be so hard as to bear reasonable handling without breaking. In planting potatoes, it is a good rule to trench them in; or, as the land ought to be already laid up in ridges, the planting will consist in laying the sets in a trench, and throwing soil upon them from the ridges on each side. From the present time to the end of March is the best for spring planting: autumn planting has its advantages, but is seldom practised; but late spring planting—say after the end of March—is to be avoided as much as possible. It is so important, however, that the ground should be in a sweet condition, that a delay of a week or two is always to be preferred to planting while the soil is very wet or frozen, or before it has been deeply stirred, and for some time exposed to the atmosphere in a rough state to sweeten. To manure for potatoes is, in a general sense, objectionable; but if the ground is poor, it must be done, in which case let there be sufficient laid on and thoroughly well dug in some time before planting. Where a proper rotation of crops is followed, the ground best adapted for potatoes is where celery, cauliflowers, and other crops for which manure was liberally applied, were grown last year. There are three rules to be observed in view of the possibility of disease—viz., choose sorts that ripen early, plant them early, and take them up early. The early bird gets the worm, but the early potato does not take the disease; it usually appears with fogs, heavy rains, and thunderstorms late in the autumn, by which time potatoes should be, not in the ground, but in the store, and the ground again dug for winter greens.

PLANT potatoes, garlic, shallot, chives, onions for seed.

Sow in the open quarters cabbages, peas, beans, parsnips, spinach, leeks. Sow on warm slopes radish, hardy lettuce, cabbage, parsley. Sow in heat, to transplant, Spanish and Portugal onions, cos and cabbage lettuce, celery, tomatoes, capsicum, melon, cucumber, cauliflower, sweet basil, sweet marjoram.

WET GROUND.—Keep off it; every footmark is mischief. Do not allow cattle to poach on any ground that is to be sown or planted with any kind of kitchen crops.

OUTDOOR WORK.—Whatever arrears of winter work remain must now be cleared up, or the consequences will be serious. Finish all pruning, nailing, forking of borders, and planting of fruit trees and bushes. Make quickly a thorough clearance of the vegetable quarters, plant all the old stumps of cabbage, kale, &c., close together, to furnish a few sprouts. Roll and dress up grassplots, sowing seed in bare places, and edging off the margins next the walks and borders, so that the garden may have a neat and tidy look. To keep frost from newly-planted roses, &c., mulch about them lightly with long dung, or draw the earth round them with the fork; loose soil admits less frost than that which is trodden hard.

Flower Garden.

FLOWER GARDEN.—Do not be in haste to fork over the borders that are stocked with hardy herbaceous plants, unless their places are marked. Such things as Pæonies, Campanulas, &c., &c., are destroyed wholesale every season by the ruthless manner in which borders are dug while the plants are invisible, or nearly so. But as soon as they begin to peep through, make all clean and tidy, and sow any hardy annuals that are required. But if the sowing of these is deferred till next month, there will be very little time lost; it is always best to make sure that seeds will grow than run the risk that they will not. Herbaceous plants of all kinds may be planted, and if a little dry chippy manure is thrown over their crowns after planting, it will be a great assistance in case of severe weather. When they begin to grow they will push through it easily enough. Look over

ALPINE AURICULAS.—Sow the seed of these on nice friable soil, already well moistened, and lay squares of glass over the pans so that no more watering will be necessary till the plants are up. If in heat, it should be very gentle, though a cold frame is sufficient.

ALPINES are apt to suffer at this time of year from damp; the frequent roving of frames to keep out frost causes confinement and darkness, and these plants—formed to breathe the purest mountain air—will be sure to suffer unless great care is taken. Where alpine are grown in any quantity, the stock should now be locked over, labels should be rewritten if required, and many of the kinds will require repotting, dividing, or planting out. Keep the store plants in frames very clean, removing dead leaves, and admit as much air as possible. Generally, alpine plants, though very susceptible to the influence of damp, ought never to be dust-dry; water must be given occasionally even during winter.

AURICULAS.—Water gradually as they show signs of growth, and top-dress the pots with well-decayed cowdung. Give plenty of air, and beware of damp. As Auriculas are forward this season, they will require extra care in the event of late frosts. This is a good time to sow seed.

ANNUALS FOR SPECIMENS AND BEDDING-OUT to be sown now, include Balsams, Cockscombs, Globe Amaranths, Portulacas, Schizanthuses, Phloxes (don't forget Phlox Drummondii Radowitz), Brachycomas, Stocks, Tropæolums, Cobæas, Lophospermums, and Aeroelinium. It is too early yet for Asters. First-class annuals should be grown with care, the plants be pricked out early and stopped; if they once get drawn, they never bloom satisfactorily or show their full capabilities. Any that are wanted in large quantities had best, to make sure, be sown in pans also, and placed in a pit.

BEDDING PLANTS may be propagated rapidly by making a sweet hothed to forward plants for cuttings, and to strike cuttings of such as are fit to cut from in the greenhouse. Sow in pans, and place on gentle heat, Salvia

patens and Lobelia speciosa. These come true from seed, and make capital plants for bedding. Cuttings already rooted to be potted off and helped on by a sweet moist heat. If any outbreak of mildew, increase the heat and promote a dry atmosphere; at the same time dust the plants with sulphur or fine peat dust.

CARNATIONS AND PICOTEES.—Put out the whole stock of Carnations, Picotees, and Pinks in the first warm shower we have, and defer watering them as long as will be safe to do so, in order that they may derive full benefit from the rain. Keep the plants hardy, and make ready for repotting. Turn over the compost intended for them, and make careful search for wireworm.

COLD FRAME.—Remove all dead leaves; keep the shelves or plunging material moderately dry; give air as often as possible. Tender plants that have been wintered in cold frames must have very little water at present; they may be growing in consequence of the mildness of the weather, yet as frosts may visit us, much moisture at the root will render them miffy, and losses may occur. But nothing should be allowed to get dust-dry; it is most injurious. Ferns may have water freely if well drained. the rockeries, and take note of what deaths have occurred.

HARDY ANNUALS to be sown in pans to get them forward for planting out. Californian annuals, such as Clarkias, Godetias, Escholtzias, Viscarias, Nemophilas, Candytufts, &c., may be sown in the borders where they are to bloom.

HOLLYHOCKS may be increased from cuttings in a gentle heat, and seeds of choice kinds may be sown with others in a warm pit or cold frame. Get the stations ready for those to be planted out this spring. Dig deep, and manure well with rotted cowdung.

RANUNCULUSES AND ANEMONES must be planted this month, if not planted already. Get them in if possible before the 20th. The soil should be deeply broken and abundantly manured with cowdung. In planting, draw shallow trenches three inches deep and six inches apart. In these place an inch of sharp sand or clean coal ashes, and lay the roots on the ashes—the Ranunculuses with their *claws downwards*, and four inches apart. Sprinkle sand or coal ashes on them, and then cover with an inch and a half of soil.

ROSES may still be planted. Bushes from which flowers are to be cut for show should be planted in firm loam, well manured with turf and half-rotten dung. Dwarf-growing varieties of tender habit which are useful for the front lines of roseries, require an admixture of sand and leaf-mould, or peat, to lighten the soil and promote the formation of an abundance of fibres.

STOCKS.—If any delay has occurred in securing stocks for working, get them in at once—briers for standard Roses, Manettis for dwarfs, quinces for pears, &c. Pot a lot of brier suckers for budding with choice Roses for greenhouse culture, and pot also a few young privets, with one clean stem each, to work Oleas on.

TULIPS.—Protect from heavy rains and severe frosts, but never leave the coverings on one hour more than needful, for they never bloom well if made tender. When the foliage shows regularly over the bed, stir the surface between the rows with a small three-tined fork.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Trees and bushes lifted with care and replanted quickly will carry their fruit pretty well hereafter, but it is late for all trees in bearing to be moved; where, however, it has not been possible to complete operations, there is still good time to plant fruit trees, because even if they produce little this season, they will gain a season's growth on the ground, and that is so much gain. Let all pruning be completed quickly; mulch trees newly planted; prepare scions for grafting, and heel them in till wanted. Get protecting materials ready for wall trees that are likely to require it. Judicious protecting will always pay for the trouble and outlay it occasions.

ORCHARD HOUSE.—Peaches and other orchard house trees will set their fruit more freely if there is a good breeze through the house every day; the atmosphere at the same time to be kept as dry as possible. Peaches to be thinned and disbudded judiciously; do not remove all the superfluous fruit and shoots at once. Trees that have set their fruit to have liberal syringings with soft water of the temperature of the house. Figs setting fruit to be kept in a rather dry air, but with sufficient moisture at the root.

PEACHES.—Supposing a second house to be started now, the first essential will be to see that the roots are well soaked, the wood clean, and all training complete. As the trees begin to push, use the syringe freely, but discontinue the syringe when they begin to flower. In peach houses where a crop is set, thinning will be an important matter. In the process of stoning the trees thin themselves considerably, so the cultivator need not remove all surplus fruit at once; where there is room for a hundred, he may safely for the present leave a hundred and fifty, and such of the extra fifty as pass through the stoning period must be removed afterwards. To use liquid manure at this early stage in the growth of the crop is most injurious; yet it is sometimes done, and there is immediately afterwards a cry out that in spite of the best management the trees will cast their fruit.

VINERY.—Where the vines are breaking, promote a moist state of the atmosphere; this is favourable to a healthy leaf growth, and on that will chiefly depend the quantity and quality of the produce. Vines coming into bloom to be kept rather dry. Vines not yet started may be greatly assisted by making up a bed of fermenting dung in the middle of the house; the warm vapour from this will be very beneficial. If the vine border is at all dry, give it a good soaking with tepid water. See that all bearing rods are neatly trained; if any pruning neglected, attend to it at once. Vines bleeding through being pruned too late may be stopped by cutting raw potatoes to fit tight over the wound. Many are now starting their vines, and are committing the usual error of using too much heat. A temperature of 50° Fah. is the highest allowable for vines beginning to grow. As soon as they have expanded their first leaves a little, there may be an increase of 5° to 10°. It is important to tie in regularly, to stop laterals, and thin bunches, as these several tasks become due. Never allow more than one bunch on a spur; never more than a dozen on a strong rod. The temperature of vines on which the fruit is formed to be 55° to 60° night, 65° to 70° day. Bunches to be thinned as soon as the berries are of sufficient size. Tie in the young shoots and remove laterals early, so as to accomplish the pruning as much as possible with the finger and thumb. Be particular to lower the temperature at night. Very many of the failures in grape-growing arise through a too high night temperature. Those swelling fruit will require plenty of moisture. The cause of cracking is, in the majority of

cases, insufficient drink; and shanking arises through sour borders, where the drainage is imperfect.

STRAWBERRIES.—When put in to force, the pots should stand on fresh dung, and the plants should be allowed to root into it. By the time the berries are swelling the roots will be revelling in this rich food, and the fruit will be fine. As much light and air should be allowed as possible, and if the cultivator has time it will be well to fertilize the blossoms artificially. When a certain number of fruit are set, so as to swell off nearly simultaneously, nip out the remaining bloom-buds, and be content with a moderate crop. It is very important to keep the plants well watered; a few days' neglect of this may cause them to cast all their fruit.

Greenhouse and Conservatory.

GREENHOUSE.—A general shifting of all plant that are now coming into growth will be necessary, but those near their time of blooming must not be disturbed. All established plants that have filled their pots with roots and are making way towards bloom must be well soaked, as at this season the balls are often hard through getting dry during cold weather. The degree of heat must depend on the nature of the stock; where there are mixed collections, a generous temperature may be maintained, with moderate ventilation on fine mornings, and a decided lowering of the temperature at night. Cinerarias, Cytisuses, Primulas, Cyclamens, and other plants in bloom, or coming into bloom, must have good places and enough water. Camellias ought now to be in perfection; those in bloom to be kept rather cool, but as soon as the bloom is over they must have warmth and a close moist air to induce a healthy growth. Fire-heat may be used more liberally now, as there is more light, and many early subjects are advancing into bloom. Put Cinerarias, Primulas, and other soft-wooded, early-blooming plants as near the glass as possible, and where they can be freely ventilated on fine days. Give plenty of water to everything that is growing freely. Hard-wooded plants that have been kept dry all winter will probably need to be plunged to the rim of the pot in a vessel of tepid water, to soften the ball of earth, and allow water to pass through freely. When this is not done in spring, it often happens that having once got dry the water never afterwards wets the roots properly, but runs away down the sides of the pots, and after languishing some time, the plants die altogether. Get all stove plants from cutting-pans and boxes potted off. Start old plants of bedders to get cuttings, and put in cuttings as soon as they can be taken, to have the bedders forward in time to plant out strong. With the rise of the thermometer there will be an increase of green-fly, and plants with soft leaves will be attacked first. Look to the under sides of the leaves of Cinerarias, Calceolarias, Pelargoniums, &c., and if any fly, put the plants together in a box and fumigate, or fill the house with smoke, and syringe next day. In private collections, fumigating ought never to be needful. A plant here and there may be affected, but from single plants the fly can be easily removed with a soft brush, or by dipping in weak tobacco-water. All hard-wooded plants coming into leaf to be freely syringed. Temperature 45° at night, 55° to 60° by day. Bottom-heat for cuttings, 60° to 70°.

CONSERVATORY.—Climbers require attention now to remove dead wood, rub away any pushing buds that are badly placed, and to train in young shoots where desirable. Most of our conservatory climbers require a liberal heat now to start them into growth, with a free use of the syringe to keep down red spider.

GREENHOUSE PLANTS IN FLOWER.—*Acacia grandis, floribunda, holosericea.*—The soil should be sandy loam and peat, in a rough state, with lumps of turf and small nodules of charcoal. They occasion no trouble, and will endure some amount of ill-treatment without harm. Their foliage is so beautiful that they are worth growing well, irrespective of their lively yellow flowers. They are best propagated from seed in a hotbed in March, the seed to be soaked a few hours before sowing it. *Azalea obtusa, triumphans, Perryana, amena, lateritia, tricolor, aurantiaca, Fortunei, squamata.*—Any it may be desired to propagate should be layered as they go out of bloom. The layers will require to be twisted and covered with moss, into which the first roots will run, and allow of the removal of the layers earlier than by any other mode. *Brachysema lanceolatum.*—A beautiful fabaceous greenhouse evergreen climber from Swan River. Flowers scarlet, abundantly produced. Soil peat and loam, winter temperature 50° to 60°, summer temperature 55° to 65°, easily propagated from half-ripe shoots in sand. *Cytisus filipes.*—This pretty white-flowered broom is a charming plant for forcing, but it will bloom at this season in an intermediate house, and would be in no way improved by stove treatment. All the Cytisus are useful plants, and some of the hardy kinds of moderate growth are well worth potting, to decorate the conservatory. The best of the greenhouse kinds are elegans, yellow; filipes, white; laniger, yellow; rigidus, yellow; nubigenus, yellow; and proliferous, yellow. Though not particular as to soil, potted plants should have a light mixture of turfy loam with a little peat. *Dielytra spectabilis* is one of the easiest plants to grow, and one of the most beautiful to group with other spring flowers, and with foliage plants and hyacinths in the conservatory. We usually see it drawn and weak through insufficient light and air, for like many other subjects that bear ill-treatment patiently, it is thrust into the dark or subjected to excessive heat, and otherwise most unjustly dealt with. It is much better as a pot plant for the greenhouse than for the borders, for except in warm sheltered gardens, the spring frosts do it much damage when coming into bloom. The best way to deal with it is to pot the roots in loam, leaf, and old dung, equal parts; as soon as the stems die down in autumn, place the pots in a pit, and keep them only moderately moist. In November begin to force gently, and continue to introduce a few to the end of January. In May harden them off and turn them out into a rich border, and take up again when the foliage is withering. *Pimelia decussata.*—These favourites of the greenhouse are natives of New Holland, and require the treatment usually given to New Holland plants. The soil should be sandy fibrous peat and fibrous loam, with a plentiful admixture of nodules of charcoal, and good drainage. *P. decussata* is entered in our list simply because we happened to have it in bloom on the 23rd of February, in a warm greenhouse. But *spectabilis* and *Hendersonii* are much better. *Pimelias* are of very little use in small collections, as their colours are neither rich nor striking. To make the best of them, young plants should be frequently stopped to make them bushy. *Correa cardinalis, Brachysema longifolia, acuminata, hybridum, undulatum, Epacris impressa, Erica blanda, vernalis, rubrocalix, and triumphans,* also in bloom now.

AZALEAS to be kept going for succession, and always to be forced as gently as possible. Those wanting a shift should have it before being taken in to force, as the warmth which brings out the bloom will also promote the formation of new roots in the fresh soil. Where a mellow, fibrous, hazily

loam of a silky texture is attainable, use one-half in preference to using all peat. It causes a shorter and better growth, enables the cultivator to make a larger plant in a given sized pot, and in case of neglect in watering, &c., the plants suffer less than when potted in peat only. But unless the loam is really silky, and will crumble to dust between the fingers without soiling them, use peat alone (with sand of course) rather than risk these hair-rooted plants in a soil unfit for them. Azaleas in the forcing pit will now bear a heat of 60° to 70°, and must have abundant moisture.

SPECIMEN PLANTS will mostly want pruning, repotting, cleaning, &c., previously to being started into growth. It would be well to look over the stock of such things at once, that valuable time may not be lost.

BEGONIAS should now be repotted, and have large shifts when required afterwards.

LUCULIA ORATISSIMA deserves all the praise bestowed upon it as one of the choicest of spring-flowering plants. It is almost hardy, and may be as easily grown as any greenhouse plant with which we are acquainted. When grown in a pot, it should have a soil consisting of equal parts peat, turfy loam, and leaf-mould, with a large admixture of sharp sand; and as soon as done blooming it should be shaken out and repotted. But to do justice to it, it should have a conservatory border consisting chiefly of mellow loam; it will then grow with vigour, and flower superbly during the autumn, winter, and spring months, filling the house with its delicious fragrance. It has been well named "gratissima," and it is gratissima wherever it is known. A good companion for it is *Rhynchospermum jasminoides*, which produces its fragrant flowers during the summer.

FUCHSIAS.—Start the plants into growth, and when well broken repot. Cuttings struck now will make good plants this season. Fuchsias for beds may be propagated to any extent from a few old plants, and a very moderate temperature will set them growing for the purpose. Take off the young shoots when about three inches long, with a heel each.

PELARGONIUMS ought now to be growing freely, and on warm bright days should be watered so as to soak the ball and bring every rootlet into action. Use heat enough to allow of air being on all day. In bright weather sprinkle the floor of the house to create a humid atmosphere.

CINERARIAS will now want regular attention to preserve a healthy foliage as well as secure a good bloom. Drought will do them much harm, but they must have plenty of air, after being watered, to get their leaves dry before night. Green-fly will now infest them unless kept in check. Put the forwardest in the house for blooming.

CAMELLIAS are now coming into bloom, and need occasional doses of weak liquid manure, and frequent syringing of the foliage. It would be well to go over the whole stock, and sponge every leaf with tepid water, which will give the plants a bright and beautiful appearance, and very much promote their health. A hundred may be sponged in the course of a morning, when the weather does not allow of outdoor work; the sponge will remove soot and dust more effectually than the syringe. Plants done blooming must be kept warm, and enjoy a moist air. Camellias in bloom keep at 45° by night, and 55° to 60° by day, and with plenty of water. Plants for late flowering keep only just safe from frost.

BORONIAS, CHOROZEMAS, and other New Holland plants, require attention now. See that the soil in the pots is capable of taking up the water given; if hardened so that the water runs away from the pot, plunge them for half an hour on a bright morning. Young plants should be shifted on—the soil to be turfy peat, with plenty of sand, and a layer of charcoal over the drainage. Do not allow them to flower, but remove the buds as fast as they show, and occasionally stop the young shoots to induce a bushy habit.

Stove and Orchid House.

STOVE.—The temperature may be increased now with advantage. Achimenes are pushing briskly; these and Gloxinias to be potted to succeed the first batch. Soil, equal parts turfy loam and fibrous peat, with sufficient sand to render the mass porous. These require full light while growing, though their flowers must be shaded. The whole of the plants will need a general revision at this time of year; those that have been blooming all winter require to be cut back, and encouraged to break, then to be shifted to larger pots, if needful, or have top dressings; where very large specimens are objectionable, the plants may be kept in bounds by the knife; and to obviate the use of larger pots, turn them out, remove some of the soil from the outside of the balls, and repot them with fresh compost in the same pots. *Justicias* are now going out of bloom, and may be propagated to any extent, to make fine specimens for next season. *Poinsettia pulcherrima* and *Euphorbia Jacquinæflora* and *splendens* should be grown in quantity, as they are invaluable for conservatory and drawing-room. Now is the time to repot and start a number of fine subjects, such as *Gloriosa superba*, *Crinum*, *Begonias*, *Gloxinias*, various orchids, &c. There may be an increase of heat as the weather improves, and with it also an increase of atmospheric moisture. Remove all flowering plants to cool places to prolong their beauty. Train in and prune climbers, and keep a sharp look-out for vermin, for there will now be a general wake-up in the insect world.

ORCHID HOUSE.—Orchids will in many cases require to be repotted, and after which they must have the warmest end of the house. Those that do not need a shift should have a little of the old surface material removed, and its place supplied with fresh; at the same time make fastenings safe, and repair blocks and baskets.

KALOSANTHES give no proof of a gardener's skill in cultivating, but they do prove him to be a man of judgment if he provides a few specimens to make a blaze of colour in the conservatory. They are so gorgeous in bloom, and so easy to grow, that young hands should do their best with them, and all amateurs who are much away from home should pay them proper respect. Start them now in a temperature of 45° at night, rising to 60° by day. Repot first in a compost consisting of equal parts tough turfy loam, turfy peat, leaf-mould, hotbed manure rotted to powder, broken pots, and sharp sand. In this mixture they will grow superbly. They must have plenty of light.

Forcing Pit.

FORCING-PIT to be kept fully employed by putting in successional batches of various subjects in time to succeed those taken out.

CUCUMBERS FOR RIDGES to be sown now, or within a week or so. Sow also for frame culture to succeed plants now bearing. We prefer sowing in 60-size pots, two seeds in a pot, the strongest plant in each to be kept, and the roots never to be damaged by shifting, so as to have them strong and short for turning out.

PINES.—At certain seasons of the year pines are in greater request than others. For those seasons the cultivator should speculate boldly, for nothing

tends more directly to establish a gardener's reputation than to be able to supply plenty of pines, grapes, and other choice fruits in the season when lawn parties, and pic-nics, and dinners are fashionable. It will be found upon reflection that growers of pines have their principal work to do now to ensure a crop of fruit when it will be most valued and most needed. The work now chiefly demanding attention is to shift succession plants into their fruiting pots, and this should be done at once. It is of the utmost importance that the soil for the purpose be nearly dry and in a mellow condition. Strong stimulants are very objectionable, hence the only manure should be the surface of an old cucumber bed. There is no soil so good for pines as the turfy yellow loam from Wanstead; but as everybody cannot obtain this, the next best is any silks-textured loam that can be had containing plenty of fibre, and add to it turf from a roadside, chopped small, and in a rough state. To crock the pots carefully is not only necessary for the escape of water, but for the admission of heat from the plunge bed. The plants must, be plunged as soon as potted, and the bottom-heat should be 70°.

Correspondence.

ROSE'S "FAVOURITE" CUCUMBER.—As many letters have come to hand since I noticed this variety of cucumber in the autumn of last year—some asking for seeds, and others to know where it could be purchased—I am compelled to make a special notice on the subject. To reply privately to all applicants is utterly impossible with the time at my disposal for writing, and I hope those who have made inquiries upon the subject, and to whom I have not otherwise replied, will accept this as equivalent to a private letter. In the first place, I have to say that the few seeds which I had have been distributed amongst the first applicants, therefore I have none left for those who applied later; and as for purchasing them, so far as I am aware, it is not in the market. In fact, the whole stock is in the hands of some half-dozen cultivators, and as it is a very bad seeder, it is likely so to remain until some individual sets to work and grows expressly for the seed. But my experience of its seeding qualities is such that I would not undertake to do so, for every good seed obtained would be well worth a shilling, as there would be but a few of them, and that price would not be likely to suit the public. It is most improbable that it will become for some time widely distributed, for even those who have grown it for several years find it necessary to keep up their stock by striking cuttings two or three times a year. It would have given me considerable pleasure had I been able to make it better known, as it is one of those good things that ought to be in the hands of every cultivator of cucumbers.

J. C. CLARKE.

Replies to Queries.

Select Peas.—W. II.—In a trial of peas conducted at Stoke Newington last year, and reported on in the GARDENER'S MAGAZINE during the months of August and September last, the following results were obtained in respect to a certain number of varieties: *Sutton's Kingleader* (alias *Carter's First Crop*) was the earliest of all, coming to perfection in 85 days; and the next earliest was *Dickson's First and Best*, 88 days, which was more fruitful than *Kingleader*. The best of the first early kinds to succeed either of these were *Sangster's No. 1*, which was gathered in 91 days from the date of sowing; *Eley's Essex Rival*, 90 days; and *Early Emperor*, 92 days. The old *Ringwood Early*, coming into use in 90 days, is first-rate, and highly prolific, and being very hardy will be one of the best for exposed districts, where *Advancer*, a newer kind, requiring only 90 days, is apt to be injured by frost when sown early. The following are a few of the very best peas in cultivation, with the number of days from sowing to gathering in this trial. Of course their periods vary with seasons and soils and dates of sowing; when sown late, all the kinds come into use in a fewer number of days than when sown early—as, for example, *Yorkshire Hero* requires about 100 days if sown in March, but only 70 days if sown in the middle of May; *Auvergne*, 94 days; *Champion of Paris*, 98 days; *Princess Royal*, 100 days; *Vetch's Perfection*, 108 days; *Fortyfold Marrow*, 108 days; *Mammoth Marrow*, 108 days; *Lord Raglan*, 108 days; *Maclean's Wonderful*, 112 days; *The Prince* (Stuart and Mein), 115 days; *Hurst's Princess Royal*, 116 days. Many others were found to be good, but these are selected as the very best. As a great many inferior kinds are in cultivation, and cost as much to grow as the best, the names of a few of the worst varieties may be useful to our readers: *Carpenter's Express*, 90 days; *Alliance*, 94 days; *Climax*, 95 days; *Blue Scimitar*, 108 days; *Burbridge's Eclipse*, 105 days; *Dickson's Early Favourite*, 95 days; *Fairbeard's Surprise*, 98 days; *Fairbeard's Nonpareil*, 95 days; *Harrison's Royal Blue*, 94 days; *Harrison's Glory*, 95 days; *Harrison's Perfection*, 95 days; *Maclean's Gem*, 93 days; *Prince of Wales*, 100 days; *Prussian Blue*, 98 days. Many who grow these will be startled to find that we pronounce them inferior, but we can assure them that they are so as compared with those placed in the list of the best.

Gloxinias and Achimenes.—Young Beginner.—The *Gloxinias*, *Achimenes*, and *Begonias* will do well in the tan bed in the pit, but it is too hot a place for *Liliums*.

Tree Ferns in Open air Ferneries.—R. W. B.—We do not believe we shall ever see tree ferns established as permanent occupants of open-air ferneries in any part of England or Scotland. We have no objection to the experiment being tried by you or any one. But as you ask for an opinion we give it, and to this effect: that except in some very few peculiarly favoured spots in the south-west of England, no tree fern planted in the open ground can be expected to live more than three years. We do occasionally have two or three mild winters in succession in this country, and such species as *Dicksonia squarrosa* might live through them, but the first severe visitation of frost would make an end of them for ever. It is possible that in some of the warmest parts of Ireland places might be found for tree ferns, with the probability that they would last a few years, but the first really sharp winter would kill them even there. You have been, we fear, too much influenced by a mischievous article which appeared recently in a contemporary. We cannot advocate any cause that we believe must end in disappointment, but if you are determined to go on, we do hope you will send us every year an account of the condition of the plants until their career is ended.

Selections of Fruits.—R. W. Piper.—As you have the "Garden Oracle," it will be a very easy matter to select fruits for your walls and borders. It is an important matter for a cultivator to know exactly what he wants, for

the fruits that suit one will not suit another, and *vice versa*. Mr. Huish's new varieties of pears were described in former issues of the "Oracle," therefore there was no occasion to bring them forward again this year; we cannot afford space in the "Oracle" for stale facts.

Potato Disease.—R. Simson.—If people will attempt to grow potatoes in soil that is quite unfit for them, they must expect disease. Your cold wet clay is not a potato soil. That a rich soil is not of necessity inimical to the healthy growth of potatoes is proved by the market gardens all round London, which are constantly and abundantly manured, but they produce potatoes of the finest quality. But the market gardeners know the value of sorts that ripen early, and usually get their crops off and the ground planted with collards or cabbage long before the usual season for the outbreak of the disease arrives. The principal matter of importance in reference to manuring is that it should not be rank or recently added to the soil. A thin coating of Epsom salts on the surface of the soil when the potatoes are just pushing through is about the most effectual stimulant that can be used, and in some districts very cheap.

Natural Soil.—Zeno.—We do not know what is the natural soil for any plant; we only know that some grow better in clay than in gravel, some better in gravel than clay, &c., &c. Such knowledge is the foundation of good practice, and for all ordinary purposes is as good as absolute knowledge, which we do not possess. Mr. Charles Darwin has pointed out that many plants met with in a wild state are really in artificial circumstances, for when they become located in soil that suits them, they get killed out by other plants that grow more vigorously; whereas when located on soils which barely afford them the means of life, they maintain their standing because less pressed upon by more vigorous forms of vegetation. We say that calcareous matters—humus, silica, &c.—are necessities of life to this or that plant, but we may always be prepared to find that plants can substitute one element for another under certain circumstances, as many plants ordinarily requiring potash are able to subsist in soils that do not contain a particle of that salt, provided that in place of potash they contain soda.

Hollyhocks.—J. H., Halifax.—In deep strong loams hollyhocks attain to finer proportions than in light soils, but they really are not particular, provided the soil has some substance, and is liberally manured. It is quite true that hollyhocks may be grown as annuals; indeed seed sown now could be grown on to flower well this year. The person who affirms that this is impossible is simply ignorant. Grafting hollyhocks is not much in favour, but we have seen many a fine show of flowers on grafted plants. To make a good job of the grafting, the roots to be grafted on should be cut so as to be quite fresh and plump when operated on, and as soon as the grafts are inserted and tied, they must be potted in thumbs and be plunged in a gentle moist heat. Old stools of hollyhocks are grand as garden ornaments, but they do not produce such fine flowers as yearling plants from autumn cuttings.

Potatoes.—W. II. Halliday.—*Wheeler's Milky White* is good for keeping, and does not readily sprout in spring. It is white, mealy, well flavoured, highly productive, and hitherto has quite escaped disease. One of the finest market potatoes that it is possible to plant is the *American Red*, a large angular even tuber, keeping very late; the flesh is as white as snow, and the flavour little inferior to one of the best of the kidneys. You can obtain it true by applying to Messrs. G. Gibbs and Co., 25, Down Street, Piccadilly. The following are first-rate: *Vitch's Ashleaf*, *Mona's Pride*, *King, Queen, Fluke, Flourball*. Half a dozen sorts ought to suffice for any private garden. If you wish to embark in varieties, and waste your time in growing a great many had potatoes, we shall be able to assist you shortly, as we are preparing a report on the collection grown at Stoke Newington.

Endive Seed.—R. Baxter.—Your best plan is to allow the strongest plants now on the ground to remain. Three or four plants of each of the sorts you care about will furnish you with abundance of seed. If you have not any good enough, sow in March, and thin them out in good time, and the seed will be produced in autumn. The first is the best course, as you can make sure of seed. Sometimes the weather breaks down before late seeds are ripe: this was the case last year, and very much of the seed now on sale has been imported.

DISEASES OF PLANTS.

If we now examine the first deviations from normal phenomena which are exhibited in the occurrence of internal diseases, as for instance in smut (*Uredo segetum*), in decay, as in the stems of cacti, juicy fruits, &c., or in the potato murrain, we find in every case that the nitrogenous lining of the cells first becomes discoloured, assumes a darker tint, a firmer consistence, a more evident granulation, and that it begins at the same time to percolate and saturate the cell-wall, so that it ceases to exhibit its pure reaction on the cellulose. These phenomena are so general that we may well suppose that all inward diseases of plants actually derive their origin from an abnormal condition of this coat, and inasmuch as the peculiar power of the chemical process in the cells is apparently concentrated there, its deprivation first calls into existence the symptoms of disease which are perceptible at a later period in the other portions of the cells. The comparative luxuriance of plants depends upon the inorganic matters presented to them in the soil. The proportional rarity of phosphates in most geological formations, and also in the soils which are wholly or principally formed from them, is well known; on the contrary, they are accumulated in soils principally formed of decomposed vegetable matter after being slowly collected by the plants. Animal excrements are very rich in these salts, and therefore manured fields, and especially gardens, contain a greater proportion than is normally present in plants, or can be consumed by them. But the influence which inorganic substances in the soil exercise on vegetation depends upon their being generally present. For since plants have not the power of choosing their own nutriment, and since the proportions in which soluble substances present themselves for absorption can be altered by endosmosis within very narrow limits, it is equally important that the substances which are requisite for plants should be contained in the soil in something like the proper proportions, since the plants are otherwise compelled to receive matters in greater quantities than is agreeable to their normal structure, and in consequence inevitable anomalies take place in their vital action. The sum of what has been said may be stated thus: The more phosphates are relatively increased in any soil in consequence of its mode of formation or cultivation, the more will the plants which it sustains have a tendency to deviate from their original type, to form sub-species and varieties, and finally to be attacked and destroyed by internal disease.—*Journal of Agriculture for Nova Scotia.*

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon		WEATHER NEAR LONDON, 1865.				M. Imp. avg. of 43 yrs. Gravh	Orchids that may be in bloom, I, Indian House; M, Mexican House; G, Greenhouse.	M D
			rises.	sets.	h. m.	h. m.	h. m.	h. m.	Barometer.	Thermometer.		Rain			
1867			h. m.	h. m.	h. m.	h. m.									
10	S	5th Sunday after Epiphany	7 25	5 2	9 56 a.m.	11 57 p.m.									
11	M	Queen Victoria married, Feb. 10, 1840	7 24	5 4	10 37 "	"									
12	T	Lady Jane Grey beheaded, 1555	7 22	5 6	11 3 "	1 12 a.m.									
13	W	Length of day 7h. 55m.	7 20	5 8	11 48 "	2 32 "									
14	Th	Valentine's Day	7 18	5 10	"	3 28 "									
15	F	Cardinal Wiseman died, 1865	7 16	5 12	1 42 p.m.	4 27 "									
16	S	Dr. Kane died, 1857	7 14	5 14	2 50 "	5 19 "									

The Gardener's Magazine.

SATURDAY, FEBRUARY 9, 1867.

THE EFFECTS OF THE RECENT SEVERE FROST may now be ascertained with a useful degree of accuracy by the simple process of an inspection of the contents of our gardens. It is sufficiently evident that the low temperature of January 3, 4, and 5 of the present year has proved extensively destructive; less so, perhaps, than the dreadful frosty Christmas Day 1860, but nevertheless sufficiently so to distinguish 1867 as a year of special disaster to horticulturists, and afford a new test of the relative hardness of the various plants that have been newly introduced to our gardens since the date of the last great frost. If we go back to 1838, and compare the effects of the severe weather of the early part of that year with the present, we shall quickly discern how different are our circumstances now to what they were then. Since 1838, every part of the world has been contributing useful and beautiful forms of vegetation to our gardens, and from the shores of the Pacific, and from China and Japan, innumerable additions have been made to the embellishments of our flower borders, shrubberies, and even kitchen and fruit gardens. The latest Japanese importations have now been severely tried for the first time, and we regret to be compelled to confess that many of them have succumbed to the frosty ordeal to which they have been exposed. It is not surprising that Japanese plants should suffer in this country when the thermometer descends to a point near zero of Fahrenheit's scale, for although the high lands of Japan are subjected to low temperatures, the summers are longer and brighter than ours, and the seasonal growths are more perfectly matured than in our gardens, and better prepared therefore to withstand the shock of a severe frost. On the other hand, Californian trees appear to be perfectly adapted for this climate. Look for example at the beautiful *Cupressus Lawsoniana* anywhere in the three kingdoms, and it will be found to be unhurt, though *Deodars* and even *Araucaria imbricata* are in many instances very much discoloured. The truth is that we are well situated as respects mean temperature for the vegetation of the north American continent, for the isothermal line of 50° which passes through London in the latitude of 52°, dips as low as the 40th parallel in North America; but the same line passes north of Japan, and the line which cuts the main island represents a mean of 60°, which is the temperature of Spain and the northern shores of the Mediterranean. For Japanese plants to have a fair chance of becoming acclimatized in Europe, therefore, the climate of Spain is required; hence we need not be surprised that many of them when planted out in English gardens suffer in the event of an unusually severe winter.

The severe frost of 1860-61 followed upon a cold and excessively wet summer, and was destructive far beyond what it would have been after a long hot summer. Trees and shrubs were so gorged with sap, and their young shoots in such an unnatural state, that when the frost attacked them they burst like water-pipes, and were in many instances destroyed entirely, root and branch. The frost of 1867 followed upon a short summer and a wet autumn, for the summer of 1866 ended with the month of July; with August came rain, cold, wheat mildew, and potato rot. Therefore on this occasion subjects comparatively tender in constitution were ill prepared to sustain the shock, and many that are ordinarily exceedingly hardy plants were greatly injured wing to their sappy condition.

The frost of 1860-61 was peculiarly partial in extent and intensity. It was terribly severe in Scotland, thermometers in several places registering 13° below zero of Fahrenheit, while in Ireland frost was scarcely known, and tender plants left out from the previous summer were in many instances flowering freely, when in Scotland Hollies, *Deodaras*, Wellingtonias, and *Araucarias* were killed to the ground. The frost of 1867 prevailed with great severity in every part of the United Kingdom. In the midland and home counties it was more severe than in the north; at Chiswick, 11° below zero (43° of frost) was registered; in Scotland, the lowest point attained appears to have been 4° (28° of frost), and in no case, so far as we can learn, did the thermometer go down to zero. As for Cornwall, Devon, and the usually most favoured parts of Wales, none of these "English Italies" escaped entirely; they were visited with sharp gales, heavy falls of snow,

and the thermometer registered in some instances 15° of frost. The low temperature of January 3 and 4 was no doubt the cause of all the mischief of which the evidences now stare us in the face; it came suddenly, succeeding close upon mild growing weather, and it cannot be doubted that if it had not been preceded by a copious fall of snow, its effects would have been far more deadly. The following are a few of the minima registered on the 3rd, 4th, and 5th of January, with the names of places and authorities:—

Chiswick	—11°	Horticultural Society.
Colnbrook, Bucks ..	—5°	A. Pettigrew, Ric Park.
Slough	—8°	Charles Turner, Royal Nursery.
Feltham, Middlesex ..	—6°	Correspondent of <i>Gardener's Chronicle</i> .
Cotswold Hills	—9°	C. Hollingworth, Cowley Manor.
Winchfield, Hants ..	—12°	J. Bell, Strathfieldsaye.
Bury St. Edmunds ..	—7°	P. Grieve, Culford.
Newbury	—5°	C. Ross, Welford Park.
Nottingham	11°	E. J. Lowe, Nottingham.
Hampshire	4°	Correspondent of <i>Times</i> .
Hornsey	—4°	Correspondent of <i>Gardener's Magazine</i> .
Stoke Newington ..	5°	Correspondent of <i>Gardener's Magazine</i> .
Bicton, Devonshire ..	2°	James Barnes, Bicton.
Southampton	4°	J. Downing, Colour-Sergeant R.E.
Sawbridgeworth, Herts	4°	Thomas Rivers, Sawbridgeworth
Cobham, Surrey	—3°	Correspondent of <i>Times</i> .
Plymouth	16°	T. Smith, Beacon-field.
Heckfield, Hants ..	—4°	Correspondent of <i>Gardener's Chronicle</i> .
Torquay	12°	S. Garland, Bishopstowe.
Glasgow	4°	James Anderson, Meadow Bank.
Clapton, Middlesex ..	2°	Stuart Low, Clapton.
Ringwood, Hants ..	5°	H. Chilman, Somerley Gardens.
Merriott, Somerset ..	7°	J. Scott, Merriott.
Chepstow, South Wales	12½°	S. M. O., Sedbury Park.
Rhuabon, North Wales	3°	P. M., The Gardens, Wynnstay.
Croydon	—5°	J. C. Mundell, Hooley House.
Kidderminster	—6°	W. Jackson, Blakedown Nursery.
Cambridge	8°	J. J. Chater, Gonville Nursery.

The highest of these registrations are those for Torquay (20° of frost); Chepstow (19½° of frost); Nottingham (21° of frost); and Plymouth (16° of frost). The lowest were Winchfield, Hants (44° of frost); Chiswick (43° of frost); and Slough (40° of frost). In all cases we take the records to be correct, knowing that it is impossible they should be so, for thermometers vary considerably in registering extremely low temperatures, and scarcely any two agree at points below zero. But a few degrees of Fahrenheit's scale are of no consequence for general purposes, and if we take the foregoing figures to be truthful, they will no doubt very fairly represent the degrees of frost experienced in the several localities named.

As to the injuries done to vegetation, we find that wherever the frost has been very severe, the Brassica tribe has suffered severely. Brussels sprouts, broccolis, cabbages, and even the hardy borecoles have in many instances been melted down into an offensive pulp, and there will be of necessity a great scarcity of cabbage plants for spring planting, and a dearth of vegetables in the market for at least three months to come. Variegated kale, which has been so much praised for winter decoration of the flower garden, has been in many places completely destroyed. Amongst Japanese shrubs there has been considerable havoc. Some beautiful plants of the golden-leaved *Euonymus* at Stoke Newington have been so far injured that the last year's shoots are nearly all killed, and the leaves that were in beautiful condition on Christmas Day last, now hang about them like dirty rags. Those most injured happen to be situated where there is constantly a sharp current of air, which it is well known is oftentimes more destructive than still air of many degrees lower temperature. In the same district, *Araucarias* have been nearly killed by cold currents, while others remain unhurt, though only a few yards distant from those most injured, the difference in favour of these being that they have the shelter of a building from the north. The specimen *Araucaria* operated upon to produce a duplication of shoots (*vide GARDENER'S MAGAZINE*, p. 367, 1865) is quite untouched, though many of the duplicate shoots started late in the season, and are now of that vivid green colour which tells that they are scarcely yet ripened. *Aucubas* on cold damp soils have lost much of their soft wood, but are not seriously hurt. *Deodaras* and Wellingtonias about London are brown as cocoa-nut fibre, but in very few instances are they seriously hurt. A collection of varieties of ivies, green and variegated, in pots plunged in a very draughty border at Stoke Newington, are unhurt, with the exception of the Himalaica variety of *H. helix*, which is sadly killed back and denuded of all

its leaves, and the common variegated form of the Irish ivy, the whitest leaves of which are shrivelled and brown, so that the beauty of the plants is gone for the season. But the pretty marginalis series, and the golden and silver varieties of *H. helix*, both in the climbing and arborescent forms, are untouched; and Messrs. Lucombe and Pinee's beautiful creamy leaved tree ivy is now as bright as a good specimen of Flower of the Day geranium. Standard roses have suffered everywhere, and no wonder, for they were growing when the frost caught them; but many that appear to be dead will no doubt break from living buds near the work, and in time replace the heads that have been killed back. It appears that as a rule hybrid perpetuals do not suffer much until the thermometer descends below 10°, but at that point danger commences. Much, however, depends upon their condition at the time, and a frost increasing slowly in severity would do much less harm than such a sudden onslaught as they have been recently subjected to. We have lately seen some potatoes thrown out of newly dug ground. They are as sound as if no frost had ever touched them, though they were only covered with six inches of earth, and were no doubt frozen through at some time during the twenty-three days that the frost continued.

ON THE CHEMISTRY OF PLANTS.—A remarkable communication was lately read to the Royal Dublin Society by Professor C. A. Cameron. He stated that many plants belonging to the Cruciferae, Liliaceae, and Algæ contain from 20 to 36 per cent. of soda and common salt. "These substances are, however, not invariably present in plants, and I have succeeded in developing the most (apparently) soda-loving plants in soils perfectly destitute of that alkali. If, then, soda be as useless to plants as it is unessential to their perfect development, the practice of applying this alkali, or its compounds, for the purpose of fertilizing the soil, is based upon an erroneous belief in its manurial properties." He then proceeds to state as the result of experiments, that plants cannot be perfectly matured unless potash is supplied to them, and that "all the attempts made to substitute soda for potash failed completely. Although there are some strong points of analogy between potash and soda, they do not appear to me to be so nearly related as some chemists believe them to be; indeed in many respects soda approaches more closely to magnesia than to potash." What follows is still more interesting. During the past few years several new metals have been discovered, the majority of them being the metallic bases of certain earths. Thus aluminium is the metallic base of alumina, and is obtained from the earths that yield alum. So caesium, rubidium, tellurium, and other metals, the existence of which had been dimly suspected by Davy, have been discovered and eliminated from the oxides, sulphates, and other combinations constituting earthy matters of which they are the ultimate bases, the first substantial hint of their existence having been obtained through experiments on spectral analysis. It will interest all who are in any way acquainted with the progress of chemical science to learn that caesia and rubidia, both which form by combination with acids compounds that are all but identical with the corresponding salts of potash, are capable of being substituted for potash in the structure of plants. Some plants of parsley were grown in a soil destitute of potash, but were watered with a solution of chloride of rubidium. These plants grew, but not vigorously, and in due time flowered and produced seeds. It happens that in parsley potash usually occurs in very large quantities, and the author concludes that in this experiment the salt of rubidium was a true substitute for it. In another experiment seeds of parsley were sown in a soil destitute of potash, and the plants were not supplied with rubidium. These plants died within six weeks after the time of their being sown. The paper concludes with some further notes on experiments and analyses, in the course of which it is stated that probably rubidium is a necessary constituent of the beet plant, and that caesia has been discovered in wheat, cauliflower, mustard, coffee, and cherries. The full text of this important paper was published in the *Irish Farmer's Gazette* of Jan. 26, 1867, and to it we beg to refer those of our readers who desire to obtain particulars beyond the brief summary we have here attempted.

A FACT FOR HYBRIDISERS.—We learn from the leading Irish journal on farming and gardening matters that Phineas Riall, Esq., of Old Conna Hill, has now in his garden about 300 seedlings produced from *Amaryllis aulica* hybridised by *Lilium lancifolium*!!!

HABROTHAMNUS FASCICULATUS is a favourite plant with the gardeners of New York, who plant it in considerable numbers in the open ground during summer, and consider it one of the most effective of the class now known as "sub-tropical plants." It has not, so far as we are aware, had anything like a fair trial in this country.

ROYAL BOTANIC SOCIETY.—At the usual meeting of this society on Saturday last, Mr. C. R. Turner in the chair, several very valuable presentations to the museum and for the gardens were reported. One of the most interesting of these was a specimen of the "Garana bread," from Brazil. It is manufactured from the seed of the *Paullinia sorbilis*, a species of soapwort, and resembles cocoa in appearance. Its active properties are the same as those of tea, coffee, cocoa, maté, &c. It is manufactured in small oblong or round cakes, and is largely used in Brazil for a variety of dietetic and medicinal purposes. The specimens were presented by Mr. S. W. Silver.

By recent advices from America we learn that on the 18th of last month the conservatory attached to President Johnson's residence at Washington was entirely destroyed by fire. Thus almost simultaneously with the destruction of the noble collection of plants at the Crystal Palace, a similar loss was inflicted, and by similar means, on our friends across the Atlantic. The President's collection was alike celebrated for the rarity of many of the specimens, and their great size and beauty.

WILLIAM THOMPSON, TAVERN STREET, IPSWICH. *Descriptive Catalogue of Flower Seeds.*—This differs from the ordinary type of trade lists in the arrangement, which is according to the natural system, and the original, valuable, and eminently conscientious notes on subjects recently introduced. Lovers of choice herbaceous plants will find this worth perusal.

ROSES AND ROSES.—No. II.

There are some doleful tales current of the ravages of the frost among standard roses. From some of the nurseries in the north I hear of whole quarters having been destroyed, and that where there were thousands at Christmas there are but dozens now. Down in these southern parts the havoc made is something considerable, especially among Teas and Noisettes. I have just learnt from O P Q that he has lost his best heads of Ophirie, Narciss, Madame Falcot, Devoniensis, Boule d'Or, Souvenir d'un Ami, and that a few perpetuals have died outright, though duplicate plants of those killed remain unhurt. I do not wonder at losses in such a frost as that of January 3-4, 1867; for the system of rose-growing which prevails does little to adapt the plant to our climate, and indeed is in great part inimical to the existence of the rose, except as a half-hardy plant. Is there a rosarian anywhere in these realms who can get on at all without perpetually buying plants to make good losses from one cause or other? I say there is not. The trade have hit upon methods that keep lovers of roses constantly dependent on them for plants—like doctors who only patch up instead of curing their patients, and who, therefore, are regular visitors so long as the patients have faith in them. We are not to blame the trade because people go mad after standards. It is the policy no less than the duty of the trade to shape their course according to the requirements of their customers. The real grievance is that at the nurseries own roots are tabooed: you cannot obtain them for love or money. If you ask for them, you are told flat that it is all nonsense, a whim, a myth, a blunder, &c., &c., &c. Consequently, there is seldom a rose sold but it is on foster roots, and when we have such a winter as that of 1867, the rose garden is cleared of its occupants, and the rosarian has to begin again, and happy is he if his means enable him to do so. As for the standards, they have their uses, and it is agreeable to see them peeping out from masses of rhododendrons and mixtures of shrubs; but a plantation consisting wholly of standards is about as ugly an affair as can be found in the flower garden. That is a question of taste purely, but not solely. If O P Q considers standard roses the noblest of all the forms of floral beauty, it is not for me to quarrel with him. Let him grow them to any extent he pleases. He may even have a lot of mops made, and stick paper rosettes amongst the wool, and set these up in the parterre and swear he admires them. All I shall say is "Every one to his taste." I know a man who considers that strabismus (squinting) adds much to the beauty of the female face, and you may remember that Joe Grimaldi pronounced soy to be a grand accompaniment to apple tart. But there is another point worth considering, and it is this, that in very severe weather unprotected standards are exposed to the full fury of the blast and the frost in the whole extent of their heads, and their heads alone are all that one need be anxious about preserving. I persuaded O P Q to pull out of the ground one of his standards that had perished. It happened to be a Geant des Batailles, a very hardy variety, of which he has about a dozen others that are wholly unhurt. This was not only dead to the lowest bud of the head, but the stem was dead also. Yet when he drew it out of the soft ground, *the roots were all as fresh as if frost had never occurred*, and there were several plump pink suckers pushing, so that if it had been left alone a season, the dead stem would have been surrounded with a little thicket of shoots from the root. I thereupon offered him this practical observation, that if the plant had been Geant des Batailles *all over*, that is root and branch—in other words, if it had been on its own roots, neither budded nor grafted on the something else—there would have been no loss, only damage. The old growth might have been cut down to the ground, but with the advance of the season the suckers would rise, and Geant des Batailles would renew itself; but in the case before us it must be renewed by purchase.

There are not many amateurs who really understand all the points that arise out of this consideration. It cannot be helped. Once a year at least I do my part to strip from the subject of rose-growing all mystery and moonshine, and I now make such remarks as appear to be called for in reviewing the effects of the recent frost. O P Q has taken to standards with a fondness which astonishes me, for I never knew him to fail in detecting the beauties or defects of a piece of sculpture or architecture, and he is a capital judge of harmonies of colour; yet withal he finds beauty in standard roses, and no wonder, for some of our own brethren in the flesh find beauty in Hottentot women, and there was once a king of England who was fond of green oysters. But O P Q has in store a greater trouble than the loss of a few standards. He embarked in dwarfs pretty largely last year, and of course obtained manettis. The trade will give you nothing else, and in the hands of thorough masters of the rose, perhaps there is not much else wanted. For the propagator, the manetti is as good as magic. He can propagate it to any extent with scarcely any trouble. He can bud it in the open ground or in the steaming propagating house, or he can graft on the roots by the fireside all the winter through, and plant as soon as grafted, with the certainty of losing only about a dozen per thousand. No

wonder the trade like manetti, for it rivals the Indian juggler who by the touch of the wand upon a potful of earth causes a plant to spring up, and flower and bear fruit, in a few seconds, before the astonished eyes of his patron. As a vehicle, the manetti stock is valuable far beyond all the praise that can be invented. But for all soils and climates, for all circumstances, and for big and little gardens, it is not adapted for universal planting. Now let us look at the manetti border which O P Q has doated on. A very large proportion of the roses, mostly new varieties of H. P.'s, are gone for ever, and yet my dear friend does not know it. If I had told him when I saw him last, it would have been too much; the loss of his standard Teas is as much as he can bear up to the moment when this is published. Some of the manetti roses that the frost killed were black, and O P Q can see for himself that they are gone; but a considerable number of them appear to be alive, and only a little damaged; for the fact is, manetti suckers sprang up in plenty last year, and the frost has not hurt them, though it has carefully picked out and killed the rose part of the mixed head. The case is an exact counterpart of the brier just described. If left alone, the brier would keep its ground, and if left alone these manettis would do the same. I tried to teach O P Q's man how to distinguish manetti suckers by their neat bluish-green leaves, and the general absence of red or purple tints on the new shoots, &c., but I might have saved myself the trouble, for he soon managed to cut out the best part of a nice head of Emotion, under the impression that he had hit upon the distinguishing marks.

If we ask how it is that the frost injured some varieties more than others, the reply appears to be simple enough. We may say offhand that the varieties that suffered most were the most tender. But when we find a few out of a batch of one particular kind killed, and all the rest of that kind unhurt, or nearly so, the explanation is not so simple a matter. It is very certain that the warm moist weather we usually have up to Christmas is a bad preparative for the sharp frosts that usually follow. In the case before us, the plants were all growing; some of them bore nice flowers on Christmas Day; they were all covered with sappy young shoots, and were just in the right condition to catch it when the frost came upon them suddenly and cut them to the quick. The manettis were in the most growthy state of any, and this is its great fault as a permanent stock for outdoor roses. It is too excitable for this climate; it is reluctant to rest. Such weather as that of December last causes it to send up a rush of sap into the rose that is grafted on it, and in the event of hard weather, the rose being above-ground is killed, and the stock being below-ground escapes unhurt. The philosophy of the matter is as simple as can be. If every rose in the garden consists of two parts, they are less safe than when they consist each of one part; and own roots survive the hardest winter, because at the very worst, if the head is killed down, the root usually escapes, and in due time will make another head as good or better than the first. O P Q was astonished to see in a nursery shoots one year old and six feet long on manetti stocks. They were pointed out to him as proof sufficient that manetti is the best of stocks, and that none but a madman would utter a word against them. I took him into my garden, and showed him shoots eight, nine, and ten feet high on own roots, and he then began to doubt if it was prudent to believe the evidence of his own eyesight, and I am afraid his doubt will be renewed when he makes a serious investigation of his manetti border, or if he should wait till June and see how many of them that are apparently unhurt produce flowers.

Nothing that is here said will damp his ardour for roses. It is understood between us, as friends who know each other well, that I am to say whatever I please in respect of his roses, and I told him plain I would consider him to be the type of thousands of amateurs who think they have but to buy and plant, and for the rest of their lives they may have an abundance of the finest of roses. He may do a better thing yet than simply plant the best pot roses he can get, and the better thing will be to plant them in a better way. He intends I know to buy in a lot of the new roses this spring, and I am only afraid he will be in too great haste to plant them. The sooner he makes his purchase the better, because it is well to have the plants in the place a long time before planting them. If they should come out of a warm house, and the "work" has scarcely yet united, a considerable number must perish unless they are hardened carefully before planting. People see in the calendar of garden work that roses may still be planted, so they purchase manettis all fresh and bright from warm pits or greenhouses, transfer them to the open ground at once, and the next frost kills them. But if the plants were housed near the glass, and taken care of as cool greenhouse or pit plants till the end of April, and then were placed on a dry border for a week before planting, there would not be a single death among thousands.

But I haven't done with this business yet. I keep hammering away about own roots, and it seems that many amateurs find the striking of an eye or cutting to be an insuperable difficulty.

They say, "We cannot do it, and it's nonsense to enlarge upon its merits." Well, there are things hard to explain, and it is a mystery to me how any man fond of gardening, and a little bit used to garden work, should find a difficulty in making own-root roses, for after all it is nearly as easy a matter as making own-root geraniums. But never mind about the mystery; I propose to O P Q to buy his manetti roses at once, and to house them, keep them light and cool, and if the pots are quite full of roots to give them a shift after he has had them three weeks. Finally, they are to be planted in a border thoroughly well prepared, so as to be really *light and rich*—plenty of good rotten manure in it, plenty of turfy loam or leaf-mould, as good almost as if the stuff were to be used for potting. The planting must be so deep that the junction of rose and stock will be two inches below the surface. When the planting is done, the ground should be carefully trod round and between the plants, and then touched over with the rake to obliterate the feet-marks. But this is not all. Throughout the summer every shoot is to be pegged down firm, with a tongue cut underneath the point where the peg is inserted, and these pegged-down shoots are not to be disturbed until they have begun to grow as plants, when they may be separated and planted elsewhere. It would be good practice to leave them untouched a whole year. If O P Q will do this, he may have an average of half a dozen of own-root plants for every one of the manetti roses he plants this spring, and this without any struggle to acquire skill to strike eyes or cuttings. S. H.

THE PREPARATION OF BEDDING PLANTS.

In the present day no subject in connection with the work of the garden requires more care than the preparation of the usual number of bedding plants. So varied are the subjects used, and so great their numbers, that immediately the new year begins the gardener's troubles may be said to have commenced, for from that time until the beginning of May he must be perpetually at work either in sowing, striking, or potting, so as to secure a sufficient number of plants for the filling of innumerable beds, to say nothing of extravagantly long borders. But I must not venture further on that delicate ground, or I shall be tempted to say something that does not altogether please the best supporters of the present bedding system. So I would rather confine my remarks just now strictly to the heading of this article, and leave to those whom it most concerns the question as to whether it is good or bad judgment to have all the best energies directed to the decoration of the flower garden, to the evident injury and neglect of many other important subjects in connection with the garden.

In the foremost rank as a bedding plant stands the geranium, and it is unquestionably well deserving the prominence it has attained. But it is a question for its many thousand cultivators to decide whether geraniums would not rise still higher in our estimation if they were more liberally treated—I do not mean after they are placed out in the ground, but through the various stages of preparation for that purpose. We have all read, and some no doubt have heard some men say, that they bed out geraniums by thousands. This I do not dispute, because I have seen places where they may be counted by the thousand, but then what were they? They were plants it is true; but such small, miserable, weak-looking subjects, that would require a favourable two months' summer growth before they could be actually called good plants, and unfortunately such is the case with very many at the proper season of bedding-out.

Now I ask all those who are interested in geraniums as bedding plants, if we should not get an earlier result if, instead of growing them in thousands, we were to have only hundreds instead, but still devoting the same time and space to the few as we did to the many? But it must be understood here that I am putting it thus plainly to those who grow all their bedding geraniums in 60-size pots, because that is a practice I have proved to be a positive loss. Therefore I grow all mine in 48-size, and the result has been that my employer has asked me the last two seasons past how it is I get my bedding geraniums so much better and earlier than they used to be, although the convenience is the same for storing them. Now this success has been achieved (if I may assume to so highly commend it) by simply growing half the number of plants that used to be grown, which has given me the chance to do those well; therefore I have not only got my plants earlier in flower, but one well-grown plant in a 48-size pot has filled the space that two turned out of 60's used to do, and with more satisfaction to those for whose pleasure they were grown. I am well satisfied that multiplicity of numbers in bedding plants is a great evil. We too often find the gardener in a strait as to where they are to be housed and cared for. I am therefore tempted to say, Do not use small pots any more than you are obliged to. Hundreds of verbenas, for instance, may look very nice when potted off singly and carefully labelled in 60-size pots (too often they are put into thumbs); but suppose 48's had been used, with three plants in a pot, they

would want less room, there would be two labels less to write, and, above all, instead of having three pots to water there would only be one. Then look at the number of times these small pots want watering as compared to those of a large size; and, besides, small pots full of roots are from the 1st of March until the time they are bedded out positively suffering half of the time for want of water, even where they get good attention, because the small handful of soil in them cannot retain enough moisture to withstand the drying influences of our ordinary spring weather more than two or three hours. The consequence is that, being unable to get food to make sufficient headway, they are exposed to all the enemies peculiar to plant life in the shape of thrips, green fly, and red spider, and when put out in the borders they require some time to regain that luxuriant state of health that is essential to their future welfare. It is well known we have only to starve any plant in a pot of that description, and it will very soon become infested with one or all of its worst enemies, that can only be effectually got rid of by restoring the plant again to its usual state of health by careful attention and liberal treatment. This is just the case of hundreds, nay thousands of geraniums. They are through the winter months crowded in either pots or boxes as thick as they can well be huddled together, with no room to breathe, and then in the spring they are cramped into the dimensions of a 60-size pot, and the small quantity of soil which they hold is not capable of affording them any fresh nourishment after the first month, because the roots have drawn from it all the nutriment it contained. So they are left to shift as best they can, until their roots are furnished with a fresh supply after they are put out in either beds or borders. This is not the case with well-rooted cuttings potted up at the end of October in 48-size pots. In these they will keep growing all the winter, and by the time the generality of growers are potting theirs off in the spring, these will be fine large plants, and when carefully hardened off may be transferred to some temporary covering out of doors early in April. None of my plants for the last two years have had any other covering but Russian mats after the first week in that month. Some, no doubt, will say, How are we to winter them? My answer is, If you have room for a thousand plants in 60-size pots from the middle of February onwards (the time most people begin to pot off), you have room to winter five hundred in pots a size larger, because thus early in the year it is impossible to make more room by turning other things out of doors that have had shelter so far through the winter. Moreover, spring-potted cuttings require a deal of nursing; the first few weeks they must receive some amount of artificial heat to start them into growth, and it will be necessary to grow them under glass much longer in the spring than the autumn plants require—that is, if you wish to get your stock up to be worthy the name of plants. And then, what are they, when put out in the borders, as compared to those of the size which I advocate? Why it will take them six weeks of favourable weather after they are planted out before they get the size that the autumn potted cuttings were on the 1st of May.

My stock for next season's display of such sorts as Stella, Cybister, Christine, and Madame Vaucher, are already vigorous and large—such as I should not be able to purchase next May under six or eight shillings per dozen. I need not stop here to ask whether these plants, or those of the small-size-pot section potted in spring, will produce the earliest display of flower, because the result will be plain to every reader. But I must stop just to say that at the time spring plants are occupying both valuable time and space, mine will be of less trouble, as out of doors they will go early in April, when they will require water much less, and altogether less attention, than those under glass—to say nothing of the valuable room their removal will give under glass. Nor must I forget the importance of this early removal out of doors in hardening them off, as they have ample time to get thoroughly hardened; and if planted out in these southern counties the second week in May, they will suffer nothing from five or six degrees of frost. Of course I am aware that in some large establishments in the country it is not strictly necessary to get up an early display of flower in the beds and borders, as the plants are not wanted to be in their best until the end of August, or even later. In such cases, the small-plant system may answer, as they will have plenty of time to make a good growth before they are wanted to flower; but there are hundreds of other places to which these remarks are applicable, where an early display is quite as essential as a late one is in others; and it is not too late now for your readers to adopt my plan with geraniums this year, although it cannot be attended with the same degree of success as if it had been done in the autumn. But even now, if those plants standing in the cutting pots or boxes were put into 48-size pots instead of 60's, and grown on liberally until the end of April, the plants would flower much earlier, and a considerably less quantity would be required.

Then as to the benefit that other bedding plants would derive by being put into larger pots, the same arguments above used will

apply with equal force to them. Look at the hundreds of lobelias required in many places; now three of these placed in a 48-size pot will turn out quite as large, and more healthy, than out of thumb pots, and instead of having three pots to water, there will be only one. The same may be said of verbenas two or three in a pot, unless they are required for lines in ribbon borders. Perhaps then such varieties as Purple King may turn out best out of single pots. But when verbenas and petunias are required for masses, they will answer the purpose equally well when two or three are grown in 48-size pots. The same may be said of calceolarias; in fact, they are such vigorous-rooted subjects, that when grown with two plants in a larger pot, they do not suffer from drought so much; consequently they turn out healthier plants, although perhaps not quite so symmetrical in shape as single-grown plants. But for the matter of shape, that is soon set to rights when they are transferred to the open ground, which they ought to be in these parts quite by the end of April. Then there is the variegated alyssum. These may be grown to advantage with three in a pot; so also may many other subjects which I have not space here to name; but these will soon suggest themselves to the minds of those who have any inclination to give the plan a fair trial.

J. C. CLARKE.

SPIRÆA JAPONICA.

As an admirer and cultivator of choice herbaceous plants, I wonder much that this exquisitely beautiful subject is about as scarce in English gardens as the palms and aralias that have only been introduced as it were yesterday. The reason, perhaps, for this scarcity is that it is not quite hardy. But what of that? It needs usually the shelter of a frame or cool greenhouse, and in the west of England does very well in the common border. Living some twenty miles west of London, I find that unless I make a frame or greenhouse plant of it, the flowering is most unsatisfactory, but with just a little kindness it is one of the loveliest of all the spring flowers. The way I treat it is as follows. The plants are potted in 48-size, in any ordinarily good soil. I believe it would grow well in pounded bricks or crumbs of clay, but I pot it in some of the good mixtures that are about, such as fuchsia or geranium compost, and house the plants in November. A frame or pit answers, or under the stage of a greenhouse till February. Then they begin to grow, the first leaves rising like fern fronds, and very soon acquiring a beauty which makes them almost the rivals of ferns. Watering is a matter of course, plenty of light a matter of necessity, and protection from frost a *sine qua non*. Gentle forcing agrees with the plant, but stove heat ruins it. I never expect mine to bloom till quite the end of April, for having a good succession of spring flowers I never want this plant earlier; in fact, I prefer to keep it back till hyacinths are pretty well past. But it may be forced easily enough, and 60° is as much as it can stand. When bloomed late, it may be used for any purpose within doors or without. It then presents a number of excellent spikes of snow-white flowers; they are scarcely showy, but their elegance is delightful, and the shiny leaves which form a groundwork for the flowers make the plant beautiful all over. When forced so as to bloom in March, it must not be put out of doors, for a few degrees of frost will destroy the beauty of the flowers without seriously injuring the plants. When the flowering is past, I plunge the plants in a bed of coal ashes or cocoa-nut fibre, and they have the usual treatment of plants so situated—that is, water when they want it, and nothing more. In October they are beginning to lose their leaves. I then turn them out, cut every one clean through with a sharp knife, and pot in fresh soil, and house them as before. Thus if I began with a dozen plants last October, I should make two dozen of them next October, but if I wanted to get up a stock for sale, I should in the autumn cut each plant into half a dozen pieces or more, and pot separately in small pots. If specimens are wanted, they must be grown on year after year, and it will expedite their acquirement of magnitude if they are shifted twice a year instead of once; say, in October and in May, immediately after they have done blooming.

E. K.

GRIMSDALE AND SONS, UXBRIDGE, MIDDLESEX.—A pretty little book for the pocket, most beautifully printed, and quite a model for many of the trade who are over-fond of printing. It is given to customers, but strangers are charged threepence—a reasonable arrangement, and a check to people who collect catalogues for waste paper.

B. S. WILLIAMS, VICTORIA NURSERY, UPPER HOLLOWAY, LONDON, N. *Descriptive Catalogue of Flower and Vegetable Seeds, 1867.*—A very substantial and well-printed book, containing, besides copious lists of seeds of all kinds, lists of gladioli, amaryllis, caladiums, achimenes, gloxinias, and new annuals, bedding plants, &c. In the list of pees we see Poynter's Early described as the earliest, and Sutton's Ringlender is omitted. This won't do; and we shall hope for better things in the next issue of this excellent catalogue.

J. ILLMAN, STROOD, KENT. *Retail List of Soft-wooded, Bedding, and other Plants.*—Various and comprehensive, and in respect of geraniums and fuchsias profuse.

EFFECT OF THE LATE FROST ON STANDARD ROSE TREES.

The following information may be interesting as well as useful to rosarians, and also serve as a guide to persons purchasing roses, particularly those who reside in the northern counties.

My residence is in the rich vale of Mowbray, Yorkshire, and is about twelve miles south of Darlington, which is in the county of Durham, a very cold part of England. In the winter of 1860 I lost all my fine collection of roses. Since that time the thermometer in my garden has never registered lower than 10° or 22° of frost, consequently I never lost many roses until the present winter. On the morning of the 1st of January last, my thermometer (a proved one, four feet from the ground) registered 5° below zero; again on the 4th it went down to zero. On other dates up to the 23rd, on which day a thaw set in, the frosty nights varied from 8 to 28° of frost, nearly down to zero again. After the storm had fairly subsided, I went into the garden to examine my favourites: there they stood in long lines, with the colour of their heads changed from a beautiful green to a sickly brown. Some appeared variegated, having here and there a green and brown shoot on their heads; others, again, maintained their original lively green, the frost not having had the least effect on them. It is to these that I wish to direct particular attention. I have examined about two thousand standard roses, and taken my notes very carefully. I propose to divide the result into three sections—hardy perpetual, half-hardy, and very tender, as follows:—

ROSES TWICE TRIED.

List of standard roses which proved themselves to be hardy, having withstood the severe frost of 5° below zero on the night of the 31st December, 1866, and other severe night frosts up to the 23rd January, 1867, without sustaining the slightest damage, the number grown of each variety varying from four to twenty: Madame Alfred de Rougemont, Madame Souppert, Louise Darzens, three French white roses, Charles Lefebvre, very hardy; Gloire de Dijon, Reynolds Hole, La Tour du Crouy, bad opener; General Brea, Gabriel de Peyronny, Louise Odier, a Bourbon, very hardy; Jean Goujon, Maurice Bernardin, Gloire de Santenay, shy bloomer; John Hopper, Charles Wood, Madame C. Wood, Madame Cambaceres, Jean Rosenkrantz, Jules Margottin, Baronne Prevost, Madame Derreux Douville, Duc de Bassano, King's Acre, Alpaide de Rotalier, Pavillon de Pregny, Catherine Guillot, another Bourbon, is very hardy; Madame William Paul is very hardy, and William Paul is very tender. Fourteen dead: Ami Vibert, Dr. Marx, a good old rose; Salet and Madame E. Ory, perpetual moss roses; Madame Furtado, Rev. H. Dombrain and Reviel, hardy Bourbons; Centifolia Rosea, General Washington, Gloire de Bordeaux, a Tea, quite hardy as a standard; Madame Hector Jacquin, Alphonse de Lamartine, Madame Boll, Vicomte de Cussey, a Bourbon; Duchesse de Caylus, Madame Laffay, Duchesse de Morny, extra hardy; Sir Joseph Paxton, H. Laurentius, and about twenty varieties of old summer roses—Paul Ricaut, Coup d'Hebe, &c., &c.

NEARLY HARDY PERPETUALS.

List of perpetual roses which proved to be about half-hardy, some of the branches appearing green and lively, and others brown and quite dead. Most of these I expect to survive as spring approaches; the number of each grown varying as before stated:—Pierre Notting; Madame C. Joigneaux; Princesse Olympie; Empress Eugenie; Vicomtesse Douglass; Dr. Spitzer; Victor Verdier; Vanqueur de Goliath; Madame Freeman; Duc de Cazes, almost hardy; Duc de Rohan; Sir Rowland Hill; Madame Vidot; Madame Louise Carique; Alexandre Bachmetoff; Celine Touvais; Souvenir de Marechal Serrurier; Dr. Andry; Vicomte Vigier; Jean Touvais; L'Elegante, Nouvelle; Alexander Fontaine; Madame Emain; Madame Domage; Adolphe Nohlet; Andre Leroy; Madame Knorr; Mathurin Regnier, somewhat harder than William Griffiths; Souvenir delà Reine d'Angleterre; La Esmeralda; Madame Victor Verdier; Richard Smith, worthless; La Brillante, nearly hardy; Alphonse Belin; Comtesse de Paris; Souvenir de Comte Cavour; La Ville de St. Denis; Lord Raglan; La Coquette; Baron Adolphe de Rothschild; Le Baron de Rothschild; Marie Thierry; Duchesse Medina Cœli; Beauty of Waltham; Professor Koch; Colonel de Rougemont; Madame Julie Daran; General d'Hautpault; Paul de la Meillerez; Madame Victor Verdier; Marechal Vaillant; Olivier Delhomme; Madame Charles Crapelet.

TENDER PERPETUALS.

List of perpetual standard roses that are very tender, the whole of which were killed, not a vestige of life appearing about them; number of each variety, varying as before stated, from four to twenty:—Dr. Berthet, Comtesse Barbantanne, Baron de Noirmont, Souvenir de Malmaison, Henri Lecoq, all Bourbons; William Pfitzer, General Jacqueminot, Marechal Forey, Madame Guinousseau, William Griffiths, Bernard Palissy, Auguste Mie, Pauline Lantzeur, Jean Bart, Madame Boutin, Empereur de Maroc, Princess Alice, George Prince, Admiral Nelson, Bernardin St. Pierre, Souvenir de Leveson Gower, Belle de Bourg la Reine, William Paul (very tender), Lord Macaulay, Lord Clyde, Lord Palmerston, Madame Brianson, Comtesse Chabillant, Prince Camille de Rohan, Belle Rose, Turenne, Alphonse Damaizin, Souvenir de William Wood, Sœur des Anges, Gloire de Chatillon, Madame Philip, Le Rbone, Senateur Vaisse, Charles Margottin, President Lincoln, Notre Dame de Fourvieres, Souvenir de Charles Montault, Comtesse de Segnier, General Forey, Francois Lacharme, Acidalie (Bourbon), Celine Touvais, La Quintinie and George Peesbody (both Bourbons), Madame Rivers, Sombrhieu (Tea), Le Mont d'Or, Gloire de Vitry, Louis XIV., Anna Alexieff, Anna de Diesbach, Lelia or Louise Peyronny, Comte de Nantieu, Triomphe des Anges, Madame Place, Monsieur de Montigny, Triomphe de Lyon, Souvenir de Lady Eardley, John Nasmyth, Cardinal Patrizzi, Alexandrina de Belfroy, Geant des Batailles, Prince Imperial, Appoline and Pierre de St. Cyr (both Bourbons), Madame Pauline Villot, Robert Fortune, Baron Hallez, Alexander Dumas, Triomphe d'Amiens, Thomas Rivers (Bourbon), Caroline de Sansalles, and Peter Lawson.

TENDER TEAS AND NOISETTES.

The following tea-scented were all killed:—Jean Hardy, Jaune d'Or, Madame Willermoz, Madame Falcot, Souvenir d'un Ami, Sombriuel (Noisettes, killed, some on walls), Adele Pavie, Ophirie, Polonie Bourdin, Solfaterre, Triomphe de Rennes, Narcisse, Fellenberg, Camellia Rouge, Aristide, Madame Massot, and Celine Forestier.

NEW HARDY PERPETUALS.

I budded about two hundred brier stocks with the new roses of 1866. The following made wood from 9 to 18 inches in length, and survived without any protection:—Camille Bernardin, eight plants; Jules César, four plants; Fisher Holmes, seven plants; Alfred Colomh, five plants; Prudence Besson, large petals, thin, four plants; Exposition de Brie, three plants; Souvenir de Dr. Jamin, four plants. Margaret Dombrain and Jean Lambert I have proved to be tender; not one survived.

MANETTI ROSES.

Roses on the manetti stock appear to be more tender than on the brier; all mine, with the exception of about half a dozen, were cut down to the snow mark. There is this great advantage in growing manetti roses—they are sure to spring up again from below the soil.* I find John Hopper, Charles Lefebvre, Madame Cambaceres, Contifolia rosea, Madame William Paul, Alpaide de Rotalier, Jean Rosenkrantz, and Madame Souppert, the only roses that were not cut down out of about two hundred grown on manetti.

I do not think that any of the perpetual roses are safe under a zeroic frost; experience has proved to me that any of the roses before named are safe under 20 to 22 degrees of frost (I mean a thermometer down to 10 degrees), but beyond that there is great danger.

I hope and trust that many rosarians will forward to the Editor of the GARDENER'S MAGAZINE a statement similar to this, as it is only by statistical information derived from various parts of England as to the habits of roses that we can ever hope to become clever rosarians. H. TAYLOR.
Rose Cottage, Fencote, near Ecdale, Yorkshire, 4th February, 1867.

CATALOGUES.

E. G. HENDERSON AND SON, WELLINGTON ROAD, ST. JOHN'S WOOD. *Catalogue of Flower, Vegetable, and Agricultural Seeds.*—One of the most copious of seed lists, yet free from the faults of "fat catalogues," for it attempts no more than to place before the cultivator names and descriptions of the best species and varieties in the several classes. Amongst the few novelties enumerated at the end, we see with much pleasure *Poa trivialis argentea elegans* the new and very beautiful variegated grass, offered at 2s. 6d. per plant.

SMITH AND SIMONS, BUCHANAN STREET, GLASGOW. *Cultural Guide and Descriptive Catalogue.*—Full of useful information, and arranged so as to indicate at once which are the best varieties in the several sections. In the paragraph on onion culture it is recommended to sow a few carrots in a bed of onions, and a few onions in a bed of carrots, in gardens where either of these useful roots are usually destroyed by grub. This doubtless is on the same principle that we plant lettuces in plantations of dahlias and hollyhocks, to give the insect pests a choice of dainties.

BARR AND SUGDEN, KING STREET, COVENT GARDEN, LONDON, W.C. *Descriptive Priced List of Seeds for Flower and Kitchen Gard.*—An excellent list, containing, besides the usual good selections, many interesting items, such as Anchu Japonica seeds at 1s. each, numerous "sub-tropicals," a new race of chrysanthemums, collections of carnation and picotee seeds grown by Mr. Stuart of Nice, and very large assortments of gourds and grasses. This would be more agreeable if printed on white paper.

JOHN FRASER, LEA BRIDGE ROAD, ESSEX, N.E. *General Descriptive Seed Catalogue.*—A very neat and complete catalogue, containing an admirable selection of fine-foliaged plants suitable to grow from seed, with lists of strawberries, gladioli, and hardy annuals, perennials, &c.

A. BREWIN, 6, COLEMAN STREET, E.C. *Catalogue of Garden, Flower, and Agricultural Seeds.*—A thoroughly good business-like list, adapted for filling in for orders, and containing everything that is in demand now.

THE GARDEN ORACLE AND FLORICULTURAL YEAR-BOOK AND ALMANAC FOR 1867. Groombridge and Sons, 5, Paternoster Row, London. Edited by SHIRLEY HIBBERD, Esq., F.R.H.S. Price One Shilling.—Have any of our readers made the acquaintance of, or consulted in their difficulties, the GARDEN ORACLE? If not, by all means let them place themselves in communication with, and act confidently on the practical and reliable whisperings of this little horticultural sybil. Unique in design and arrangement, and brimful of useful and every-day required information, it is one of the most perfect horticultural manuals the amateur could take up, or the practical man have at his elbow. A glance at the contents will afford some idea of the value to be had for the small outlay of a shilling. Extending over eleven closely printed pages, we have first an immense amount of tabulated information, both interesting and useful, much of it specially so to gardeners, *e. g.*, carefully prepared tables, showing the number of trees or plants required for any given quantity of ground, for calculating the cost of draining, the quantity of guano requisite per yard, perch, or acre. Tables for calculating the quantity of four-inch pipes required for heating, forcing, or plant houses. Tables of the day and night temperatures of the pine pit, vinery, and orchid-house, with allowances for the rise by sunshine during each month of the year. The vinery temperatures are of especial interest to the amateur, as he is shown at a glance what with which to start his vines, what when the blossom shows, what when in flower, and what when the fruit is set. The distinction is shown as to what is required for cool growing kinds, as the Black Hamburgh, and those that require a higher temperature to perfect their fruit, as the Muscat of Alexandria, &c. The calendar follows, and a most unique and thoroughly horticultural calendar it is, giving, besides all the usual calendrical information, a carefully selected list of as many choice varieties as there are days in the month of some speciality, with marginal cultural notes that will be found very valuable. Opposite the calendar for each month there is a closely-ruled blank page for manuscript memoranda. Then follows an elaborate calendar of work to be done each month in every department of the garden. Then we have, extended over some forty pages, descriptive lists of the new plants, new florists' plants and flowers, new fruits, and new vegetables of the past year. These lists will be found useful, and what is more, trustworthy. The editor does not flatter nor praise indiscriminately. These lists are supplemented by what will be found specially useful, *viz.*, selections of the *cream* of the varieties of the most popular plants and flowers. The concluding pages are devoted to notes on new fruits, and a chapter of "Olds and Ends," in the last are several tit-bits.—*Irish Farmer's Gazette*, Feb. 2, 1867.—[Advt.]

* This remark needs qualifying. Too often the manetti suckers rise, but the rose that was originally grafted on it is seen no more.—Ed.

LILIUM AURATUM.

By this time the golden-rayed lily, the queen of this wondrous race, is known in every garden where plants of value and beauty are regarded with admiration. The excitement resultant from its first presentation to public notice in England was no greater than occurred on the Continent, for indeed in every great city of Europe *Lilium auratum* has had an ovation. Having had a great part in successfully adapting this lily to the exigencies of cultivation and the multiplication of the bulbs for sale, I will give a short account of what I know on the subject. In common with all other soft-skinned bulbs, this lily is much injured by being a long time removed from the soil; indeed, it should never be exposed to the atmosphere, and when in the merchant's hands should be preserved in sand or buckwheat chaff, or, better still, damp cocoa-nut fibre. This time of the year is certainly the best to buy bulbs for planting, for they are now at rest, except where they have been forced early in the previous year, in which case they may be now growing freely, which reminds me to say that as this lily is quite hardy, and yet will bear a considerable degree of heat, *it may be so grown as to be in bloom at any season of the year*. There is not a month in all the twelve that I have not had for my delight the gold striped flowers of this gorgeous beauty. But the summer is the proper time for it to bloom, and by growing it naturally less skill is required than to change its seasons. I suppose, then, the amateur may purchase of the merchant bulbs that have just reached him from Japan. These will be drier than

parts fibrous peat, and four parts fibrous mellow loam, such as will break short in the hand without soiling the fingers. When good, this loam is of a yellow, or dunkelbraun (auburn), and contains oftentimes the fleshy roots of the European *Pteris*. Add to this two parts of silver-sand which is free from brown spots, for these spots predicate the presence of iron, which seems not to agree with any soft-skinned bulbs. Lastly, add one part of manure quite rotted to powder. This is the best of all mixtures—far better than peat alone, though in peat with silver-sand they grow and flower well. I hope those who follow my directions at all will follow them precisely, as I will not say that manure only partly decayed, or in great quantity, will be good for the plant. But what I do direct I have proved beyond all doubt.

There is one more point which I had almost forgotten. Newly-imported bulbs must *NOT be potted firm*. When the bulb is in its place, and surrounded with soil, strike the pot on the table to settle the soil, but do not press it in with the thumbs as you would in finishing a hard-wooded plant, for those half-shrivalled bulbs swell very much before they begin to grow, and room must be allowed for that. A very fine bulb I had once that was potted quite firm, burst the pot on the tenth day after it was placed on the bark bed, and I found it then to be nearly twice the size it was when it came to my hands.

I would urgently advise the cultivator not to use larger pots than the roots may be expected to *fill* during the season of their



LILIUM AURATUM.

Mr. Dodd's specimen, with 43 flowers, from a photograph.

desirable, and if they are potted as for growth, and at once watered, they will rot and be lost. The safe method of procedure is to clean the bulbs with care in order to remove all damaged portions. Then proceed to pot them in *small pots*—such that will barely suffice to allow them room for growth. The largest imported bulbs will require only 5-inch pots, and the smallest 3-inch. Put over the hole in the pot one hollow potsherd, and on that a few fragments of charcoal, and nearly fill the pot with a mixture of equal parts of peat and silver-sand. In this place the bulb, with the crown even with the edge of the pot, and fill up over the crown, so as to form a miniature mound, some of the same mixture of peat and sand, or some of the finest of the cocoa-nut fibre. The soil should be quite moist, but not wet, and there must be no water given for some time—not indeed until they have begun to grow. I have always sought for my newly imported bulbs when potted a cool bark bed at about 60°, in which I have plunged the pots to the rim. But any place will do for them that is warm and rather close; they do not want light or air for a long time, and it is desirable to prevent evaporation in order to preserve sufficient moisture in the pots without having to give water. Every cultivator can best design for himself a suitable place, knowing what are the needful conditions.

To grow specimen bulbs that have been in the country a year, and have been properly rested after flowering, is a most easy matter. The best of all soil for them, as I have proved by growing them in groups, each group differently treated, is that which consists of four

growth. This is most important. Indeed, I would prefer the pot too small rather than too large, if compelled to choose between the two evils; but I would escape all evils if possible, and find for every bulb, according to its size, sufficient pot-room, and no more. But here we find a good quality of this glorious lily (it has not a bad quality that I could ever discover); it is that we may make amends for contracted pot-room by means of liquid manure. Do not give this until *the pots are full of roots, and the flower-buds are visible*. Up to this time water should be supplied regularly and plentifully, but not in that dash-splash way that washes the goodness from the soil, and which is the too general way of watering everywhere. The careful waterer will place his finger on the spout of the pot, and regulate the flow to flood the surface of the soil just enough to go quite through, and not to spare. I think you English have too much water, and you do harm by wasting it. I could show you some places where there is not quite so much, and yet the plants have not yet died of thirst. For the liquid manure, any of the ordinary ingredients may be used, and if from the stable or sheep-pen, I should prefer the liquid to be quite clear, and the colour of the palest ale. When the flowers begin to expand, no more liquid manure should be given.

To grow this lily well a cool house is to be preferred. But they will always commence growth nicely by being placed in a moist heat of 55° to 60°. When they have grown six inches, they may be put into a heat of 70°, but must have full light, with a little shade from the hottest sun. By such treatment there

will be an early bloom. When not forced, the greenhouse or pit will answer; and indeed this liliun may be grown in the same way as the beautiful *L. speciosum* or *lancifolium*, and will never disappoint the cultivator; but I have always seen the finest flowers where a moist and gentle heat and liquid manure were employed, and I am thus prolix about small particulars because of the ambition of many to exhibit the plant in the best condition. When the flowering is over, take those that have been forced to a greenhouse, and those that have flowered in a greenhouse to a pit, and tend them with care, giving less and less water till the leaves decay. *They must not be dried off*, but be rested in a moist state; indeed it would spoil the next flowers of the finest bulbs to allow them to go dry during winter. To be wet is of course injurious; but to be sheltered, dark, uniformly moist by standing the pots on a bed of soil, and in a temperature of about 40° all the winter, is to be in the most perfect conditions for future well doing. I have found by attentive observation that the roots of this lily are always slightly in action, and to dry them off is to do them much harm. As to repotting for the next season, it may be done any time during the winter, or indeed directly after the leaves have died down, or it may be deferred till the new growth appears above the old soil, but no further delay is allowable. If I had always my choice, I would repot as soon as the leaves were quite dead, for then there is the least danger of injury to the roots.

I shall now speak of the propagation of this liliun, for it will be in great demand for many years to come. There are two ways—by seed and by scales. The first is the most interesting, because of the various characters of the flowers of seedling plants; the second is a certain and profitable method of perpetuating any particular variety. As to growing the seed, I would advise the amateur to cross the varieties of liliuns in every way that may be possible, for pollen is produced in extravagant plenty, and the operation is most easily performed. A register should be kept of every cross effected, so that when some grand novelty is produced we may be able to rely upon the raiser for the account of its origin. It is best to keep the seed till January, and then to sow it in boxes or large pans in four inches depth of such a mixture as advised for established bulbs. Sow them very thinly, and cover with one inch of soil, and place the pans where there is a continuous temperature of 50° to 60°, neither higher nor lower. Keep them always moderately moist, but never give a drop too much water. Some will spear through in three weeks; some will not stir for three months; and some will have minute bulbs within the soil in antecedence of the leaves. For these various reasons the seed-pans should not be disturbed for one whole year. But from time to time forward plants may be lifted out by means of a piece of stick, and be planted in other pans to grow with better advantages. I would not pot one till the bulbs were as large as hazel-nuts.

To multiply by scales is easy enough. Detach the scales without bruising them, and put them in pans filled with a mixture of equal parts peat and sand, pretty close together, the base of each scale within the soil, and the point of each scale just peeping out. The best place for pans so filled is in a moist atmosphere, with a temperature from 50° to 60°, until little green leaves appear; then put them in a heat of 70°. Previous to leaves appearing, they must have scarcely any water, but *must never be quite dry*. When they have made one full season's growth, they may be separately potted, but I far prefer boxes until they are approaching flowering size, as better for them and less trouble to the cultivator. In all these operations, the chief requisites for success are WATCHFULNESS and PATIENCE. As to skill, there is none wanted beyond such as every practical man possesses already.

The Editor has obligingly furnished me with some particulars of specimens that have been exhibited in England, and also with a stereoscopic picture of the best plant hitherto known. With his permission, I will not avail myself of all the particulars sent, as the practical rather than the historical has influenced me in drawing up the foregoing as the epitome of practice. When first flowered in England, it produced only one flower at the summit of the stem, and Dr. Hooker therefore named it *Lilium uniflora*! Very soon it was found capable of producing seven flowers on one stem, and the name was changed to one descriptive of its characteristic beauty. On the 8th of August, 1865, Mr. Constatine exhibited at Kensington a plant which from one bulb produced two stems, one bearing fifteen and the other fourteen flowers, being twenty-nine in all. I find in the GARDENER'S MAGAZINE of Sept. 29, 1866, an account of a specimen grown by Mr. Bullen, gardener at Bow Bridge, Leicester (known too as one of the best of cultivators of orchids) that produced three stems from one bulb. The two largest of these stems were 9 feet 6 inches high and 3¼ inches girth near the bottom. These two stems bore between them twenty-seven flowers; the third stem was very small, with only one flower, making twenty-eight in all. This plant was put in the East India orchid house from the time the buds were half matured till they were quite expanded, and Mr. Bullen

says, "when taken in this stage, its forcing qualities are excellent." But better still than these was the specimen flowered in June last by Mr. Dodds, the able gardener at Ashton Court, near Bristol, for this plant produced in all forty-three flowers, a truly wondrous spectacle, and which I will fain believe none of us shall see surpassed! I am favoured with an exact reproduction of the photograph of this plant for the embellishment of this paper. It might have been worked into a grand picture, but it was thought best to reproduce as nearly as possible the natural shadow of the plant and its surroundings, and I hope the reader will approve of this step as preferable to mere effect at the expense of sober truth. I have nothing more to say, except that this liliun is hardy, and will grow beautifully in a sheltered rhododendron bed. At the end of March would be soon enough to plant the bulbs; they should be put 4 inches deep, with a handful of sand at the bottom of the hole, and the hole filled up with sand above them. I advise to lift them carefully when the leaves wither, and pack them away in damp cocoa-nut fibre in a place safe from frost, but where they will not get quite dry, all the winter, and again plant them in March. When the bulbs are cheaper than at present, they may be left in the ground all the winter, but as hard frost after heavy rain might kill them, taking up is the best plan while the bulbs are too dear to be exposed to risks.

KARL PROSPER.

POTATO DISEASE.

I am a thorough convert to the doctrines enunciated in the GARDENER'S MAGAZINE on the subject of potato disease. I have been a cultivator and a close observer of the potato for more than a quarter of a century, and I believe with our Editor that the cause of the disease is a check given by cold when the tubers are ripening. The theory is as valuable as it is true. All my early kinds were truly grand last season, but my late sorts are gone. The cold that set in with August swept them away. I regret very much that during the winter we have had no Webb's Imperials on the table, for that was my favourite potato—so snow-white, so well flavoured, so mealy, so handsome. But it was never a profitable potato with me. Milky White deserves all that has been said of it, for the disease did not touch it, though it was far from ripe when the weather changed in August last. Red Ashleaf was good, though I do not care much about it for the table; it is not first-class. As planting time is approaching, I advise my brother amateurs to plant plenty of the early sorts and few of the late sorts, for potatoes are never safe in this country after July.

R. E. P.

THE EUCOMIS JAPONICUS.

Will it be out of place to inquire here why this plant is so little known, and still less cultivated? It certainly is not because it requires expensive appliances to grow it, that it is difficult to manage, or in any way wanting in grace and beauty to repay the cultivator for the labour and care expended. Even were it multiplied fiftyfold, I cannot account for its neglect in any other way than that the numberless new things which are continually appearing so captivate the attention, and occupy so much more room, that older and far better plants have to go to the wall. There are hundreds, if not thousands of plants at the present day occupying posts of honour in our houses and gardens which bear no comparison to this and many other old plants that I could mention. I do not despise everything new; and when a plant really is an acquisition, instead of being merely an addition to our already extensive lists, I can appreciate it as much and enjoy it as thoroughly as most people; but I do regret that the run after novelties should so effectually shut out many deserving old friends, whose only faults and disqualifications are the length of time they have been known in the country, and their complete destitution of novelty. Most varieties of the *Eucomis* were introduced from the Cape about a century ago, and I only know one private individual, with the exception of myself, who grows this variety, which is the only one we can get hold of at present. I grow mine in a cold greenhouse, as near the glass as I conveniently can, so as to keep the leaves and flower-stalks stocky, and prevent them drawing. Moreover, the leaves are much more prettily marked when grown in a full exposure to the light. I use a soil of about three parts rich turfy loam, and the other part leaf-mould and rotten dung in equal proportions, or either separately, with plenty of drainage, and the pot not too large in proportion to the plant. After the bulbs commence to push their young growth, the plant should be shifted into a larger pot and fresh mould, which will last it for the season. Nothing is gained by shifting it oftener, for by the time the plant is effectually established in its first shift it will be in flower, and the sooner it is brought into a state of rest after the whole of the beauty of its noble spikes is past, the better it may be expected to bloom the following season. *E. Japonicus* flowers with me towards the end of June, and is a great ornament to the conserva-

tory for two months at least. When the principal beauty of the flowers is gone, it is gradually dried off, and packed away on its side under the geranium house stage, until it shows signs of growth in the spring, when of course it is brought into the light again. If the simple directions I have here laid down are closely followed, I can guarantee the cultivator one of the richest treats he has had for a long time, if he is not already familiar with this plant, and will follow my method in cultivating it. The year before last my largest plant had seven spikes, about eighteen inches in length; last year over a dozen spikes, and measured over two feet long from one end of the spike to the other, without reckoning the stalk. For the first month the flowers are a most lovely rosy-lilac colour, which gradually changes to a greenish colour for the latter part of the time. I think the *E. Japonica* is one of the best plants that we can have for conservatory decoration through the end of the summer, when good flowers for indoor work are scarce. The many paltry annuals which are extensively grown for that purpose bear no comparison to it, and it is much better than one-third of the orchids, and it somewhat resembles some of them. I must not forget to say that it is the most powerfully scented plant I know, and the odour is very agreeable; and also that unless the plant is thoroughly rested, like other bulbous plants, the flowers will be scarce and poor.

GEORGE GORDON.

[I saw one of Mr. Gordon's plants of *Eucomis Japonica* in the summer of 1865, and it was fully worth the praise he has now bestowed on the species, as, moreover, its condition testified it had received most skilful treatment. Many cultivators fail with this noble plant, probably because they keep it always growing.—S. H.]

Calendar.

WORK FOR WEEK COMMENCING FEBRUARY 9.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—The work must be regulated by the weather, and at this time of year the usual enemy to work is wet. If the ground is sticky, there can be nothing gained by doing anything with it; but if at all workable, not a day should be lost in planting and sowing, and preparing for various summer crops. Sometimes the stealing of a day's work in sowing a few rows of peas and beans, or the planting of potatoes, &c., may in the end make a difference of a week or two in the date of the produce coming to perfection, because if the bright day when the ground may be fairly moved is allowed to slip by, heavy rain may again stop work for some time. Our seasons do not allow of any trifling with outdoor work at this time of year, and every advantage must be made the most of. Those who have plenty of frames and other conveniences for sowing seeds under cover may push on a number of things to be transplanted to open quarters when sufficiently forward.

ASPARAGUS to be kept going in the forcing-pit for succession. Give air and light; if wholly blanched, it is not good; the sticks should be stout, quickly grown, and purple at the top.

BEANS must now be sown for main crops. For early supplies, *Hang-down* and *Mazagan* are the best; for market and rough purposes, the most profitable are the *Longpods*, of which *Johnson's Wonderful* and *Minster Giant* are the best. But for home consumption, where there is a good table, *Green Windsor* is the only sort that should be grown; it is handsome, a fine colour, superb flavour, and though less productive than the *Longpod* race, gives a good return. The *scarlet flowered* broad bean grows in the same style as others of the family; the flowers are dirty purple, dirty red, and washy lilac; the pods are plentifully produced, and serve very well for horses or pigs, but are utterly unfit for a Christian's table. We see this bean entered in some of the trade catalogues, where it is described as a most ornamental plant, and the beans of first-rate quality, both which statements are untrue. It is simply a vile thing in a garden, but an excellent thing in a field.

CABBAGE.—During the past few weeks we have been planting out considerable quantities of autumn-sown plants of *Early York*, *Dwarf Early York*, *Rosette Colewort*, *Enfield Market*, and *Sugarloaf*. We shall continue to thin out the seed-beds as occasions offer. We have also, in order to get possession of the ground on which savoy and other winter greens have stood, taken them up, and replanted them close together in batches, so that they can be drawn for use between this time and the middle of March, as in that time they are not likely to increase in size sufficient to pay for the ground, which is now wanted for rotation cropping. It would be well to sow a few sorts of cabbage now, as if they are not ultimately wanted for planting out, they may be drawn from the seed-bed for the kitchen, and make a delicious vegetable.

CARROTS.—Sow *Early French Horn* on warm borders, and thin as soon as up.

CAULIFLOWERS in seed-pans to be thinned out, and potted singly in rich light soil, or planted out in beds in frames. Sow again if likely to be wanted.

CELERY.—Sow for the main crop. Early sowings to be pricked out on beds in frames. The best way to make these beds for forwarding celery plants is to prepare a hard surface by beating; then lay on it three or four inches of a light rich mixture, consisting chiefly of rotten dung. Plant in this, and the plants will make abundance of fibres, and lift well for final planting out. Hollowness and bolting are caused by the too common practice of starving and checking the plant in the early stages of its growth, and when sown very early it is most likely to suffer a check because of the want of convenience to keep it growing until the season is sufficiently advanced for planting out. Therefore, where appliances are few, the best celery is likely to be had by sowing comparatively late—say in the last week of March.

LETTUCES required as early as possible should be pricked out from the seed-boxes into a sweet and gentle hotbed. To secure fine lettuces, the plants should suffer no check, but be grown quick, and in a rich moist soil. Therefore do not plant out any except cabbage kinds in open

quarters yet, as the check will prevent them hearing well. Sow again: the *cos* varieties are best to sow now, as they are so much more prized in England than the cabbage kinds for summer use.

Flower Garden.

ALPINES require care now that many of them are growing or coming into flower. Those that do not need repotting will be benefited by removing a little soil from the top, and replacing it with fresh sandy peat or sandy loam. Plants that make offsets freely may be increased now by division, but it is not a good time to propagate any kind of alpine from cuttings.

DAHLIAS must be kept going now where any quantity of stock is required. It is the common practice of the best growers to destroy the first gross shoots that the roots produce, and wait for the next crop for cuttings, the object being to obtain plants of less robust habit than the first growth would produce. The cuttings are most easily managed. Take them off when three inches long, pot singly in smallest pots, and put in a good heat, and they will root almost instantly. Trade growers stick them close together in beds of sand in the propagating house, and pot when rooted, but that wholesale way is not needed in private gardens.

LAWNS may be made at any time, provided the weather is neither burning hot nor severely frosty. Such moist, mild weather as we have had for three weeks past would be as good for laying down grass as any, provided the work could be done properly at intervals between the heavy rains. Where it is required to lay down turf, the sooner it is done now the better. Grass seeds may also be sown now, but the safest and most expeditious way is to obtain a fine turf, and have it put down by men used to such work. The result is a lawn at once, for use and enjoyment.

DECIDUOUS TREES of all kinds not yet planted must be got into their places without delay. Should frost occur, planting will be delayed still further; and if no frost, the trees will be so advanced in growth as to be greatly injured by the process of lifting, to say nothing of the progress they will make in the next few weeks in cutting established in their new quarters.

HARDY CLIMBERS planted now in well-prepared borders will have a good chance of making a free growth this season. Climbers doing badly may, if in a good soil and suitable position, be cut down close to the ground with a view to get a strong free growth in the coming season. Of course, if they are in a wet or starving soil, cutting the plants down will do no good.

ROSES.—Put a heavy mulch on plantations not yet dressed, and proceed with planting not yet finished.

Fruit Garden and Orchard House.

ORCHARD HOUSE.—If this has been crowded with plants not properly belonging to the place, owing to the severity of the winter, it is now time to think of clearing them away, for the fruit trees will be pushing soon.

VEGETATION is now undergoing the seasonal change from a state of torpor to active growth. The phenomena of outdoor life have their analogues in plant-houses, and no matter what is the natural climate of plants, they all more or less conform to the order of seasonal influences under which they are placed in this country. No doubt the peculiar actinic properties of ordinary daylight at this time of year have very much to do with the renewal of growth by all kinds of vegetation. That it cannot be owing merely to degrees of heat and moisture is tolerably certain, seeing that in plant-houses the degrees of heat and moisture are at the command of the cultivator. However, to deal with matters of fact: plants of all kinds under glass are now growing; very many orchids are starting; hard-wooded plants are making new wood; numbers of fine things are pushing into flower, and on every hand the cultivator finds fresh work to do. Success in plant-growing can only be assured by studious waiting upon nature. When plants commence new growth without being subjected to any special stimulus, the cultivator should take warning that they want help, and all such indications should give the key for the right moment to repot, or to refresh with top-dressing, to prune, to stop, to divide, propagate, &c., &c., as the case may require. The object of this note may be summed up in a word: it is time for plant-growers to be awake and active, to take advantage of the increase of solar light and heat, and especially to promote growth under the best of circumstances, so that new leaves and new roots may have the best of food from the first, and not be half-starved for some time before their requirements are thought of.

Greenhouse and Conservatory.

GREENHOUSE AND CONSERVATORY should be gay now with various bulbs—Chinese Primulas, Cyclamens, Cinerarias, Cytisuses, Camellias, Daphnes, and other spring flowers. Any stove plants brought into the conservatory must be guarded against a chill, and they will all bear a lower temperature than they have been grown in if kept rather dry. This treatment will preserve their beauty for a long time. The temperature of houses in which plant are growing may be increased now, for vegetation is active. Most soft-wooded plants will now become infested with aphides, unless well taken care of: good cultivation keeps such things away, and it is certain they soonest visit plants that are half starved and quite stifled.

Forcing Pit.

CHERRIES are considered the most difficult of hardy fruits to force; add perhaps the cause of the difficulty is fear of ventilating. If they are kept too close, or too wet, or too hot, they resent the injustice more readily than any subjects of the same class; they are, in fact, more capricious than peaches. The trees ought now to be in bloom in a rather dry airy house where the temperature averages 50° to 60°. They never do so well as in houses where there is air admitted below the pipes, so as to allow of free ventilation without causing a chill, as the air, passing over the pipes, gets warmed before circulating through the house. Sudden variations of temperature will cause the flowers to fall before fertilization takes place, and after the fruit is set too much or too little moisture at the roots will cause the fruit to fall like a shower of hail. Cherry trees lately put in and just starting to be freely syringed.

CUCUMBERS in the fruiting beds must be kept moist above and below, to promote a free growth. Any fruits that show before the plants are tolerably strong, nip out. By the time fruit may be allowed, the hills will want earthing up; use nice light loamy stuff, vegetable fibre being preferable to animal manure, though a little thoroughly decayed manure may be added to advantage. If there is a good heat in the bed, give a little air all night, unless the weather is too severe for such a risk; indeed, a gentle circulation of air is at all times desirable. As soon as

they begin to fruit, stop regularly one joint beyond the fruit; if this is not done, the plants soon become a mass of confusion, but it is a simple affair enough.

PEACHES that have set their fruit must not have liquid manure until the stoning period is past, which may be known by the sudden increase of the size of the fruit, after remaining stationary some time; also by the increased quantity of fruit that falls then. But the stoning period past, let them have the benefit of rather strong manure-water of the same temperature as the house, and it had better be a few degrees warmer than cooler.

PINES advancing in fruit must have liberal heat and moisture. The best manure-water is a solution of soot, but we prefer to give them nothing of the sort, as if they are grown in a suitable soil, and have proper attention in respect of heat and moisture, fine fruit can be produced without stimulants, which sometimes cause the fruit to be black in the centre, so that the finest looking fruits are after all the least valuable. At any rate, if stimulants are used to get up large specimens for exhibition, let great caution be taken to guard against overdoing it. Pot succession plants, and give the whole stock more room for a circulation of air amongst them.

STRAWBERRIES for succession to be taken in. Never place them in a high temperature at all, and prepare them if possible for the forcing pit by putting them into a cool house or pit for a week previously. Bear in mind the necessity for good food, and place the pots on a bed of dung into which they can root through the pots, or put the pots in pans filled with quite fresh short manure, or fat half-rotten stuff from the heap.

VINES may now have a rise of temperature, say 55° to 60° by night, and 65° to 70° by day. Thin away superfluous bunches in good time, and also thin out the berries of the bunches that remain, but this last job must be done at twice rather than once, and better three times than twice if there is no rough handling. To preserve the contour of the bunches, and afford room for the berries to swell, work the scissors into the centre so as to remove the inside berries, as well as reduce the number throughout. Practice and observation will alone serve as teachers in this sort of work; all that can be done here is to suggest the procedure that is desirable, and remind cultivators of what is to be done.

Stove and Orchid House.

BEGONIAS require to be repotted and started into growth. A nice friable mixture of loam, peat, and leaf-soil should be used. Large old rhizomas may be cut back, and they will break from below if aided with a moist heat; but if kept cold and wet after the knife has been used, they will be liable to rot.

GLOXINIAS have been frequently advised upon of late. There is still good time to deal fairly by them. There can be no better soil than a mixture of equal parts mellow loam, peat, and leaf-mould; we have grown them well in equal parts mellow loam and cocoa-nut fibre refuse. It is important to use the compost moderately moist, and give no water till they are actually growing. Press the roots down into the soil, sprinkle a little fine stuff over them, and then put them into a moist heat at about 70°. When advanced a little, pot them, and again give them a nice heat for a week, after which place them in an intermediate house where the temperature is about 60°. If pushed on too fast, the flowers are weak in colour.

MUSA CAVENDISHII.—When well treated, this is one of the fastest growing plants of the stove; but is not always so, because cultivators starve it. The soil cannot be too rich, but it must be sweet, and very light and porous, as the plant requires abundance of water. Equal parts of the most fibrous part of well-decayed turfy-loam, sweet leaf-mould, and quite rotten hot-bed dung will answer admirably, and there must be perfect drainage. After the shift, the plant must have a bottom-heat of 80°. Suckers will produce fruit within a year of taking them off the parent plant if kept going in a good heat with plenty of moisture.

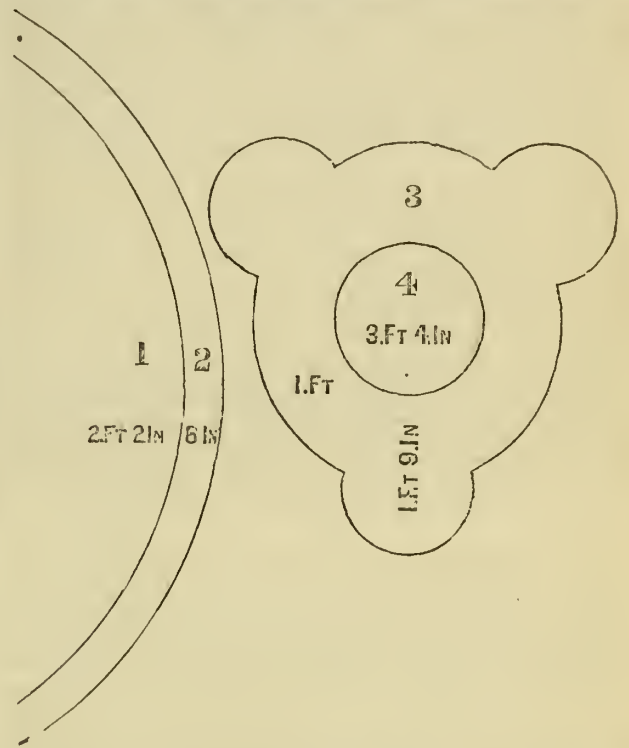
ORCHIDS will now want much attention; some must be repotted, re-blocked, and otherwise assisted as the season of their new growth approaches. Those not to be shifted may perhaps be benefited by a little fresh peat or sphagnum. After any disturbance of the roots, give them the aid of a little extra heat and atmospheric moisture, but do not water them much at the roots until they begin to grow.

Correspondence.

FROZEN PLANTS AND FAILING BOILERS.—In my travels about as a representative of a hot-water firm, I have seen some strange things lately. During the tremendous frost of January 3, 4, and 5, boilers took to cracking, and pipes to bursting, and many a valuable house of plants was put to such risks as made their owners tremble, and put gardeners in a terrible flutter. I saw a case of this kind—a collection of orchids, the value of which I am not competent to estimate, and about which I made no enquiries, for I knew it to be one of the most celebrated in the country, and that was enough for me. Well, on the dreadful Friday night the boiler gave way, and to keep frost out, ironing stoves, charcoal stoves, and every portable heat producer that could be begged or borrowed in the district, were collected and set to work, and these were supplemented with candles wholesale. The collection was saved, though dust and cold have left their mark upon them for many a day. All the following Saturday, all Saturday night, and all Sunday, bricklayers and smiths were at work, and by hook and by crook the boiler was got out and another set in its place. The number of such disasters that occurred made quite a joke of the frost, for while it brought business to those who were glad of it, the proof was afforded that plant growers do not yet know their own interests, or they would never trust their valuable collections to boilers that may break down at any time, with no reserve in case of such accidents. The "one-boiler system" is all very well while things go quietly, but if the one boiler fails where are you? Echo answers, "Where are you?" I would not trust a good range of houses to one boiler if you gave me the boiler for nothing. I would never have less than two, and I know that the additional expense in the first instance would be more than compensated by the additional safety. I think it well to give you an account of what I saw in the garden of an amateur who has made his mark on horticultural affairs. In this garden several houses are heated by one boiler, a capital upright cylinder. On the night of the 3rd, the head gardener, a generally trusty and careful man, took care to look after the fires himself. He did everything well enough except the feeding of the cylinder, and this he choked. In fact, he stuffed in as much good fuel as he could, and then put a little dusty

rubbish on the top, so as to fill up the feed-hole, and stop the draught entirely. This was done that he might go to bed and know all was safe till the morning. The simple result was the fire went out, and next morning the astonished proprietor, who made a survey before any of the hands came to their posts, found the thermometer down to 20° in houses filled with bulbs, geraniums, greenhouse ferns, palms, and other subjects of the same degree of tenderness. In a few minutes, the head man came in a great flutter, the furnace was cleared out, and the fire set going again. The master made but little complaint, but being a cultivator in the proper sense of the term, he kept a watch. In about two hours' time he sent for his factotum, and asked how the fire was going. "Oh," says Factotum, "all right; I've nearly got the frost out." The master naively replied, "More fool you, if you put my property in such jeopardy by one folly, don't make it worse by another." His fear was of course that there would soon be a roasting heat. So he went down himself, put in the damper, put some rubbish on the fire to check the draught, and by proper management kept the temperature in the houses heated by this boiler as nearly as possible at 32° for twenty-four hours, and then allowed it to rise slowly to 35°. Lachenalias with their flower-spikes three inches long were frozen hard; *Latania Benrbonica* and *Chamaerops excelsa*, ditto; geraniums of all sorts, ditto; yet not a leaf was hurt. The gentle thaw saved them. To repair a damage is the next best thing to avoiding it. HOT-WATER.

PLANTING A SET OF BEDS.—Your perusal and reply through the GARDENER'S MAGAZINE of the following will be greatly esteemed. The above figures are made by small posts of wood 6 or 7 inches high each tier. My system in planting the past year was the following: No. 1, Geranium Cloth of Gold and *Lobelia speciosa*, alternately; No. 2, *Lobelia Paxtoniana*, thickly; No. 3, *Geranium Stella*; No. 4, Geraniums Bijou and Flower of the Day. I and others were pretty well pleased with it, but as I



have a desire to do it better, I make my request to you. One thing I may mention, I wish to put Mrs. Pollock in centre tier (4). What can I put in No. 3 to correspond? Being baffled, I intended to put Mrs. Pollock in No. 1, but would much rather have her in No. 4. Not having much room for bedding, I should like to do the thing well. If you could, suggest how to plant these four beds first with Pollock in No. 1, then in No. 4.

AN AMATEUR.

[In considering a case of this kind, we are obliged to make something of a guess at the means of the inquirer, to avoid recommending anything that might prove too expensive. In the present case, we suppose our correspondent to have a stock of each of the plants named, and desirous to make the most of them. If the two figures are under view at the same time, as represented, there must be an agreement between them in general colouring. No. 1 with Cloth of Gold alone would be more telling than mixed with *Lobelia*; but *Lobelia speciosa* would make a fine blue line for a boundary to it, and allow us to use Flower of the Day in No. 2. We suppose that 1 is a higher level than 2, and that the *Lobelia* would partly hang over the line of wood that defines the shape of 1. For the other figure, Mrs. Pollock would make a fine effect in 4, if bounded by a sharp line of *Lobelia speciosa*, as in the crescent; then a belt of *Stella* all round, and an edging of Bijou. But if these figures are flat, the *Lobelia* would be overtopped, and we must adopt another plan. Say Cloth of Gold in 1, dividing belt of *Stella*, next a line of Flower of the Day, and outside margin of *Lobelia speciosa*. Mrs. Pollock in 4, with a belt of *Stella* to define the circle, then a single circle of Bijou, and a broad and very bold margin of *Lobelia speciosa*. In each of these schemes we throw out *Lobelia Paxtoniana*.]

ENGLISH-GROWN HYACINTHS.—I have half an hour on my hands this evening, and I have been thinking that I cannot occupy it better than by describing to you the mode in which I cultivated hyacinths some years since, so as to procure from them a much finer bloom than that from imported bulbs. As far as my experience has gone, I think that these beautiful things may be brought to a much greater degree of perfection in the rich loam of this country, aided by heavy applications of manure, than anything we have yet been accustomed to see brought into this country from abroad. I was induced to try my hand with them because I found I could but seldom get hold of bulbs of any of the yellow flowering varieties that would throw up satisfactory trusses of bloom. The old Prince of

Orange, and some two or three others, which at that time (some twenty-five years since) comprised the whole of the imported varieties of this (to my taste) beautiful section, I have succeeded in bringing to such perfection as to obtain from them trusses of bloom as fine as any I have ever seen produced by the finest bulbs of Grand Vainqueur (white), Nimrod (blue), or any other similarly large-trussing varieties. The length of time necessary to produce good flowering bulbs is at least three years. When I first began, I selected a small spot containing not more than three superficial yards; I threw out the soil to the depth of two feet, and placed at the bottom of the trench six inches of rotten manure, then six inches of earth, then four inches more manure, and then filled in the whole of the soil. This was the first week in September. The roots of hyacinths begin to move by this time. As soon as I filled in, I selected the strongest offsets from the different varieties I had grown the previous season in pots, and planted them at a depth of four inches, nine inches from row to row, and five inches apart in the rows. This gave me from sixty to seventy roots in the three square yards. When they were an inch or so above the ground, in the middle of February, I stirred the surface of the soil between the rows; this was of great benefit to them, as to all other growing crops. They required no further attention till the trusses were developed, when I divested the flower-stems of all the buds excepting the top one, for the purpose of drawing up the sap. This process conduces very much to the strong development of the foliage, and consequent invigoration of the bulb. As soon as the foliage was fairly decayed, I took them up, laid them in a cool, airy tool-house to dry gradually for a fortnight, and then put them away in a drawer till the first week in September again, when the bed in which they had been planted underwent exactly the same preparation as that before described. At the same time a similar piece of ground was prepared for a second batch of offsets, to undergo precisely the same process, and in the following year a third batch as above. At taking-up time in the third year, I found most of the bulbs well grown, some of them surpassingly fine. Some few of them required still another year's growth, but as a rule, at the end of the third year they were so firm in texture, and, in consequence of my having dried them well, so thoroughly ripened, that I obtained a most satisfactory bloom from them the following season, and by keeping three beds, one under the other, I was enabled to make a capital display of these beautiful flowers from Christmas till the end of April. I ought to say, in justice to my employers, who were exceedingly kind and liberal, that all the years this process was going on we bought as many bulbs as heretofore, my object being in the adoption of this plan to obtain good trusses of bloom from varieties I could not get to bloom well from imported bulbs, and which were with me special favourites. My impression has long been that we get all our imported hyacinths one year sooner than we ought. If the Dutchmen would give them another year, we should have a constant importation of prodigies, instead of the feeble flowering specimens of which the present importations so largely consist. In all fairness, I ought to say that I got the idea how to manage these things from an early number of the *Floricultural Cabinet*—I cannot say what date, and at this distance from home I cannot lay my hand on the number; but I would say that the younger readers of your GARDENER'S MAGAZINE would be much interested and instructed if they could lay their hands on the first six or eight volumes because of the large number of valuable articles to be found in those numbers from the pens of first-class gardeners. Through some accident my last paper was dated from a place which does not exist; my whereabouts at the present time is *Knockholt, Kent*.

WILLIAM CHITTY.

GAS IN CONSERVATORIES—CAMELLIAS UNDONE.—About four or five years ago, the conservatory I have under my charge was by my employer ordered to be lighted with gas, which was done, and lighted up in the evening for a week or so; and although I gave a little air at the same time, fearing evil consequences from the drying effects of the gas, I was sorry to see the camellia buds drop by hundreds. Of course it was seen that it was caused by the gas, and there was to be no more Christmas tress nor gas either. But two years after it was hinted that they would like the conservatory lighted again when Christmas returned. I was sorry to hear that, but could not say that it should not be, and calmly answered that camellias and such things could not stand gas. But it was to no purpose—it must be lighted; so the gas-fitters were set to work, and unfortunately they accidentally left one of the tubes open all night, so the conservatory was filled with raw gas from the main all night. So judge my feelings when I opened the door next morning. I went to one of the camellias and gently shook it, and buds and leaves and all came peppering down like hailstones, and so on all through the conservatory. Two years have passed away, and both last year and this I am very much amazed to find that the camellias still drop their buds—so much so that I have very few left. Now I shall feel greatly obliged if you can give me your opinion as to whether the buds dropping is attributable to the gas still, or not. The camellias, with the rest of the conservatory, are well attended by myself, for the plants are neither allowed to be dry nor wet beyond the extreme. As for firing, I never allow the temperature to rise above 40 or 45° all through the autumn and winter, and give air in accordance to weather when it is required. Generally the camellias have not been potted for some five years, as the gardener I succeeded put them in larger pots than I should have done. Do you think that the water I use, which is obtained from a lead cistern, has anything to do with the grievance now? or do you think that repotting would have the desired effect? I must not forget to say I syringed them every day in the morning after each night of the conservatory being lighted.

J. T.

[We are by no means prepared to pronounce a decided verdict on this case, for we happen to know a few lofty conservatories that are frequently lighted with gas on occasions of festivity, and camellias, azaleas, oranges, and acacias, with other conservatory plants, take no harm. But we are greatly obliged for the communication, as the subject of lighting conservatories is becoming more and more important every day, and it is desirable that we should arrive at a clear knowledge of what in this matter may be really done. In any case, lighting a conservatory is attended with some risk, for if the weather is frosty at the time, it is scarcely possible to give air; indeed there ought to be a house or shed attached to a conservatory which is supplied with gas, through which a current of air may be transmitted, and heated to a proper temperature, for the ventilation of the conservatory. Now as two years have elapsed, and the camellias still drop their buds, there is something like negative evidence that the gas was less hurtful than seemed, because the plants ought by this time to have recovered. The probability is therefore that the plants want repotting, and we advise J. T. to get them into smaller pots as soon as possible, and set them growing in a mild moist heat.]

Replies to Queries.

Vine Border.—Amateur.—You say the drainage is good and the soil light; we should say in that case there is no need to concrete the border, especially for ground vinerias. If the border is to be raised, and you can obtain a few loads of turf as easily as loam, by all means have it.

Name of Fern.—W. C. K.—Your sweet-scented fern is *Lastrea æmula*, one of the prettiest of all the European filices.

Frozen Plants.—R. Baxter.—It is quite too late now to do anything for the plants that were frozen. Should you be caught again, and the frost gets in, put mats over the glass, or adopt some other means to darken the house, and keep the temperature as near 32° as possible for at least a day, and then let it rise very gradually. It is a common practice with gardeners when a pit full or house full of plants is frozen to syringe them with cold water. But we cannot recommend this plan, having seen it followed by the death of valuable plants that probably would have survived if thawed gently and in the dark. Such things as hyacinths and tulips do not take much harm from a few degrees of frost.

Index for 1866.—R. W. B. P.—The index accompanied the number for January 6, 1867; not a single copy left the publisher without it, and no extra charge was made; in fact it formed part of the ordinary weekly issue. Subscribers who take the work in parts will find the index in the part published on the 1st of February; it was not ready in time for the January part. We really cannot be responsible for the absence of the index in any case, and as to making an extra charge for it, the man who does so either makes a mistake or commits a fraud.

Plants for Case out of doors.—H. B.—In the event of a very severe frost, tender plants in a case measuring only 4 feet 6 inches in length would probably be killed outright, in spite of the best arrangements for heating. In fact, small structures of every kind exposed to the weather are most difficult to manage in this respect. As the position of the case is perfectly shaded, a selection of hardy ferns would perhaps be most suitable, and a few mosses could be introduced to surface the ground. The following are distinct, handsome, and hardy, and all except the last two named are evergreen. Those likely to suffer in a severe winter are marked thus *.

British: *Asplenium adiantum nigrum*, *A. marinum*, *A. trichomanes*, *Ceterach officinarum*, *Lastrea æmula*, *L. dilatata*, *Polypodium vulgare* and its varieties, *Polystichum aculeatum* and varieties, *P. angulare* and varieties, *Scolopendrium vulgare* and about a hundred of its varieties, of which the following are the best—*bimarginatum multifidum*, *contractum*, *cornutum*, *crispum*, *cristatum*, *digitatum*, *glomeratum digitatum*, *laceratum*, *ramo marginatum*, *ramosum*, *undulato lobatum*, *Wardii*. **Exotic:** *Adiantum cuneatum**, *Asplenium ebeneum*, *Camptosorus rhizophyllus*, *Cyrtomium carotoidesum*, *C. falcatum*, *Dennstaëdia punctilobula*, *Lastrea atrata*, *L. cristata*, *L. frondosa*, *L. Goldiana*, *L. intermedia*, *L. marginalis*, *L. opaca*, *L. Sieboldii*, *Lomaria alpina*, *L. Chiliensis*, *L. Magellanica**, *Polystichum acrostichoides*, *P. falcinellum*, *P. vesutum*, *Pteris esculenta**, *Woodwardia radicans*, *W. orientalis*, *Asplenium bulbiferum**, *Pteris flabellata**, *P. cretica**, *Davallia canariensis**, *Platyterium alaicorne**, *Todea hymenophylloides (pellucida)**, *Plebodium sporocarpium**, *Onoclea sensibilis*, *Osmunda Claytoniana*. To these might be added *Equisetum sylvaticum* and *E. telmateia*. A few of the small-leaved variegated ivies might be useful to train up here and there by means of wires next the glass; all the ivies thrive in cases.

Nardoo.—Sybil.—It is quite a mistake to suppose that this interesting plant cannot be cultivated. We saw a fine pan of it a year ago or so at the Regent's Park Botanic Garden, under the care of Mr. Robinson, and it had a very beautiful appearance, resembling a large-leaved Oxalis. The pan was filled with water, with a little soil covered with pebbles at the bottom, and the house in which it was kept was heated to intermediate temperature.

Trees injured by Frost.—W. B.—Your cedars will be none the worse for the frost in three months' time. Brown as they are, the buds are sound; and indeed in many cases they appear already anxious to start. The *Grisebinias* and *Cotoneasters* will probably renew themselves from the base. Do not be in haste to dig up and burn. You have probably not lost much.

Cutting Seakale.—Constant Reader.—The kale sent to market is cut with about an inch of the root attached, to facilitate the carriage of it, and keeping the heads together complete; and usually the roots are destroyed after forcing, and the loss of an inch is of no consequence. The regular market growers sow every year, or raise plants from root cuttings; therefore their practice need not guide the cultivator in cutting from permanent beds. In cutting from permanent beds it is best to pass the knife close over the junction of the stem with the root, and generally speaking there is a good inch of white stem firm enough for the purpose of keeping the heads complete until they go into the hands of the cook, who must remove the root part if the gardener cuts so low as to have any of it. The advantage of this is that the buds of the crown are left for the next growth. But it will not injure a permanent bed to cut deep, even to the removal of an inch of root, for the root will throw out crowns from any part, as may be seen on taking up an old stool, which will be found to consist of several underground stems forking from a depth of three to six inches from the top, forming a series of crowns.

Wallonian Case.—Fence House.—We really cannot give any information on the subject. We have heard that the manufacture of these cases has been some time discontinued.

Lapageria rosea.—G. Gould.—We have frequently described the mode of treating this plant in England, but we are not so well prepared to say how it should be treated in New Zealand. Doubtless there it will do to train over a trellis in front of a house, or cover a garden bower. The treatment under which it best succeeds with us is planted out in a bed of sandy peat, allowing about a square yard of soil for a plant; the bed to be two feet deep. A cool greenhouse is the best place for it, as it will never stand heat nor frost. It is trained along the roof on wires or chains, in rigid lines or elegant festoons, as suits the whim or convenience of the cultivator; and from the middle of May to the middle of August it has copious and frequent supplies of water. Nature does the rest when these points are attended to, and this glorious plant produces myriads of its wax-like flowers, and ripens abundance of seeds. In the purchase of plants, seedlings are always to be preferred. Plants from layers sometimes grow well, and sometimes do not grow at all.

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M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.				M.tmp. avr. of 43 yrs. Gravh	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D
			rises.	sets.	rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain	Orchard			
1867																	
17	S	Septuagesima Sunday	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	1867
18	M	Luther died, 1546. Full moon 7h. 41m. p.m.	7 12	5 10	4 5	5 p.m.	6 3	a.m.	29.95	29.71	41 17	20.0	.12	38.3	Onoclidum Barkeri, M	...	Mexico
19	T	Sir Rhoderick Murchison born, 1792	7 11	5 18	5 18	"	6 40	"	29.00	29.99	41 20	30.5	.00	38.4	O. Cavendishii, M	...	Guat-mala
20	W	Sir Rhoderick Murchison died, 1855	7 9	5 19	6 33	"	7 11	"	29.49	29.98	42 20	31.0	.00	38.5	Phylus grandiflorus, I	...	China
21	Th	Joseph Hume died, 1853	7 7	5 21	7 37	"	7 39	"	30.02	29.98	44 25	34.5	.00	38.5	Schomburgkia crispata, M	...	Brazil
22	F	Day breaks 5h. 10m.	7 5	5 23	8 53	"	8 7	"	30.29	30.17	45 25	35.0	.00	38.6	S. undulata, M	...	Lu Guayra
23	S	Washington born, 1731	7 3	5 25	10 0	"	8 32	"	30.16	29.99	52 20	39.0	.02	38.9	Sophonites carnosus, M	...	Rio
23	S	Sir Joshua Reynolds died, 1792	7 1	5 27	11 7	"	8 53	"	29.83	29.07	53 27	40.0	.00	39.1	S. grandiflora, M	...	Brazil

The Gardener's Magazine.

SATURDAY, FEBRUARY 16, 1867.

EXTENSION versus RESTRICTION is becoming the question of the day for fruit growers. We have perhaps said enough on the advantage of extension in the treatment of the vine, and we may now very properly ask if the arguments used in favour of allowing vines to cover vast spaces, are not applicable to wall trees generally, and perhaps to all kind of fruit trees to be found in our gardens. The restrictive system is attended with admirable results up to a certain point, and then it breaks down altogether. Hence where numbers of vines are grown together, and they are forced into early productiveness, there must be a system of renewal always in action, for the precocious plants are soon used up, and their places must be supplied with successors as fast as they vacate them. The result of the rapid system is satisfactory with exceptions, and one of the exceptions is its comparative costliness. In truth, when a well-doing vine is allowed to run freely root and branch, it ceases to be costly; and the rent of the house it occupies is the only serious item in its keep. But it is far different with a collection of two or three hundred vines in a house which might otherwise be filled with one; there is an immensity of work, there is perpetual outlay, and the best samples grown are rarely equal in all points to the productions of vines of many years' standing, and that are in perfect health and almost unrestricted as to the space they occupy.

To establish a parallel case in respect of wall trees will be no difficult matter. We propose to our readers to investigate the case for themselves, and to form their own conclusions. Suppose every one interested in this question will first consider his own case, comparing his great old trees, if he possesses any, with trees that are crowded and restricted, and fairly estimating their average production as compared with the actual space of wall covered. Next let the inquiry be extended. Some gardens in the district will be noted for peach, apricot, and plum trees covering immense breadths of wall. Let it be ascertained if, generally speaking, these make a fair return for the space they cover, and let them be fairly compared with equal breadths of trees confined in limits. We have no doubt at all as to the result of such inquiries, and we anticipate that in at least nine cases out of every ten, competent judges will give the verdict for the big trees, and pronounce the miniature trees of every kind to be the toys of the fruit garden. We have not the temerity to assert that restricted trees produce no fruit, for to establish the truth is our only object, and we see too much of the perfection to which toy cultivation has been carried to pronounce it a failure altogether. It is far otherwise. Grape vines of a year old show noble bunches; pear, plum, and apple trees two or three feet high may be seen covered with handsome fruit; even the walnut and the mulberry, the least tractable of fruit trees, submit to the dwarfing system, and become precociously fruitful; and a single cordon of peach or nectarine may be encouraged so as to be studded with fruit of most excellent quality. But none of these cases, interesting as they are, suffice to determine the question before us. Which is the most profitable in a series of years—say five, ten, or twenty—for a given space of ground and a given outlay, the natural (extended) or artificial (restricted) treatment of fruit trees? On the one side, everything is in favour of a profitable result; on the other side, there is much against it. If the soil and climate are adapted for the trees selected, a free growth will always favour a healthy condition, and in due time the excessive vigour will decline and the tree assume its proper fruitful condition. It is worthy of notice that we know little of disease or of the mysterious deaths of principal branches of wall trees that have ample root space and are allowed to expand themselves freely above-ground. Where gumming, withering of the points of shoots, and other such ailments occur, we shall generally find that the borders are cropped and the trees thereby robbed of what is due to them; that between the standards dwarfs are introduced; and that the trees are all cramped and crippled in order to compress a great number within a too limited extent of space. Wall trees of vast extent are as a rule vastly productive, and to say that they are long-lived would be a solecism, for their size is a proof that they have lived long already. Longevity cannot be counted among the prevailing qualities of miniature trees of any kind. To fruit apple or pear trees in the second or third year from the putting on of the graft is a feat worth

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commendation, but none of these precocious trees will, even in respect of quantity of production, match large old trees covering the same extent of ground as a given number of miniatures selected for comparison. Indeed we have on several occasions, when recommending miniature trees to the attention of amateurs, urged the extreme fruitfulness of large trees as an objection to them, for in many cases a dozen each of a dozen different sorts of fruits would be more prized in a small family than several bushels of one sort coming ripe all at once, and lasting only a short time in good condition. Where variety is desired, and where there is a mania for collecting, and where as much practice as possible must be adapted to a limited extent of ground, miniature fruit trees are invaluable. But we must not be led astray by delusive examples; if we are to consider the several systems as to their whole results, there cannot be a question that dwarfing the head, restricting the root, and inducing early fruitfulness by pinching, tends both to shorten the life of the tree, and fix within rather narrow limits the possibility of its productiveness. What we gain in time is perhaps more than paid for in the end by liability to disease, occasional failure of fruitfulness, and shortness of life. All this is in accordance with the soundest philosophy, for after all we are only contending that the most profitable method of fruit culture is that which puts Nature out of her wonted course the least possible.

MR. MACNAB HAS REVIVED, in the pages of *The Gardener*, the much-disputed question of the policy of pruning coniferous trees. When so able an advocate takes up an exploded doctrine, it appears to the usual on-looker as if no explosion had ever taken place, so admirably do the dislocated parts fit together again. Mr. Macnab directs attention more especially to the pruning of the Deodar, and describes the process as consisting of a reduction of the young tree to symmetrical proportions, and occasional after-stopping to check any unruly growth or outbreak of excessive vigour in any part of the tree. He says, "after being once properly cut into shape, it is seldom necessary to give the Deodar any after-pruning, unless to remove duplicate leaders that may be forming." Further on we are assured that "those trees which stood the severe winter of 1860-61 had been fully pruned at an early period." No one can dispute that in many cases the Deodar may be much improved by judicious pruning, but we should greatly fear to see pruning practised on this naturally graceful tree, this most elegant of all coniferous trees, by any but the most cautious and experienced hands. We occasionally meet with specimens that are disfigured by side branches of extravagant growth that contend for the mastery with the proper leaders. In such cases, pruning is a matter of the utmost importance. If the abnormal growth is detected in time, one good stroke of the knife may be all that is required; but if it has proceeded so far that the cutting out of the usurper would make a great gap and a great wound, its reduction should be accomplished by shortening in at first, and removal subsequently. So also, no doubt, judicious pruning will promote perfect symmetry, so that specimens of 10 to 30 feet in height may be as regular as if modelled to geometrical proportions; but it does not follow that such perfect symmetry is desirable. If we but wait, we shall see the most irregular Deodar acquire by degrees a grace and finish only to be matched by another Deodar of its own age, and similarly circumstanced as to soil and climate. It is about the last tree in the world that needs pruning to render it elegant; and to some tasteful eyes, its occasional irregularities are rather in its favour, for excessive symmetry is near akin to formality, sameness, and insipidity; and we really do not want to see ornamental trees regulated to such a nicety as to serve as illustrations of the problems of Euclid. It only needs another step to lead us into the absurdities of topiary, and we beg Mr. Macnab's pardon for looking so far ahead, for we suppose the clipping of a Deodar into the shape of a malt-kiln or a corkscrew would horrify him as much as anybody. We hope there will not be much pruning of Deodars, or of any other coniferous trees, practised in consequence of the persuasions thereto by our able Scottish friend. There is one comfort, that this tree grows freely and soon recovers even from injudicious pruning; but it is not desirable to say much about the advantage of pruning it at any time, because of the probability that the slashing and dashing class of pruners will take heart and murder all the Deodars they can lay hands on. It is the saving of noble coniferous trees in English gardens that it is generally considered "they will not bear the knife." That is a wholesome doctrine, and we are rather sorry that Mr. Macnab has attempted, even in respect of one coniferous tree, to call it in question, or suggest doubts of its universal application. As to the tying up of the leaders of Deodars, or any other trees that have drooping leaders, it is a ridiculous practice, and we heartily join with Mr. Macnab in saying it "ought to be avoided."

MR. MECCHI has again charmed an agricultural audience with one of those spirited semi-autobiographical essays on the practices and prospects of English agriculture, which it is his wont from time to time to make public. On this occasion the members of the Faringdon Farmers' Club were the specially favoured persons, but the press has sent the paper far and wide, and we may hope that, like bread cast upon the waters, it may be found after many days. Mr. Mecchi does not budge an inch from the ground he took up long ago in respect of the capabilities of the soil of this country, and the manurial recourses that are within reach of agriculturists everywhere. In respect of wheat production, he says, "We are dependent on foreigners for an average annual importation of 6,500,000 quarters of wheat alone (that quantity being increased this bad harvest to 8,000,000 quarters), while our average annual home-growth of wheat is only

12,000,000 quarters—12,000,000 of quarters over an area of nearly 60,000,000 of acres! Can anything that I may say add to the disgrace and humiliation of such a statistical fact, seeing that we are so overdone with surplus capital that our loans to foreign nations, independent of other foreign investments, may be probably 200 millions sterling, and that in home railways alone we have an investment of £500,000,000. Our natural production of wheat, at the average of 56s. per quarter, presents the ridiculously comparative sum of £34,000,000! This for the daily bread and annual feeding of 30 millions of people! On my poor farm of 170 acres, the annual production of wheat is more than 250 quarters, and other grain in proportion; so that if the rest of the kingdom did its duty equally with my poor soil, our annual produce of wheat, instead of 12,000,000 of quarters, might be 88,000,000 of quarters." The subjects principally treated on are the relations of landlord and tenant in respect of improvements, the transfer of land, agricultural education, farm-servants, the importance of live-stock, and the effects of town sewage. Gardeners no less than farmers will find this latest of Mr. Mechi's literary productions brimming with useful instructions, good advice, and philosophical suggestions.

THE ROYAL HORTICULTURAL SOCIETY'S PROGRAMME for 1867 announces two Spring Exhibitions, namely, on the 19th of March and the 16th of April. A show of a peculiar kind for "special prizes" is to be held on the 7th of May. On the 4th of June will commence the Great Show of the season, which is to last five days, the last of which clashes with the Great National Show to be held at Manchester. On the 2nd of July will be held the National Rose Show, and with that the society's London season will close—the show to be held at Bury being a separate affair altogether.

The obituary of the past week contains the names of two eminent promoters of the rural arts. Mr. GEORGE URE SKINNER, so well known as a collector and cultivator of orchids, and to whom *Lycaste Skinneri* and many other orchids were dedicated, died on the 9th of January, at Aspinwall, Panama, of yellow fever. He was on his way, when arrested by illness, to Guatemala, in order to wind up his connection with the commercial house of Klee, Skinner, and Co., in order to retire from business. On the 6th of the present month, died, at Brighton, the Rev. SAMUEL SMITH, rural dean, and vicar of Lois Weedon, in Northamptonshire, the author of the celebrated work on "Lois Weedon Husbandry." Mr. Smith rendered important service to agriculture, and scarcely less to horticulture, by the course of experiments he pursued to show the possibility of rendering active those properties of the soil which are ordinarily latent, but which in an active state render it highly productive. If he accomplished no more than to prove that deep and frequent stirring of the soil is as effectual to maintain its fertility as the incorporation of manure, he conferred a lasting national benefit; but he was, in truth, a master of the science of cultivation, and contributed in a most material degree to the recent advances of agriculture in Britain. Of his character, all that need be said is that he was a scholar, a gentleman, a Christian, a man of strong mind and sweet temper.

THE ROYAL HORTICULTURAL SOCIETY.

The annual meeting of this society was held on Tuesday last, at the Council Room, South Kensington—the Duke of Buccleuch, the president, in the chair. The report, read by the secretary, stated that, notwithstanding the monetary distress of the past year, the Council were able to report an increase in the amount of annual subscriptions. The sums paid by Fellows as subscriptions in 1865 amounted to £7,975 1s. 1d., but their annual subscriptions rose to £8,176 9s. 6d. in 1866. In the sources of income least liable to fluctuation, the society had made decided progress, and although the receipts from exhibitions and from daily admissions had fallen considerably below the average, the Council were of opinion that the affairs of the society, though requiring strict economy, were in an encouraging position. A deficiency in the receipts, as compared with those of 1865, was occasioned by the abolition of the cheap admissions, in compliance with the wish expressed by the Fellows at the last annual general meeting. Unfortunately, the free admissions which were granted to the public in lieu of them were not so successful as to induce the Council to repeat them. They were taken advantage of less by the classes for whom the boon was intended than by those whose presence in the gardens the Council had no desire to encourage. The Council were taking steps to get the tax removed from tobacco purchased for horticultural purposes. The education scheme for gardeners was working with success. The examinations held this year had resulted in thirteen young men receiving certificates either for horticulture or fruit and vegetable culture. Five of these gardeners were employed at Chiswick, five at the Royal Gardens at Kew, and three were from private establishments. Of those who presented themselves for examination, three had previously obtained certificates or prizes from the Society of Arts, examining on behalf of the Royal Horticultural Society; two also showed themselves worthy of election as Associates. In the arrangements for the present year the Council had been induced to try the experiment of extending the duration of the first great show to four days. It appeared from the balance-sheet that the income for 1866 was £13,179 2s. 10d., which with £5 5s. 4d. balance made a total of £13,184 9s. 2d. On the other side, the expenditure had been £10,182 0s. 2d., interest £1,951 18s. 8d., prizes £70, making a total of £12,203 18s. 10d. The liabilities of the society were £980 10s. 4d., against which the society had a balance of £203 17s. 7d. in the bank. The Chairman moved the adoption of the report, which was seconded by Colonel Challoner. Mr. Harry Chester said on the whole the report was extremely satisfactory. The Council referred with a degree of vagueness to the relations of the society with the managers of the late International Horticultural Exhibition. The society had treated the exhibition committee with great liberality, and the exhibition was a most brilliant success, leaving the committee with a large surplus in hand, which they did not know what to do with. They had given £1,000 to an excellent charity—the Gardeners' Benevolent Institution—and although they had no legal right to do that, yet he for one did not intend to dispute it. The question was, Did they intend to give a portion of the money to the Horticultural Society? A long discussion ensued, the prevailing feeling being that the society was clearly entitled to a portion of the surplus in the hands of the committee of the Horticultural Exhibition, it being understood that in case there should be a surplus from the exhibition, the society should have a portion, a minute to that effect having been recorded on the Transactions of the society at the time the agreement between the society and the committee was entered upon. The report was adopted. Lieutenant-General Hon. C. Groy, Major T. Clarke, and Mr. W. W. Buller were elected members of the Council; and the other officers having been appointed, the proceedings closed with a vote of thanks to the Chairman.

HISTORICAL AND TYPICAL ROSES.

In every pursuit, whether of art, science, literature, or politics, there arise from time to time certain prominent discoveries, or events, which serve as epochs or stand-points from which comparisons may be made and progress reviewed and determined. In applying this position to the present condition of the popular subject of rose culture as a florists' flower, it will be necessary to revert to certain kinds which have been produced during the last thirty or forty years, before which date we had only species and varieties almost all of which have disappeared from general cultivation. During this period individual flowers have been successively introduced, marking decided stages of advancement, possessing distinctive characters, and exercising important influences upon succeeding varieties. An analysis of these is essential to all who wish to become thorough masters of the gentle craft of rose-growing—certainly the most romantic and poetical department in the whole domain of floriculture.

The class of Hybrid Perpetuals is that to which the present perfection of the flower is mainly due. It is the most recent in its introduction; it is that in which the greatest improvement has been made, and to which we look for further developments of qualities verging towards perfection. For this valuable section we are chiefly indebted to a celebrated French raiser, M. Laffay, of Bellevue, near Paris, who succeeded in producing continuous blooming roses from crosses between the hybrid Bourbons and damask perpetuals and the Bourbons proper, about the year 1830. Two of them, the *Duchess of Sutherland* and *Madame Laffay*, introduced in 1839, are still roses of no common pretension, although they do not appear to have left any "bright particular star" among their descendants. *Baron Prevost*, *William Jesse*, *Dr. Marx*, *Reine des Fleurs*, *La Reine*, are a few among many also originated by the afore-named raiser. Indeed, it has been asserted that half the hybrid perpetuals known up to 1850 have owed their introduction to his skill. It is a matter for regret, as an instrument for tracing the parentage of notable varieties, that the generality of continental rosarians do not employ greater exactitude in recording both sides of the lineage of new roses. They appear to pay less attention to artificial impregnation than our own countrymen, contenting themselves with merely noting the tree from which the hips are gathered. It would be impossible under many pages to analyze all the important roses of this section which have given rise to new seminal varieties. Nor is it, indeed, necessary to mark more than a few striking examples from which the best of our modern favourites are derived. These may, perhaps, all be summed up under the types and strains represented by *La Reine*, *Géant des Batailles*, *William Jesse*, *Louise Odier*, *Jules Margottin*, and *General Jacqueminot*. The last has been the favourite parent, apparently, of most of the novelties since it first made its appearance.

Of these, *La Reine* is that which has afforded one of the longest lines of the finest specimens of light, double, globular roses, some of them, unfortunately, hard to open, and touchy as to soil and situations, but others all that could be desired—possessing, as most globular kinds do, the valuable property of keeping longer than those of looser texture.

Madame Knorr, which may almost be described as a perpetual moss without the pubescence, is one of the most beautiful and distinct of roses. It would appear from its foliage and growth to belong to the blood of *Baronne Prevost*. From this, as one parent, probably a true perpetual moss might be developed—its power of blooming in the autumn being of the first order. A fine line of novelties ought to arise from judicious crossing of this charming and elegant variety—say, with *Gloire de Dijon* or *Charles Lefebvre*.

Louise Odier (*Margottin*) must be enumerated as another of historical roses, from the numerous progeny of highly distinct kinds it has given to the world, all possessing marked characteristics of the Bourbon family. None are large, but they are well formed and globular. The foliage is rich, the wood smoothish, and of an average degree of hardiness. *Catherine Guillot* and *Modele de Perfection*, with others of the same type, called by some rosarians "Bourbon Perpetuals," are among the best modern representatives of this distinct class.

Géant des Batailles, raised from *William Jesse*, one of the marvels of its day, has given birth to a large family of seedlings—all, like their parent, possessing an uncertain habit, stumpy growth, and an incurable tendency to mildew. All of them have the most brilliant colour, but, alas, how fleeting! Even *Lord Raglan*, the best of the brood, will not endure a few hours' sun, changing its glowing hue to a dirty, foxy red. This strain had better be avoided in all but the most favourable situations, and indeed even there, now there are so many kinds endowed with superior qualities—that of high colour included.

The Centifolia type is represented by *Baronne Prevost* and its descendants; possibly, that beautiful but peculiarly incurved globular rose *Louise Peyronny* has much of this blood in its composition. *Madame Damage* and *Madame Cambaceres*, have also some affinity to the tribe, notwithstanding a more vigorous and robust habit.

H. P. *Comte de Montalivet*, from *William Jesse*, once one of the darkest of roses, constantly reappears, as in *Princesse Mathilde*, *Archeveque de Paris*, and some other very dark kinds, often assigned as seedlings to *Jacqueminot*. The petals of these are somewhat incurved, and not very double, with a maroon tinge flushed as it were over the face of the crimson-scarlet.

The two most noteworthy seed-bearers, however, of the hybrid perpetual section are without doubt *Jules Margottin*, raised by *Margottin*, and *General Jacqueminot*, raised from *Gloire de Rosomene* by an amateur, and bequeathed by him to his gardener. The first named is perhaps unsurpassable as a model of the reflexed form of rose—that is, with a very high centre, no visible eye, the interior petals small, turning regularly back, and increasing in size to the exterior circle of the flower. *Jules Margottin* is a prototype of one of the finest amongst the summer roses called *Brutus* or *Brennus*. It is a free autumn bloomer, of a fresh and lively colour, and its habit and constitution leave little to be desired. Its excellence as a parent is exemplified by the high quality of the roses it has produced—notably, *Beauty of Waltham*, *Achille Goussé*, *John Hopper*, a cross between that and *Madame Vidot*, and still more recently (by the same raiser, Mr. Ward, of Ipswich) *Mrs. Ward*, from *Jules Margottin* and *Comtesse Chabrilland*, thus uniting the globular and expanded types, producing a rose described as follows: "Beautiful rosy-pink, centre brilliant rose, very full cupped, fine shell-shaped petals, remarkably even, of great substance, thicker than those of any other rose in cultivation. As to form, no better model of a rose exists; highly fragrant, free autumnal bloomer, and vigorous growth." We know the merits of *John Hopper*, and if this should prove only as good, it will be long before, in its way, it can be surpassed.

We must next proceed to consider *General Jacqueminot*, which a Turk would probably describe as the "Father of Roses," so extensive have been his scions year after year, with no apparent present diminution of their number or popularity. The finest highly coloured roses must be referred to "the General," although it has also given rise to an immensity of rubbish. There is a remarkable peculiarity about the wood of the finest of the Generals' seedlings, such as *Senateur Vaisse*, *Charles Lefebvre*, and *Madame Victor Verdier*, which is that the wood more strongly partakes of the smooth, bright, and hard texture of the Bourbon class than their parents, reverting in that respect, and also in colour, to the original *Gloire de Rosomene*. The foliage also is dense and leathery in texture. These two beautiful roses, by skilful and well-considered combinations, will probably originate more excellent varieties still, as far exceeding the gems possessed by the present generation as they transcend the conceptions of our forefathers.

We must now glance at a few remarkable roses of other sections, and will first take *Souvenir de la Malmaison*, raised by M. Belize so long ago as 1843. Here we have a decided type assigned to the Bourbon family, but which has, unfortunately, never been improved upon; perhaps in its individual style it is not possible to do so, except as to hardier constitution and variety in colour. These are not accomplished yet in its sport, *Malmaison à Fleur Rouge*. Extra large, circular in outline, double in conformation, odoriferous in perfume, free in growth, it appears shy in bearing seed, and must be perseveringly fertilized in warmer climates than our own to produce new varieties. Could we obtain roses like this possessing the colour and constitution of Charles Lefebvre, what an admirable strain would be the result! The attempt to realize such, however, would not be a profitable trade experiment; it would require too much time, and could only be carried out by the patient perseverance of enthusiastic amateurs.

It is to be regretted that so much confusion has been allowed to exist between the classes Tea and Noisette, which have become so intermixed that in numerous cases it is difficult to decide to which of the divisions certain kinds ought to belong. The mere characteristic of scent, a very erroneous and insufficient test, has sufficed to determine the allotment. That very excellent and distinct rose *Gloire de Dijon* is a striking example of this mistake. With the exception of its perfume, it has certainly nothing in common with the ordinary teas, and how it became endued with that it is difficult to discover. Its vigorous habit was probably derived from some strong-growing Bourbon such as *Paxton*. *Gloire de Dijon* has afforded some few seedlings, such as *Gloire* or *Belle de Bordeaux*, which, retaining its tea-like odour, bears much resemblance in other respects to certain of the hybrid perpetuals. *Gloire de Bordeaux*, a disappointment at first, seems scarcely yet understood, and is consequently avoided. Yearling plants do little good; when matured by two or three years' growth, however, the variety is a constant bloomer, and a highly useful adjunct to the rosery. This fact suggests an instructive hint as to the direction in which valuable experiments might be made—viz., combinations of hardy teas with the finest of the hybrid perpetuals.

Were rosarians to introduce into their arrangements of sections a new one, that of HYBRID TEAS, it would obviate the difficulty of imperfect classification, and a considerable number of roses would be brought under an accurate and comprehensive head, and a skilful hybridizer would be better able to elaborate his combinations with a view to definite results. The hybrid noisette has already obtained recognition through the varieties *Louise Darzins*, *Madame Alfred de Rougemont*, and others. Of the section which should be designated Hybrid Teas, *Marechal Niel*, an improved and hardier *Cloth of Gold*, is the newest and finest example, and must be considered the most recent celebrity in the realm of roses. Cultivators are observing with watchful and anxious expectancy its behaviour during such severe weather as the winter past, and the damp and cold winds, equally trying, which usually accompany an English spring. Should it have been able to surmount such rigours, its character will be established as a rose of unique merit, marking an epoch in the rosery, indeed, and opening out a new groove for future experiments by enthusiastic practitioners of the hybridizer's art. *Devoniensis*, catalogued as a "tea," was raised many years ago by an Englishman near Plymouth, and has never been surpassed. This also is a kind of hybrid tea, raised possibly from Noisette *Lamarque* crossed with the *Yellow China*. There is a strong family resemblance in the colour of wood and leaves, and in the manner of flowering, to this rose in *Safrano*, *Madame Falcot*, *Cloth of Gold*, *Vicomtesse de Cazes*, the tenderest of roses out of doors, and lastly *Marechal Niel*.

It would be impossible in the limits of a single paper to supply an exhaustive analysis of all the roses possessing an historical interest as types and parents, or to specify the individual seedlings they have respectively produced. The leading kinds which have influenced style and improvement have been indicated, and their consideration opens up another phrase in connection with rose literature, viz., improved definitions as to the points of contour and colour.

Clapton.

W. D. PRIOR.

NOTES ON NOVELTIES OF THE SEED LISTS FOR 1867.

Aplopappus rubiginosus.—This is a showy autumn-flowering annual composite, growing about three feet high, with lanceolate incised foliage, clothed while young with a white tomentum, and producing in September large terminal corymbs of yellow Grindelia-like flower-heads, each an inch and a half across. It may be treated either as a hardy or a half hardy annual, but should be pricked out some distance apart. Native of the north-western plains of North America.

Aubrieta Græca.—We received this plant from Athens, under the above name, but it may probably be but a large-flowering variety of *A. purpurca*, with which it agrees in general habit. In size of flower and depth of colour it is, however, superior to that or any other variety we are acquainted with, and can be recommended as a most desirable plant either for beds or borders in early spring, its rich violet-purple flowers being produced for several weeks together. It received a first-class certificate in 1865.

Eriogonum umbellatum.—A very interesting perennial plant of the Polygonum family, of dwarf evergreen habit, with ovate, entire leaves, and numerous compound umbels of small primrose-coloured flowers, which retain their colour for a long time, often till the seed is fully matured. It blooms in June and July, and succeeds in any light soil. Seedlings bloom freely the second year, or occasionally, if sown very early, the first year. A native of the Rocky Mountains.

Helium Hooperii.—Most of the members of this genus being late

bloomers, the present very distinct, early-flowering species will be acceptable to the cultivators of hardy perennials. It is comparatively dwarf, with oval, lance-shaped root leaves, and rounded stems, bearing in June several large flower-heads of a uniform orange-yellow, the ray florets being somewhat drooping and persistent in character. Quite hardy in any soil. A native of Pike's Peak, in the Rocky Mountains.

Linaris Tristis.—The name of this pretty Toddflax is calculated to create an erroneous impression that its flowers are of an unpleasant, sombre hue, which is by no means the case. It was formerly cultivated, but seems to have been lost for many years. It is a dwarf, bushy, glaucous plant, clothed with linear entire foliage, every shoot terminated by a close raceme of spurred flowers each an inch in length, of a yellow or yellowish-white colour, with a conspicuous blotch of deep crimson-brown on the mouth and lower lip; in one variety the blotch is of a violet-purple, and there are several intermediate shades of colour; occasionally the flowers are pure yellow. Of the easiest cultivation in light soil, but should be planted singly, and seed-vessels should be removed to prolong its bloom. A native of south of Spain and Barbary.

Pentstemon acuminatus.—This is a pretty and distinct species, growing from 1 to 1½ feet high, with linear lanceolate radical foliage, forming a dense tuft, and long, erect, one-sided racemes of bluish-purple flowers. It is hardy in dry soils, but will need a slight protection in such as are retentive of moisture. A native of the sub-alpine districts of the Rocky Mountains.

Pentstemon glaber.—The blue-flowered section of this genus includes few more desirable species than that now offered. It is of dwarf habit, mostly quite decumbent, but occasionally more or less erect, with lanceolate, entire, smooth foliage, and terminal racemes of bright blue flowers, the throat being usually of a pinkish-lilac. It is perfectly hardy, and succeeds in any friable soil; seedlings bloom the second season, in June and July. It is a native of the plains adjacent to the Rocky Mountains. The better known *P. speciosus* is now regarded as a variety only of this plant.

Pentstemon barbatus Torreyi.—A very fine robust variety of the plant so long cultivated under the erroneous name of *Cbelone barbata*, from which it differs chiefly in its greater height and stronger growth, as well as in the general absence of the beard on the lower lip of the flower which characterises the species. Being a native of Colorado and Northern Mexico, it has a harder constitution than the typical species, and can be recommended as a very showy border perennial.

Salvia chionantha.—This plant was offered last season, but special reference to it was omitted. It is a good hardy perennial, growing about 2½ feet high, with rather small lanceolate grey foliage, and producing in July long branched panicles of large white flowers, as large as in *S. argentea*. It is a native of Lycia, whence it was sent by Boissier several years since.

Waiteia Steetziana.—This is a very pretty and distinct miniature species, well adapted for pot cultivation, though succeeding in the open ground in light soil. It grows about six inches high, producing from a tuft of linear foliage a slender stem, bearing a few scattered leaves, and a terminal corymb of sulphur-coloured flower-heads each half an inch across. The seed is very small, and should be scarcely covered with soil. A native of Swan River.

Aquilegia covrulea.—Of this beautiful plant, described in our last catalogue we have a sample of seed saved from a bed of very fine specimens, and which will doubtless give rise to seedlings possessing in perfection all the characteristics of the species.

Aquilegia vulgaris vervaeneana.—This plant was offered in our last edition, but we had no personal knowledge of its merits, and therefore deferred the recommendation that we can now honestly bestow. It proves to be a semi-double, pale purple, spurless variety of the common Columbine, with foliage handsomely mottled with yellow, and is, so far as we are aware, almost the only variegated hardy perennial which can be relied on to come true from seed. The variegation extends even to the seed-leaf.

Arundo conspicua.—A handsome New Zealand grass, resembling in habit the Pampas grass, but having the advantage of blooming at an earlier period of the summer, and therefore more desirable. We believe, too, that it produces its fine plumes while the plants are still comparatively small.

Campanula medium rosea.—This is described as being a very pretty Canterbury Bell, with pure pink-coloured flowers, and is said to come perfectly true from seed. Should this prove correct, it cannot fail to be a great acquisition.

Chrysanthemum carinatum annulatum.—A handsome addition to the varieties already in cultivation of this popular annual, having bright orange ray florets, marked at the base with a distinct scarlet ring. Fine for bouquets.

Dianthus dentosus hybridus.—Of the history of this interesting plant we know nothing, but presume it to be a hybrid of the *D. sinensis*, of which it has the habit, but is much dwarfer. It forms a close compact tuft, covered with large single or semi-double flowers, with fringed petals of a pale purple colour, marked very conspicuously at the base with very dark purple. It requires only the treatment of the Indian pink and its varieties.

Dianthus plenissimus pictus.—Another addition to the already extensive group of hybrid Dianthus, and reputed to be an acquisition of some value. It is described as a hybrid between the *D. sinensis* and the garden pink, and has large double and semi-double flowers, with serrated petals, of various shades of purple and rosy-crimson, marked with concentric rings of a deeper shade.

Eritrichium glomeratum.—This novelty is a pretty and rather singular plant of the Borage tribe, of biennial duration, from the sub-alpine slopes of the Rocky Mountains. It forms the first season a tuft of radical linear-lanceolate foliage, from which arises the following spring a stem twelve to eighteen inches high, clothed pyramidally with numerous small white flowers, bearing a general resemblance to those of a Cynoglossum. Though hardy so far as cold is concerned, it is liable to suffer from wet, and it may therefore succeed better if raised in pots for protection through the winter, the plants being turned into the open ground the following spring. It will doubtless succeed on rockwork. So far as we are aware, seeds of any of the species have never been before offered.

Euphorbia marginata.—Although the number of variegated plants is now considerable, those reproducible by seed are, so far as we are aware, limited to three or four; of these we have already noticed two, the *Aquilegia vervaeneana*, and Japanese Meize, and now introduce a third of some interest. The *Euphorbia marginata* is an annual species growing about two feet high, and remarkable for having its lanceolate foliage edged with pure white. The lowest leaves are free from variegation, but on the other hand the upper ones are almost entirely white. It requires the treatment

of half-hardy annuals, and succeeds in any light soil. A warm summer is most favourable to its full development. It is a native of the Western States of North America.

Helichrysum errera.—This comes to us from Germany with the following description, which we give without guarantee: "An extremely pretty species, with linear, terete, silver-white cottony leaves, of dwarf, compact habit of growth, and bearing handsome bright yellow blossoms. Very fine for edgings and groups. It is a half-hardy perennial, requiring only the protection of a cold frame in winter." It is probably of Australian origin.

Lilium colchicum.—To those who may not be deterred from the attempt to raise this beautiful and rare lily from seed by the somewhat prolonged trial to which their patience may be subjected, we can strongly recommend it as a most ornamental species. It grows four feet high, and yields, according to the strength of the bulb, from one to ten or more drooping flowers of a pale citron-yellow, spotted interiorly with purple, and stained externally at the base with the same colour. The flowers are highly fragrant, and in this respect are not exceeded by any species we have cultivated. It is perfectly hardy, as might be expected, being a native of Siberia, and succeeds in any ordinary garden soil. The seeds may probably vegetate slowly, and like all other flat seeds, should be sown edgewise. This plant is also met with in nurseries under the name of *L. Szowitzianum*.

Lobelia Snowflake.—We much regret having been induced to offer seed of this plant last season, and especially that it should have been described as a variety of *L. erinus*, as we were led to suppose. It proved to be but the white variety of the annual *Lobelia ramosa*, differing from it in no point, so far as we could discover. Assuredly the award of a first-class certificate to this plant by the Floral Committee of the Royal Horticultural Society is a matter requiring some explanation.

We must also apologize to our friends for having admitted the *Bisnaga major* into our last edition, as it proved to be but a wretched weed, without the smallest claim to cultivation, though sent us with a high character.

Lupinus hybridus atrococcineus.—A fine annual variety, growing 2½ to 3 feet high, with long, parti-coloured spikes of blossom, the upper portion, consisting of the unexpanded flowers, being white, and the lower of a fine crimson colour. The description is that of the raisers, as we have not yet cultivated or seen this plant.

Nemophila maculata grandiflora.—Described as having flowers as large as a crown-piece, or, in other words, two inches in diameter, and very showy and free-blooming.

Nicotiana macrophylla purpurea.—Now that fine-foliage plants are so much sought after, this new variety will doubtless be regarded with interest, as it proves to be very effective, from its vigorous growth, ample foliage, and numerous panicles of large deep purple flowers. In rich, deep soils it will attain, when planted out early, a height of 6 to 8 feet. It is offered in some lists under the name of *N. atropurpurea grandiflora*, but we believe the above to be its correct designation.

Scabiosa nana flore pleno.—This is described as a valuable improvement on the dwarf Scabious hitherto cultivated—the flower-heads resembling those of the pompone Chrysanthemum, almost globular, and in habit much dwarfer and compact. The colours are described as being very varied.

Schizanthus ocellatus atropureus.—The singular form of the flower, and its usually handsome markings, have invested the plants of this genus with interest from the earliest period of their introduction. The present fine variety is stated to be a seedling from the *S. grandiflorus ocellatus*, from which it differs in having flowers of a rich crimson-purple, with very dark centre. A hardy annual.

Stipa elegantissima.—Among the ornamental grasses, none are characterised by greater elegance than the different species of Feather grass or Stipa, and of these the present plant, a very recent introduction, is, we think, one of the most graceful. It is of Australian origin, and is therefore rather less hardy than *pennata* and some others, but succeeds well with us in a light sandy soil. It grows about two and a half feet high, and yields long panicles, very much branched, each branchlet bearing a seed terminated by the long awn peculiar to the genus. It is of perennial duration, and does not flower till the second season.

Tropaeolum Tom Thumb (new rose).—Identical in habit with the so called Scarlet Tom Thumb Nasturtium; it differs from it in the colour of its flowers, which are represented to be of a rose colour, or the exact counterpart of Trentham Rose Pelargonium.

Viscaria cardinalis.—This is represented to be a very fine variety, with large flowers of a bright magenta-crimson; we presume that it is a variety of *V. ocellata*, but have no precise information on this point.

Willowia graniflora gloxinoides.—A pretty novelty, differing from the type in its flowers having a margin of a delicate light blue, and the throat of a pure white. If constant, this must prove an acquisition.

Xeranthemum annuum corypholoides.—This is described as a really striking variety of this favourite everlasting, the flower-heads being very double, and spotted and streaked with rose, red, crimson, and purple, on a blush-coloured ground. It will prove a valuable acquisition for the borders, as well as for dried bouquets. In habit it is more compact than the older varieties, and it is quite constant in its character.

Zea Japonica variegata.—As most of the variegated plants now so much employed for gardening purposes require to be increased by cuttings, any annual with variegated foliage reproducing itself faithfully by seed could hardly fail to be popular, even were it less ornamental than this new dwarf maize. It is described as attaining a height of six feet, but our own plant did not at all exceed four feet, owing perhaps to the inclement summer. The foliage is broadly ribboned with alternate stripes of white and green, and near the summit the white predominates largely, as well as in the foliage of the secondary shoots which surround the principal stem. Whether planted singly or in groups, it produces a highly ornamental effect, and its shoots will be found very useful for cutting. A light rich soil is best suited to its requirements.—W. THOMPSON'S (*Ipswich*), *Descriptive Catalogue of Flower Seeds*.

FIVE HUNDRED VARIETIES OF FRUITS arranged so as to indicate which are the best for orchards, gardens, for forcing, for market, for the dessert, the kitchen, &c. From this list any one, or any six or twelve, of the best in each class may be selected. Also, Selections of Florists' Flowers, Decorative Plants, &c., adapted equally for trade and amateur cultivators, and all founded on frequent and careful observation. In the GARDEN ORACLE for 1867, edited by SHIRLEY HEBBERD, Esq.

THE GLOXINIA.

In my paper on the Achimenes I directed the attention of my readers to the growth of this flower, both for home use and for exhibition. I shall now treat of the Gloxinia with the same ends in view, for it is in every way adapted for the same purposes as the Achimenes; indeed, it may be considered its proper companion as a decorative plant, so well does it flourish when submitted to the same treatment.

The Gloxinia may perhaps be entitled to the precedence in respect to the seasons of flowering. I have known them by peculiar management to produce two crops of flowers in the same year, by getting them to complete the first blooming early in the summer, and then, after allowing them a brief season of rest, to slowly excite them into growth again, not disturbing the roots in any other way but by giving them a slight top-dressing of fresh soil.

It may be that some sorts will not so readily yield to the above treatment; if so, do not push them, but put them aside, so to remain in their dormant state till required in the regular season. But should you succeed with the second season of flowering within the same year, it will greatly enhance the floral beauties of the stove during the late months of the autumn.

With this class of plants, as with the Achimenes, the promoters of our great metropolitan exhibitions have overlooked their attractions as subjects suitable for competition. Since the decline of some two or three of our principal local floricultural exhibitions in the metropolis, it is seldom now within its radius that we come in contact with large specimens, either in private or public gardens, such as we were accustomed to behold in the palmy days of the Stamford Hill Horticultural Society, as grown by Messrs. Chitty, Holmes, Taylor, Oubridge, Wookey, and others whose names I have forgotten. It was then a glorious floral treat to survey a side table extending some forty or fifty feet occupied only by this class of plants. Not only were they clothed with plenty of flowers, but combined with it most luxurious foliage. The sorts at one period were mostly the drooping varieties, but towards the latter years of the society's existence the erect kinds became more general in cultivation; and who could fail to admire them? for among them prevail some of the most charming and pleasing colours. I can at this moment recall to my memory a basket of seedlings as exhibited a few years ago by Mr. Fraser, of the Lea Bridge Road Nursery. I could not express my feelings while gazing on them, so enraptured was I with the rich and varied shades of colour there presented.

As cut flowers for furnishing vases or baskets for indoor decoration, they are admirably adapted, as their soft but rich hues blend exceedingly well with other more dazzling colours.

We will now proceed to say something about their general culture. Like the Achimenes, they thrive very rapidly in a very warm humid atmosphere to which is added bottom-heat. As they advance in growth, afford them plenty of room for the expansion of their foliage; with this, as with other plants, crowding will be sure to frustrate your efforts. Some varieties will produce long shoots, while, on the contrary, others are more compact and dwarf in their habits. But the former would be benefited by being stopped according to their strength and the number of shoots they may make. Of course the result of stopping will be an increase of side-shoots. But no instruction of mine can make you so thoroughly acquainted with their requirements as your own individual study of their respective habits.

In selecting bulbs for potting, my preference would be those two years old, as experience has proved to me that they make the best and most thrifty specimens, compared with younger or older plants. My practice is, after turning them out of their past season's flowering pots, and shaking the soil from them, to place them in single layers in a shallow box, only introducing sufficient sand or light sandy soil as will cover the fibrous portion of the bulb. There they remain in a shady but warm part of the stove till they have pushed their shoots an inch or so. By this method I am enabled to decide as to what size pot they may require—the number of shoots emitted being my guide, instead of the size of the bulb; and why? because those who trust to the latter are sometimes disappointed. The bulb may have degenerated in quality during its season of rest, although previously in an excellent state of preservation.

With all healthy bulbs that have exceeded two years' growth, I adopt the one-shift system—that is, put them in their intended flowering pots at once; to younger bulbs I give repeated shifts, commencing with a pot sufficiently large to contain the bulb. In potting, do not bury them too deep in the soil, but allow the crown to be somewhat elevated above its surface, so that no water may effect a lodgment in it. By all means afford them plenty of drainage when potting, for although they require a liberal supply of water when growing freely, yet they will soon show signs for the worse in a stagnated soil.

They will grow in almost any soil which partakes of a sandy nature. Some use equal portions of loam and peat with silver-sand.

If you have the means of affording them plenty of bottom-heat, then add more loam than peat; but on the other hand, if you cannot command as much heat as you wish for them, use more peat than loam: in fact, in such a case let your soil be of a light sandy nature. The reason why I recommend peat in the absence of sufficient bottom-heat is that it is not so liable to become sodden and cold, it being a better conductor of heat of the two soils, and of a dryer nature than loam.

In the absence of any other means, I have grown them in brick pits heated by the aid of hot manure linings. The same instructions as to giving air, "shading," &c., apply to them as recommended to be adopted in the culture of the Achimenes. Any neglect of the rules advised would inflict the same consequences, viz., disfigurement of the foliage, a weak habit, and an unsatisfactory bloom. When they begin to flower, they will need a drier atmosphere. If your pots are placed over flues or hot-water pipes, you must be watchful that the foliage does not become injured by the hot steam; and if your houses are heated in the old-fashioned style by brick flues, take care there are no cracks by which the sulphurous fumes from the furnace can escape, as in the course of my practice I have been a sufferer from such a misfortune, having had the foliage partially destroyed when they have been in the best possible state of growth. Before you close the pit or house on a fine afternoon, give them a gentle syringing. On fine mornings give air early, or the sun's rays will sadly spot them before the foliage is dry. The constant syringing on warm evenings, and the keeping the house moist, will act as a preventive against the attacks of thrip; in fact, a slight fumigating now and then will benefit them by checking the growth of insects of whatever kind might be lurking about. I have seen a collection of plants grown to an excellent state of perfection, when all of a sudden, owing to their being changed to a very dry atmosphere just at the period they were about to flower, thrip has attacked them, spreading with such rapidity as to effectually nullify the anxious labour of many months, so that the successful blooming of the plants was hopeless for that season.

When the plants have ceased to flower, I gradually dry them, when they are stowed away in a temperature of not less than from 45 to 50 degrees, being placed in such a position that water will not reach the bulbs.

JOHN F. M'ELROY.

CAMELLIA CULTURE.—No. I.

The Camellia is so universally admired by all classes of cultivators, that I am sure it will be time well spent if I devote a portion of the space allowed me here to set forth some of the chief points it is necessary to observe to secure success in its cultivation. In treating of a subject that more or less concerns nearly every reader of these pages, there is a sort of certainty that the writer's efforts to handle it practically will be appreciated, and I am convinced it will be so by all true admirers of this noble flower. With just this sort of confidence I set myself to this task, only hoping that it may be useful when completed.

For our first consideration we cannot do better than make a selection of useful sorts. This done, we can then go into the details of their culture, only making such remarks as we go on as may seem necessary respecting the peculiarities requisite in the culture of any special variety.

AS WHITE CAMELLIAS are very general favourites, I will place them first on the list, and perhaps the best in this section for general purposes is *Cup of Beauty*. It is of excellent habit, being close and compact, and an abundant bloomer. In fact, for ordinary conservatory decoration, it is the best white we possess, although we have many more of the same colour; and although it does not approach the standard of excellence in the way of shape and substance of petals that characterises the true florists' flower, it is nevertheless a most useful variety; it is very pure in colour, and an excellent autumn bloomer. But in this respect it wants a little management, according to the time it is required to flower, as if it is encouraged to make its new growth very early in the year, it will flower through the months of September and October following, so that if wanted to flower later, or rather to be at its best later, it should not be encouraged to make its new wood until March. At the time of writing (January 31st), we have a plant in the conservatory, with eight or nine expanded blooms upon it, that has been gay with flowers since the first week in September of last year, and it is only occupying an 11-inch pot. Then there is the *Old Double White*, which is still a deserving favourite with the majority of cultivators—more especially those who require a quantity of cut flowers, or where an individual plant is wanted to make a lasting and telling object. Its habit, when properly cared for, is all that can be desired, and the shape and substance of its flowers is not to be despised. It requires liberal culture in the way of rich open soil and a moderate degree of pot-room; with this treatment it does not require the aid of stimulants to excite it into growth, and they should never be resorted to all the time it is practicable to give it more pot-room. If this cannot be done, then

a few doses of weak guano-water may be applied when it is making its growth. Of other white-flowering kinds, there are many very chaste and beautiful varieties, really models of perfection, in the contemplation of which the stern advocates for form and substance can feast their delighted eyes. But I must not appear bigoted in this matter, for without reluctance I admit that the rules which the true florist sets up to guide him in his estimation of what a true-formed flower should be, are excellent, and indeed essential, for without some such standard to guide us as to which is and which is not a correct-formed flower, the confusion would be so great that only the deeply initiated would have any idea of the real merits of half the flowers we grow.

The most meritorious as viewed from the florist's point of view, is *Feastii* and *Fimbriata*. The former of these is perhaps the largest and boldest of the whole batch of whites. It has an excellent habit, and succeeds well under ordinary careful management, while *Fimbriata* is a well-known and an accepted favourite, especially with the fair sex. This variety will not bear rough usage with impunity, but when under skilful hands it seldom fails to produce an abundance of its fine fimbriated flowers. Should the reader require any others of this colour, then I would add to the list *Miss Percival* and *Noblissima*. This last is a very useful early-flowering kind, and will often produce a good display of flowers under disadvantageous circumstances.

I shall now name a few of the RED and CRIMSON section, and as one of the best I shall place first *Mathotiana*, sometimes seen under the name of *Matholiana*. This, when at its best, is a bright crimson, of fine form, rather loose in habit, and a spare bloomer when not properly cared for. But a few of its flowers, when well expanded, are so conspicuous that this very excellent quality is a good set-off against its shyness in blooming. It requires an average temperature of 50° to induce it to open well and with good form. *Bothwelliana* is a first-rate late-flowering variety, and of a colour conspicuous among camellias, being considerably darker than many others of the same strain. The number of petals and the general outline of the flower is so good that I may fearlessly class it as a florists' flower of the first order. It has no particular peculiarities in culture to be observed, as with me it has done exceedingly well under the same treatment as the general collection has received, and which comprises a good number of the best in cultivation. Another very excellent one is *Imbricata*. This is occasionally mottled with white, but a fine bold flower of good substance and form, and altogether a very desirable acquisition to any good collection however small. *Archduchess Augusta* is a deep crimson, shaded and veined with a purplish hue. This is perhaps the most distinct of any in this shade of colour. I have lately much regretted I had not this variety to compare with some others which we have nearly like it in habit and the form of its flowers. *Leeana*, a rich scarlet-crimson, with finely cupped petals, is too well known to need any description from my pen. But I may venture to say that it is a deserving useful variety, more especially where superior cultivation is not carried out. *Speciosa* is an old variety, very large and showy, more suitable to make an effect in a show house than for individual beauty. A far more desirable kind is *Scipioni Africano*. This produces a superb scarlet-crimson flower, shaded with violet, and sometimes a few of the petals are streaked with white finely imbricated, and of fair average value in the form of the flower.

I shall in the following list include all that it is necessary for me to particularize, including BLUSH, CARMINE, PINK, and the MOTTLED or STRIPED VARIETIES, as there are so many kinds included in the above different shades of colour, that this list of varieties would be extended to an unprofitable length if I were to devote separate heads to each; and as a very worthy pioneer I shall select the *Queen of England* as my first subject. In this place it is a delicate rose-coloured flower, with white stripes in the centre of each petal, and of exquisite form, but not of a very robust constitution. *Princess Maria* is a beautiful soft rose edged with white. *Rubens* is of the same colour, but larger, more imbricated, and of better form than the last-named. *Wildierii* is a well-known kind, useful for all the purposes for which camellias are cultivated; of fine form, with a well-deserved character of being a free bloomer. The *Marchioness of Exeter* is a thin flower, but of exquisite form, and the habit of the plant close and compact. It requires plenty of pot-room to induce it to flower freely, and when the flowers are expanded should stand in the coldest part of the house, otherwise it sheds its flowers too freely. *Elegans* is another old and useful kind where a gorgeous display is wanted, but it is not to be recommended where individual beauty would be criticised severely. It is a vigorous grower, and the most abundant bloomer that I know under adverse circumstances. Of the more beautiful striped rose flowers, I certainly prefer *Tuccaria*, *Valtevarado*, *Nassimiana*, and *Lady Taunton*. These four will not disappoint the most ardent of cultivators, provided he treats them liberally, but they all require careful attention, and should be encouraged to

make their new growth before Midsummer, that they may have time to properly ripen their wood and swell their buds before winter. *Alexina* is rather a scarce blush colour, very beautifully striped with rose. *Fanny Bolis* is in the same strain of colour, sometimes very handsomely mottled, but a much fuller and bolder flower, and altogether very perfect in form; this is a newish variety. *Princess Frederick William* is another new kind in the way of a blush-white; it is a strikingly fine-formed flower, but scarce and dear. *Unica* is a delicate blush, very nicely imbricated, but not so robust with me as I should like it. Of striped flowers, perhaps the best is *Countess of Derby*. I have only seen this variety once; it was then very distinct, and a noble flower. Then there is the *Countess of Ellesmere* and the *Duchess of Northumberland*, both good and useful varieties; to these the cultivator may add, without fear of disappointment, *Magdalena*, *Maria Theresa*, *Prince Albert*, *Duchess of Orleans*, and *Mrs. Wilder*. This last is of excellent habit and constitution, and deserving of a place in every collection. With this one I shall close the list, as sufficient varieties have been named to suit the convenience of most private cultivators, and to add more would be to cause a confusion in the minds of those who might wish to choose from it.

It may be well to remark, for the information of amateur readers, that I have distinctly stated in the foregoing list sufficient for them to judge of the excellences of any one variety, as all I have named are good and worthy of general cultivation; and I have, I hope, made it sufficiently intelligible whether they are to be appreciated according to the standard of the florist or not, because tastes differ so much in this respect that where one individual admires the correct outline of the florists' flower, another prefers the bold characters of the other section, and rather prefers them for their adaptability for making a display than for the individual beauty they possess. But as regards the florists' flowers, there can be but one opinion, that they are very chaste and symmetrical, worthy alike for their beautiful outlines and generally correct markings.

J. C. CLARKE.

MY ORCHID HOUSE.—No. XI.

THE STANHOPEA.

Though it is many years ago since I saw a plant of this genus pushing its very lovely blossoms through the openings in the bottom of the basket in which it was growing, I can still recall the feelings of amazement, mingled with no small amount of pleasure, which I experienced at beholding for the first time what I then supposed to be a wonderful phenomenon or freak of nature. Now, although a greater practical knowledge of plants and a much wider range of observation and acquaintance with the many and varied personages of the vegetable kingdom has somewhat rudely dispelled the illusion of its being the most wonderful plant in existence, I still retain the opinion that (putting aside the peculiar and curious manner in which the flowers of this genus are produced) the Stanhopea stands second to but very few orchids, if we properly balance and fairly compare its different qualifications. Amongst them I may enumerate cheapness in first cost, easy culture, and requiring but very little outlay to keep up a suitable temperature; and the shape, texture, and the exquisitely beautiful markings of the blossoms, render them quite matchless in their way. Like the Lycaste, this plant requires the assistance of fire-heat very sparingly in favourable seasons, after it has once fairly started into growth in the spring. It will not be necessary for me to occupy space in lengthened remarks on temperature for the Stanhopea, for the one recommended for the Lycaste will be perfectly suitable. The extraordinary manner of flowering of this splendid plant, the flowers being sent downwards, renders it more suitable for basket culture than for growing in pots. The open-work of the basket affords every facility for the flower-stalk to push through the soil, and out into the air, without suffering any impediment or obstruction in its downward progress. If grown in pots, the plants will necessarily be required to be potted so high, to allow a free development of the flowers, as to give one the very uncomfortable impression of expecting to see it topple over every moment—a feeling that is not at all desirable at any time. I detest anything that makes me feel or fancy that the object I am admiring (whether belonging to the floral world or not), may at any moment be dashed to the ground, and my enjoyment be suddenly brought to an end. Some pieces of crocks sufficiently large to prevent them falling through should be spread over the bottom of the basket, which will serve the purpose of drainage, and also keep the material in which the plants are planted in its proper place. The plant in question will grow in peat or sphagnum. I prefer the latter; it looks best if the base of the bulbs are elevated an inch or so above the level of the basket.

I prefer baskets made of wood a long way before wire ones, whether iron or copper is used in their manufacture. The wooden ones have a decidedly more natural appearance, and at the same

time afford a certain amount of nourishment to the orchidaceous plants growing in them; at all events, the tenacious manure in which the roots of orchids in general, and the Stanhopea in particular, adhere to the pieces of wood composing the basket, demonstrates pretty clearly that if they do not actually derive nourishment from it, that the wood is much more favourable to the development of the roots than either iron, copper, or any other metal suitable for basket-making. Besides, the wood baskets can be easily and quickly made at home without any expense. Branches of either the common maple or hazel are best for the purpose. I have a decided preference for the former with the bark left on; it has much the prettiest appearance about it. I have made numbers of larch; they look very well, but are scarcely so durable as the other woods. I will describe as briefly and simply as I can my way of making them. I don't suppose that it differs materially from the ordinary basket which is generally used in orchid houses, but the description will be useful to any one not acquainted with the manner of making them. Supposing I want to make a basket twelve inches square, which is a very useful and convenient size for general purposes, I take rods of the wood selected for the purpose, and which should average an inch in diameter, and cut them into lengths of twelve inches each, and bore a hole sufficiently large to allow stout copper wire to pass through an inch from each end of them. I then lay four pieces parallel to each other; the two outside ones must not be more than eleven inches from each other, and a piece of copper wire eighteen inches long run through the holes already bored in them, across the sides of the four. Two more pieces must be laid and threaded on the wire, and nailed to the four pieces across the ends of these two; a couple more must be put, threading them on the wire as before, and nailing them to the two rods which form the second layer, and so continue till the basket is finished, putting each pair of rods in opposite directions, running the wire through them, and nailing them so as to keep the basket firm. A basket four or five inches deep is enough for any of the Stanhopeas. When the last layer is put on, bring the ends of wire together, and fasten them to hang the basket up by. Some people merely put the wire through the rods without nailing, but they slip about, and do not keep their proper place at all nicely. Others, on the other hand, use nails only, and fasten the wire to the top of the basket; but this is worse than the other, for when the wood begins to decay the nails are liable to draw out, or else the pieces will give way that the wire is fastened to. For smaller baskets the wood will not be required to be of so large a diameter, whilst for larger sized ones it must of course be thicker than I have recommended for the twelve-inch basket. The Stanhopeas, like most orchids, are propagated by divisions. *S. grandiflora* and its varieties bloom in June, *S. insignis* and the varieties belonging to it in September, *S. oculata* and varieties of it the same time as the first-mentioned, whilst *S. tigrina* blooms a month later. I have not thought it necessary to enumerate a long list; these four are really good, and can be obtained for a very trifling sum.

GEORGE GORDON.

THE HOLLYHOCK AS AN ANNUAL.

Such quick methods of production are followed now-a-days, that none of our readers will be surprised to hear that Hollyhocks may be raised from seed and flowered the same season, and that there is no real necessity to treat it as a biennial as our grandfathers did, for it is an annual as truly as Virginian Stock or Clarkia pulchella. Perhaps I should not have commenced with this remark except that I remember learning from the lively pages of the GARDENER'S MAGAZINE that a very short time since a gabbling goose who pretends to speak authoritatively, but who really knows very little, had publicly disputed the assertion of a cultivator that he commonly flowered hollyhocks the same season that they were raised from seed. There is, in fact, no mystery in the matter. Any one who will give me within a fortnight of this time a packet of seed and a challenge worth heeding shall see the plants in bloom from that seed before 1867 is out; aye, and before the good weather in which hollyhocks can flower well, and lovers of gardens can enjoy them, is past. And the matter is of great importance, for this noble plant is well adapted to be largely employed for effect, in which case individual perfection is of less consequence than colour, dignity, and picturesqueness. The amateur who requires only a few dozen, and who rejoices in growing the most perfect flowers he can obtain, will of course purchase named sorts, and continually add from the new varieties such as are adapted for his collection. But our parks, great gardens, cemeteries, and other places where bold effects are required, may be as well stocked by raising seedlings as by the cultivation of named kinds; and I hope that, as the taste for something better than the daubs of colour that fashion demands as accompaniments to walks and drives, and that collectively obtain the designation of "Bedding"—I hope that as these daubs give place to noble forms, to refined combinations, and to the production of grand pictures, the Hollyhock will take its proper place, and be as much esteemed by decorators of gardens as by painters of landscapes, who never fail to introduce it

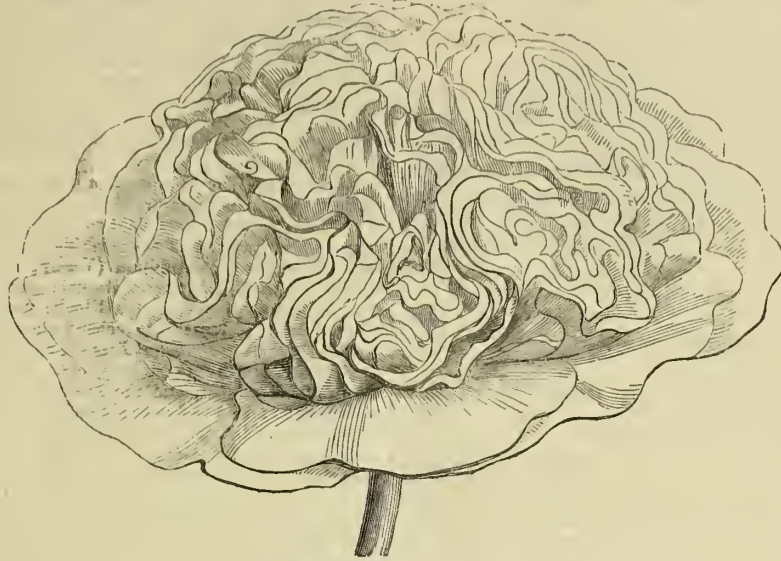
when they depict garden scenes. A weather-stained vase and a group of hollyhocks were favourite embellishments of a picture in the hands of Sir Joshua Reynolds, and I learnt not long since from our able Editor's pen that the poet Wordsworth delighted in avenues of hollyhocks in his garden at Rydal. Perhaps Mr. Beningfield took the hint therefrom; at all events those who wish to see avenues of hollyhocks only need go to Broxbourne in the proper season, and if such a sight is new to them, I can say that novelty will be accompanied with surprise, delight, and every material for a pleasant memory.

When I first began to treat the hollyhock as an annual, I felt it necessary to push them on early, but I soon discovered that it was possible to be *too* early, and now they come into the regular routine of spring-work, and the seed is sown any time between the 1st of February and the 1st of March. I am quite satisfied that in the south of England the seed may be sown throughout the month of March, and the plants will, with proper management, be quite forward enough to plant out in May, and will bloom well in August and September. It must be understood, however, that this quick growing must be *well done*—there must be no shilly-shally, and no starving. Sow the seed in shallow pans filled with rich light earth, in a rather lumpy state. If a recipe be wanted, say, loam two-thirds, and quite rotten manure one-third, with some coarse grit added. Break this well, but do not sift it. I like to see it in lumps as large as hazel-nuts, and the whole soil granular, so as to look *as if it wanted sifting*. Sow thin, and cover with only as much of the finer part of the soil as will just hide the seeds. Lay over the pans some tiles or boards, or even sheets of paper, and put them in a heat of 60°. If properly done, there will be no need for water till the plants are pushing freely. There is no harm in giving a good watering when the seeds are sown before sprinkling a bit of fine stuff over them, for if put in heat directly, a rather wet state does them no harm, and they will be very nearly dry by the time they start freely. The quick practice makes work almost directly. Put them full in the light as soon as the seed-leaves appear; give as little water as possible; and to ascertain if they are moist enough, keep a bit of stick (clean deal) thrust into the soil of every pan, so that by drawing this out occasionally you may learn exactly what is the degree of moisture underneath.

Prepare for potting a good heap of such compost as the seeds are in, with plenty of grit mingled with it. Rotted hops make a nice admixture if you have such stuff, but there is nothing like having a predominance of good loam from the first, as in the earliest stages of its life the plant is collecting the energies that are afterwards to be expended in the production of flowers. This compost should be placed in the propagating house, or any other warm place, for a day before it is wanted. I prefer to pot them singly in thumb-pots as soon as the rough leaves appear, as at that stage they do not feel the least check in the operation, the seed-leaves having so much power of sustaining the plant. Lift them out with a bit of stick; pot them like lightning, giving each a tap as finished; and as they are potted plunge them all in a bed of warm hops, or place them on a moist bottom in a heat of 65 to 70°, and without any shading. My little house has a rough wooden table sprinkled over with about

two inches of cocca-nut fibre, and on this all pots containing newly struck cuttings, &c., &c., are placed, and it is astonishing how the moisture below promotes their health and strength. The pots will be full of roots in no time. Shift them into 60-size, and again place them on a moist bottom in a temperature of 60 to 70°, but in the course of a week remove them to a cooler air, and begin by slow degrees to harden them. The season will be now so far advanced that a house not heated will do for them, and at first they must not be ventilated for a few days. But when the sun shines bright, plenty of air may be given after two or three days have elapsed. They will soon be thrifty plants, the leaves

spreading over the pots, looking vividly green, and growing rapidly. When the pots are filled with roots, shift them to 48-size. In all these shiftings, one crock in a pot is enough, and that need not be removed in turning out. I never use crocks at all for such work as this; it seems a waste of time; but an amateur not used to the regular work of the propagating house had best put a nice hollow crock in each pot to make sure. There is very little more to be done, but as they will probably be in the way from the amount of room they consume, they may now go to cold frames, pits, or even to a dry sheltered border where a mat can be put over them in case of frost.



Seedling Hollyhock, average quality, light.

The planting-out must be as liberal as the growing in pots. Nothing but thin spikes and open blossoms can be expected if they are turned out on poor soil, or left to fight out their existence on soil half dug and without a drop of water to help them during drought. Let the piece be deeply dug and liberally manured some weeks before planting out. The middle of May is early enough, except in peculiarly favoured localities, or in very forward seasons. It must be remembered that having been pushed on fast, they will not bear much hard usage, and therefore it is not safe to plant them out till spring frosts are over. Plant them in regular rows,

three feet apart every way; close them in neatly. If planted in showery weather, they will probably take care of themselves, and grow away gloriously from the first; but in the event of dry weather, give each plant a little water every few days till their free growth proves that they have "taken hold" of the ground, after which they will require very little care.

When planted in a large piece or in avenue rows, the best way to hold them up against wind is to drive down some stout oak posts at each end of a row, and carry two stout galvanized wires from post to post, to which the stems are to be tied. This is an *invisible* mode of supporting, very effectual, and far less trouble than the ordinary mode of putting a stake to every plant. It is a rule with me to plant lettuces all over the piece a week or two before putting out my seedlings. The vermin assemble in and about the



Seedling Hollyhock, average quality, dark.

lettuce, and never touch the hollyhocks while there is a lettuce-leaf left; and the lettuces serve as effectual traps. In the latter part of the season, the earwigs become very troublesome, for they lodge in the joints, and it is difficult to deal with them. There is no plan so good as trapping, for which directions have been given so often that I will not add to the length of this paper by any further remarks on the subject.

As to seed, the hollyhock has this excellent quality, that nine-tenths of all seedlings from good strains are worthy of admiration. Here and there open-eyed, pockety, or even single flowers occur.

But a very large proportion come in the same colours and (within a certain mark) of the same form as their parents. The cultivator of seedlings for effect may therefore select such colours as he wishes to have, and may plant out according to any system which taste may dictate, with almost as much certainty as if the plants were grown from cuttings. The leading houses offer seed in packets named from the varieties they are taken from, and as a rule the named seeds are of the best quality and saved with every proper care. I am bound to say, however, that I have always planted mine indiscriminately, having in view to select a few plants from the seed-bed for naming and propagating, and moreover I never grow any but seed of my own saving. In respect of the trade seeds, therefore, though I speak from actual knowledge, I do not speak from personal experience. Avoid cheap seed, and if possible obtain it from some house that has a first-class reputation.

Last summer I made several sketches of flowers and spikes from plants raised from seed sown the second week in February. From these I have selected two, which I send; they represent neither the best nor the worst, but what I consider a fair average of the quality from good seed. The light flower has rather too large a guard, the dark flower is scarcely smooth enough in the edge, but both are good. At a future time I will send a sketch of what I consider a perfect hollyhock should be. E. H.

Calendar.

WORK FOR WEEK COMMENCING FEBRUARY 16.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN crops to be cleared off as fast as possible, and the plots ridged up, to be well aired before being appropriated to summer crops. Sow main crops of peas and beans, earth up any that are now out of the ground, and if any fear of vermin sprinkle with wood ashes. We believe the common slug has more to answer for as to the destruction of early rows of peas than any other depredator.

CELERY large enough to be pricked out to be removed forthwith to a sweet hotbed. Sow again for the main crop.

CUCUMBERS for ridge culture to be sown now, or within a week or so of this date. Sow also for frame culture to succeed plants now bearing. We prefer sowing in 60-size pots, two seeds in a pot, the strongest plant in each to be kept, and the roots never to be damaged by shifting, so as to have them strong and short for turning out.

POTATOES may be planted for main crops, but the operation must depend very much on the weather. Better delay a week or a month than plant when the ground is wet. Put all seed potatoes in full daylight in shallow baskets, in thin layers on dry hay or straw. By keeping the shoots short and plump, there is less likelihood of disease, and the vigour of the sets is not impaired.

ARTICHOKES will soon require to be dressed for the spring, but the time chosen for it must be regulated by the weather. If frost prevails, leave them alone for the present; but if mild open weather, remove the protecting material, fork over the ground between the rows, and give a good dressing of rotten manure and wood ashes.

CAULIFLOWERS coming up thick in pans and boxes to have a little dry earth or wood ashes strewed amongst them, as oftentimes advised by Mr. Clarke in his practical papers on the management of seedlings.

ONIONS required to be very large may now be provided with a deep, well-manured bed in a rather dry position. Transplant into this bed from the seed-bed of autumn-sown stock, putting the bulbs nine inches apart; if only serviceable bulbs be required, put them six inches apart. After planting, strew wood ashes or fine siftings of charred rubbish over the bed.

PARSNIPS to be sown now on deep, well-stirred soil. If heavily manured last year, all the better, but on poor soils they give a good return. In case of requiring large, handsome roots, trench deep, and lay manure at the bottom of the trench. When the ground is ready, take a stout iron bar or iron-shod oak-stave, and make holes fifteen inches deep, nine inches apart, in rows fifteen inches asunder. Fill these holes with sand, or any fine soil, sow a pinch of seed over each hole, and cover lightly. When the plants appear, thin them to two or three in each patch, and as soon as they begin to make rough leaves freely remove all but the strongest one in each patch. By this plan they will grow to a great size, and as straight and tapering as if turned out by a lathe. The parsnip always pays for the ground it occupies, for if sown on poor soil it gives a good return of useful roots, though as there is great waste when these are forked or cankered, good cultivation is to be preferred, both because more creditable and more profitable.

PEAS AND BEANS sown on strips of turf, or otherwise intended for planting out, should now be hardened by exposing them as much as possible to the open air, but it must be done without causing any serious check, and if the nights are frosty they must be covered up early. When they have been exposed for eight or ten days, they may be planted in rows to take their chance. Beans are growing fast, and require earth to be drawn to their stems. This operation will destroy the weeds, which are also coming up rather thick.

Flower Garden.

TENDER ANNUALS for specimens and bedding out to be sown now include Balsams, Cockscombs, Globe Amaranthus, Portulacas, Schizanthuses, Phloxes (don't forget Phlox Drummondii Radowitzi), Brachycomas, Stocks, Tropaeolums, Colerases, Lophospermums, and Aconitum. It is too early yet for Asters. First-class annuals should be grown with care, the plants to be pricked out early and stopped; if they once get drawn, they never bloom satisfactorily, or show their full capabilities.

HARDY ANNUALS.—Generally speaking, the greater the variety used in a garden, the less pleasing will be their effect. Half a dozen well-selected sorts will produce a richer and more harmonious, as well as more manageable picture. We have seen on a broad herbaceous border, alternate clumps of Escholtzia crocea and Clarkia pulchella—the clumps two feet across and four feet apart—and while the bloom lasted, and the flowers were fresh, nothing

could be more effective: the contrasts were rich and satisfactory, and the broad masses of repeated colour gave a distinct character to what was otherwise a mixed collection. When the plants in these clumps began to get seedy, they were at once cleared off the ground, and replaced with purple verbenas and dwarf calceolarias in clumps, and the effect was again charming. The best of all ways to use annuals is in large masses of distinct colours, to have no half-tints or mixtures, and to have very few kinds. If they do not last the season out, it is an easy matter to remove them, and plant again, because during May and June almost any kind of bedding plants may be propagated in quantity with very little trouble, a few hand-lights or a frame being quite sufficient. But to follow annuals, the best things are annuals again. By the time that Virginian stock, nemophila, and other early-blooming kinds are over, balsams, and asters, and stocks may be raised in quantities to plant out in their places, and these will last in bloom till frost makes an end of them. But in whatever way they may be used, we recommend those who merely wish for gay colours, and have no idea of making collections of plants for botanical purposes, to grow very few, and let those few be the best. The following is a selection arranged in colours; there is not one entered but is worth a place in a duke's garden, and they are all so cheap that the poorest cottager may by their means have a grand flower-show entirely of his own.

White.—White Candytuft: this is truly splendid in large masses; thin to four inches apart. Nemophila maculata: this is a delicate-looking thing, not very showy, but quite a gem in its way. Phlox Drummondii alba: this is to be sown on a hotbed, or in a pan in a warm window. Portulacca alba: a dwarf succulent; sow in a mixture of loam, sand, and old mortar, equal parts; place in a frame or window, and plant out on dry sunny banks. Saponaria calabrica alba: a neat dwarf, profuse-flowering annual, very hardy; and grows in any soil. Cynoglossum linifolium (Venus's navel-wort): an old-fashioned and silvery-leaved white-flowered annual; grows in any soil or situation, three to four inches apart. Virginian Stock: not much prized, but very beautiful while it lasts, and useful to occupy places that are to be filled with later-blooming plants. Pink and Rose.—Saponaria calabrica: the same as above described, but with rosy-pink flowers. Silene armeria: true magenta colour, the plant very neat, and the flowers produced abundantly. Centranthus maerosiphon: thin to five or six inches apart. Clarkia rosea. Eueharidium grandiflorum: this will bloom late unless sown in heat. Gillia tricolor rosea: dwarf and pretty. Godetia rosea alba; grows eighteen inches high, and should be thinned to six inches apart. Rosy branching Larkspur: grows two feet high; thin to six inches apart. Oxalis rosea: a lovely annual for pots or borders; the flowers close during rain. Viscaria oculata: grows a foot high, and must be thinned to seven or eight inches apart. Crimson and Purple.—Iberis Kermesina: this is a splendid crimson candytuft; there is also a purple candytuft. When obtained true, these are the most uniform and effective hardy annuals ever grown. Sown early in a rich soil, and thinned in good time to six inches apart, they make splendid beds, and may be removed in good time to follow with fuchsias or variegated geraniums from spring cuttings. Very few seedsmen can supply these new and beautiful varieties, and unless the purchaser is careful in obtaining them, the result may be washy lilac flowers instead of rich masses of glowing colour. Clarkia pulchella: thin to six inches apart when in the seed-bed. Indian Pink. This needs a rich soil and sunny position. Blue.—Nemophila insignis: blooms early, and is soon over. Venus's Looking-glass (Campanula speculum): this is equal in its way to the purple and crimson candytufts, and its dense masses of purple blue flowers are unequalled. Ipomea tricolor cœrulea: this always turns its flowers to the sun, and has the best effect in beds and borders on the north sides of windows. If planted to the south of windows, the flowers will be almost hidden by the leaves. Kaulfussia amelloides: similar in growth to Nemophila, and a truly beautiful annual. Lupinus angustifolia: there are several fine lupins; if you grow all you can get, there will be no waste of ground, they are so beautiful. Yellow.—Euthamia Veitchii: dwarf and neat. Leptosiphon aureus: a most beautiful dwarf free-blooming plant. Escholtzia crocea; the best for clumps. Escholtzia tenuifolia: very beautiful where a miniature plant is required; the primrose blossoms are very pretty. Lupinus luteus: pretty and sweet-scented, but of very brief duration. Salpiglossis sulphurea splendens. For MIXED BORDERS, annuals of taller growth may be used, such as peony-flowered Poppy, Calliopsis, Lupinus mutabilis, African Marigold, Chrysanthemum Burridgeanum, &c.

AURICULAS require to be top-dressed; do not use the stimulating compounds recommended by the old florists, but good sweet decayed cow-dung and leaf-mould. Give them more water, and examine each under the leaves to see that they are free from vermin.

Fruit Garden and Orchard House.

WALL FRUIT TREES are in a forward state, and in many places the trees are in bloom. Now more than ever the cultivator will need to exercise vigilance and caution. Probably great care will be requisite in giving protection, for we are approaching the season of east winds, and already a bleaker air warns us that just as vegetation resumes its activities earlier than ordinarily, the coldest time of the whole year may come. In any case, those who have the care of wall-trees ought to be ready with protecting material. For all ordinary purposes, we know of nothing to surpass Haythorn's hexagonal netting, made by Haythorn of Nottingham; and it may be right to add that the large-mesh netting is very nearly or quite as effectual as the small, and is considerably cheaper; the fact is, the small mesh is made for people who cannot believe in the efficiency of a large-mesh net; as they will have it, the maker provides it, and charges accordingly.

FRUIT TREES in the orchard-house to have another good soaking at the roots. Give air freely, or the fruit will not set well. Peaches in the forcing-house to be thinned and disbudded judiciously; do not remove all the superfluous fruit and shoots at once. Trees that have set their fruit to have liberal syringing with soft water of the temperature of the house. Figs setting fruit to be kept in a rather dry air, but with sufficient moisture at the root. Vines swelling their fruit to have manure-water and frequent syringings. In thinning, beware of handling the bunches incautiously. Keep outside borders securely covered, as we may have snow when the March winds begin.

SCIONS FOR GRAFTING must be at once heeled in. It is too early to put grafts on; they will take much better if kept back by heeling in for a few weeks to give the stocks a chance of getting in advance of them.

STRAWBERRIES planted last autumn must now be trod between to make the ground firm. A coat of manure may then be spread over the ground, and will greatly benefit them when the drying east winds of March blow the life out of everything except chickweed. Old plantations must be cleared of dead leaves and weeds, and have a good coat of rotten dung laid

on. If it buries the crowns, it will do no harm; they will soon push through. Strawberries in the forcing-pit have plenty of air, plenty of light, and plenty of water. Tepid manure-water will assist in augmenting the size of the berries, but there must be plenty of light and air to ensure flavour and colour.

Greenhouse and Conservatory.

SPECIMEN PLANTS for summer exhibitions and for decorative purposes ought to be growing freely now to give time for stopping, so as to have fine round full heads before allowing them to run into bloom. *Cinerarias* required extra large may be potted on, and if trusses show nip them out. *Pelargonium* will require another shift. Herbaceous *Caleceolaria* the same. A confined condition of the roots will throw plants into bloom quickly if they are in a suitable temperature, but stopping and shifting on will keep them growing larger and larger, and after the last shift a period of six to ten weeks will generally suffice to bring them into bloom, if the pots are full of roots, and stopping is discontinued. Green-fly will now appear in masses where plants are neglected, but a stop must be put to their progress as soon as discovered; every day's delay is mischief.

VERBENAS are very scarce at present. No doubt there will be plenty of stock at the nurseries when bedding-out time arrives, but there can be no harm in making the most of the store plants of good sorts, and it is easy work enough with a good propagating bed to get up untold quantities with a few good stools to cut from.

HELIOPTERES should be pushed forward if an early bloom is required, as they do not bloom so soon from the date of putting in cuttings as many of the summer bedding plants.

PROPAGATION of climbers and tender annuals should now be going on in earnest, and there must be no more delay in propagating bedders if a good early bloom is wanted. *Tropæolums* to be struck from cuttings may be delayed to the middle of March, as they bloom the better, and make less growth, if propagated late; but *Geraniums*, *Fuchsias*, *Petunias*, and *Verbenas* should be cut from as fast as they furnish shoots. If the cuttings show signs of damping, sprinkle a little powdery peat over the surface of the soil, give more air, and raise the temperature. If the cuttings, as soon as rooted, run away into a spindling growth, let them have more light and less heat.

NEW HOLLAND PLANTS and **HEATHS** demand a great deal of attention now to bring leggy specimens into shape, encourage the growth of those going out of bloom, and protect from cold draughts and undue moisture those coming into bloom. Continue to shift such as require it, and any that are looking out of health turn out of their pots, to see if the drainage is right, and the stuff sweet and porous. The powdery peat in which these plants are generally grown at nurseries is best got rid of as much as possible from the roots, taking care not to damage the delicate fibres; and in repotting use plenty of fibry turf and peat, rough lumps, sitting out the fine dust if needful, which will be useful in propagating to pot young stuff in from the cutting-pans.

Forcing Pit.

FROES in the forcing-house must have air, but cold draughts will cause them to cast their fruit. It is equally important not to chill the roots, as may be done by watering with cold well water, &c. The syringe will benefit them, and they require a steady temperature.

PEACHES to be regularly thinned, and the shoots trained in without tying hard. All this sort of work should be done by degrees; to thin out all the surplus fruit at once, or train in all the young shoots close in one day, will be injurious. Besides this, the wholesale way is injurious to the cultivator, for it makes mere business of that which should be a pleasure, and diminishes his interest in his work. The most successful cultivator is he who does everything at the right moment, and ever finds fresh work to do. Daily attentions promote that intimate knowledge of the wants and peculiarities of plants which is one of the finest essentials to success. The temperature of the peach house should now range from 55° to 75°, the latter of course on the brightest days with sun-heat. Trees coming into bloom very profusely must have the bloom thinned, or they will be weakened. Varieties that are shy of setting must be aided by slightly agitating the trellis at midday when the air of the house is rather dry, or by the more niggling but more certain way of brushing the pollen on to the stigmas by means of a dry camel's hair pencil.

PINES in progress must have plenty of water overhead and at the root. Continue to watch that water is not left in the crowns in the after-part of the day. Those in bloom or fruit must not be wetted overhead, and any beginning to colour to have as much air and light as possible, guarding against a chill, and keeping them rather dry. Succession plants must be encouraged.

VINES showing good bunches must have the shoulders tied with worsted or matting. This must be carefully done, as if the bunches are rubbed by the head or hands, rust may ensue. The air of the house where berries are swelling must be kept moist, and it will be well to make a special examination of the border, as this is sometimes wet enough upon the surface, and quite dry a few inches down. In watering, use water of the same temperature as the soil; better a few degrees warmer than colder. Vines for late crops to be kept back, which is not an easy matter in such a warm season as this, when a few days of sun-heat may start them prematurely. Taking off the lights will be the safest method where there is any fear of them starting too soon. If time can be afforded, it will pay in the end to thin the bunches before the flowers open, though very few cultivators have the courage to begin so early.

Stove and Orchid House.

STOVE PLANTS need a general revision at this time of year; those that have been blooming all winter require to be cut back, and encouraged to break, then to be shifted to larger pots if needful, or have top-dressings. Where very large specimens are objectionable, the plants may be kept in bounds by the knife, and to obviate the use of larger pots, turn them out, remove some of the soil from the outside of the balls, and repot them with fresh compost in the same pots. *Justicias* are now going out of bloom, and may be propagated to any extent, to make fine specimens for next season. *Poinsettia pulcherrima* and *Euphorbia Jacquinæiflora* and *splendens* should be grown in quantity, as they are invaluable for conservatory and drawing-room.

STEPHANOTIS FLORIBUNDA ought to be growing freely now in a sweet bottom-heat. This noble stove climber may be grown as easily as a jasmine with sufficient heat and moisture; but it will never bloom freely unless grown freely in the first instance.

DIPLODENIAS should be put in a good heat to start them; and it is best not to tie in too soon, as that arrests growth. One of the secrets of growing these well is to give abundance of water; they are, in fact, marsh plants, or half-aquatics.

ORCHIDS of many kinds come on successively now for their growing or blooming season; but it is not advisable to run up the temperature to a high pitch, because for many days together we have a clouded sky, and there must be some sort of balance maintained between degrees of light which we cannot regulate and degrees of heat which we can. The night temperature for mixed collections should now average 55°, and the day temperature 65°, with a rise allowed of 5° to 10° for sun-heat. As much air as possible should be given on sunny days, as it promotes a complete change of the atmosphere of the house, which is good for all kinds of plants; but be careful not to overdo it, as a chill at this season will be very hurtful.

CULTIVATION OF THE FILBERT,

AND MR. WILLIAMSON'S MODE OF PRUNING IT.

The county of Kent, and more particularly the district round Maidstone, and extending to the borders of Sussex, has been long celebrated for the production of large crops of filberts, and of a much larger size than are generally grown. The following description of their method of cultivation and pruning, by the Rev. Wm. Williamson, M.A., was published in the fourth volume of the "Horticultural Transactions," and we reproduce it as the best reply we can give to J. W. and R. H. J., who have made inquiries as to Mr. Williamson's method.

SOIL.—The first consideration in making a plantation is to select a proper soil, for if that be not congenial to the constitution of the plants, we cannot expect any great success. The soil in which the most experienced cultivators suppose the filbert to flourish best, is a hazel loam of some depth with a dry subsoil. If the subsoil be too retentive of moisture, the trees are apt to run too much to wood, without throwing out those short twigs upon which the fruit is generally produced. That part of Kent where the filbert is chiefly cultivated is a loam upon a dry sandy rock. As a general rule, that soil which is proper for the growth of hops is thought to be also congenial to the filbert.

The filbert requires a considerable quantity of manure; the grounds in Kent are dressed every year, or at least once in two years. Every kind of manure is beneficial, but old woollen rags are found to produce the greatest effect. If Kent had not been a hop county, these would scarcely have been thought of; but as the same soil is congenial both to the filbert and hop, it would soon occur to the intelligent cultivator that probably woollen rags might be as beneficial to the filbert as they are known to be to the hop.

PROPAGATED BY SEEDS, BY SUCKERS, BY LAYERS, AND BY GRAFTING.—Each is practised according to the peculiar object of the cultivator. The method adopted in the district above mentioned is by suckers: they come sooner into bearing, and make stronger plants than either layers or grafts. They are taken from the parent plant generally in autumn, and planted in nursery beds (being first shortened to ten or twelve inches), where they remain for three or four years; they are slightly pruned every year, in order to form strong lateral shoots, the number of which varies from four to six. The most free-growing plants are obtained by sowing the nuts, but they are so coy in coming to a productive state, and so much inclined to degenerate into inferior varieties, that this method is never resorted to in making a permanent plantation. The plants raised by laying and grafting are of more humble growth, and therefore better adapted for small gardens, where the economy of space is an object of importance.

PRUNING.—The method of pruning the filbert being so different from that of every other tree, and being not generally practised beyond the county of Kent, a particular explanation of it will be necessary.

Before any one can possibly prune a tree with propriety, it is necessary that he perfectly understand the mode of its fructification. The fruit of the vine is produced only upon shoots of the preceding year; cherries are grown chiefly on short spurs emitted from the sides of the larger branches; if, therefore, the last year's shoots of the vine or the spurs of the cherry-tree be destroyed, there will be no fruit. Now, in some respects, the filbert is similar in its fructification to both these trees, the bearing branches being always those of the preceding year, similar to the vine; and these branches, if the tree be properly pruned, might with great propriety be called spurs, allowing for the difference between the filbert and the cherry. These short twigs or spurs are not more than a few inches long, every bud of which in a good year produces good fruit. The great object of the following method of pruning is to cause the trees to throw out these spurs in great abundance, and when they are got to a proper bearing state, more than sufficient will be produced.

Though it is the usual practice to plant the suckers in nursery-beds, Mr. Williamson recommends every one to plant them where they are to remain, whether they are intended for a garden or a larger plantation; and after being suffered to grow without restraint for three or four years, to cut them down within a few inches of the ground. When the remaining parts of the trees are well rooted in the soil, five or six strong shoots will be produced. Whichever method is practised, the subsequent treatment of the trees will be exactly the same.

In the second year after cutting down, these shoots are shortened; generally one-third is taken off. If very weak, Mr. Williamson advises that the trees be quite cut down a second time, as in the previous spring; but it would be much better not to cut them down until the trees give evident tokens of their being able to produce shoots of sufficient strength. When they are thus shortened that they may appear regular, let a small hoop be placed within the branches, to which the shoots are to be fastened at equal distances; by this practice two considerable advantages will be gained—the trees will grow more regular, and the middle will be kept hollow, so as to admit the influence of the sun and air; but this in a large plantation would be almost impossible, nor indeed is it necessary, though in private gardens, where regularity and neatness are almost essential, it ought to be practised.

In the third year a shoot will spring from each bud; these must be suffered to grow till the following autumn, or fourth year, when they will be cut off nearly close to the original stem, and the leading shoots of the last year shortened two-thirds.

In the fifth year, several small shoots will arise from the base of the side branches which were cut off the preceding year; these are produced from small buds, and would not have been emitted had not the branch on which

they are situated been shortened, the whole nourishment being carried to the upper part of the branch. It is from these shoots that fruit is to be expected. These productive shoots will in a few years become very numerous, and many of them must be taken off, particularly the strongest, in order to encourage the production of the smaller ones; for those of the former year become so exhausted that they generally decay, but whether decayed or not they are always cut out by the pruner, and a fresh supply must therefore be provided to produce the fruit in the succeeding year.

The leading shoot is every year to be shortened two-thirds, or more should the tree be weak; and the whole height of the branches must not be suffered to exceed six feet. Every shoot that is left to produce fruit should also be tipped, which prevents the tree being exhausted.

The filbert is a monoëcious plant, and consequently produces the male and female blossoms separately on the same tree; the slender scarlet filaments which are seen issuing from the ends of the buds early in spring are the female or productive blossoms; the barren or male blossoms are formed on long cylindrical catkins, which fall off as soon as they have performed their office. In pruning, care must be taken to leave a due supply of these to fructify the female blossoms, or our previous trouble will be useless; this may be done without difficulty, for they are perfectly visible at the time of pruning.

The method of pruning above detailed might, in a few words, be called a system of spurting, by which bearing shoots are produced which otherwise would have had no existence.

It frequently happens that a strong shoot springs from the root; and should any of the first year's or leading branches be decayed or become unproductive of bearing wood, it would be advisable to cut that entirely away, and to suffer the new shoot to supply its place, which is afterwards to be treated in the same manner as recommended for the others.

Old trees are easily induced to bear in this manner, by selecting a sufficient number of the main branches, and then cutting the side-shoots off nearly close, excepting any should be so situated as not to interfere with the others, and there should be no main branch directed to that particular part. It will, however, be two or three years before the full effect will be produced.

"But though this method of cultivation has long been celebrated, yet it does not appear to me," says Mr. Williamson, "so particularly successful as to deserve the encomiums which have been bestowed upon it; for though thirty hundredweight per acre have been grown in particular grounds and in particular years, yet twenty hundredweight is considered a large crop, and rather more than half that quantity may be called a more usual one; and even then the crop totally fails three years out of five, so that the annual average quantity cannot be reckoned more than five hundredweight per acre.

"When I reflected upon the reason of the failure happening so often as three years out of five, it occurred to me that possibly it might arise from the excessive productiveness of the other two, the whole nourishment of the trees being expended in the production of the fruit, and that consequently they might be unable properly to mature the blossom for the following year. We know that peach and nectarine trees may be so pruned as to force them to bear a superabundant quantity of fruit in some one year; but we find that a regular crop in succession is thereby prevented, and that too for several years. In order to ensure fruit every year, I have usually left a large proportion of those shoots which from their length I suspected would not be so productive of blossom-buds as the shorter ones, leaving them more in a state of nature than is commonly done: not pruning them so closely as to weaken the trees by excessive bearing, nor leaving them so entirely to their natural growth as to cause their annual productiveness to be destroyed by a superfluity of wood. These shoots, in the spring of the year, I have usually shortened to a blossom-bud, for the reason before given.

"The great art of pruning is to produce the greatest quantity of fruit without any injury to the crop of the succeeding year, which, in my opinion, is not done by the Kentish method. But by observing the rule I have laid down, though the trees do not perhaps bear so great a weight in any one year as by the method before detailed, yet the crops in the whole are certainly not less, with this great advantage both to the public and private grower, that a moderate and regular crop is ensured in every successive year; I think that by this plan the average might, in the whole, be greater. The year 1819 was a very productive one: I grew two hundredweight of filberts (weighed when gathered) upon fifty-seven trees, the greater part of which were not seven years old (reckoning them from the time of their being cut down), and growing upon 360 square yards of ground, which is after the rate of twenty-seven hundredweight per acre; and upon part of the ground ten more trees are now planted, which, if they had come to a bearing state, would have increased the quantity to more than is considered an extraordinary crop, besides having grown upon the older trees a moderate but regular quantity for several years preceding. I am the more confirmed in my opinion that the failure is caused by excessive bearing, by observing that there is very little blossom on my trees this spring, which has not been the case in former years.

In order to strengthen the tree as much as possible, care should be taken to eradicate the suckers from the roots, which is effected by exposing the roots, a moderate distance from the stem, to the frost of winter. The excavation in the spring is filled with manure.

As filberts are several years in coming to perfection, it is usual to plant hops, standard apples, and cherries among them. When they come to a bearing state, the hops are destroyed, and the fruit-trees suffered to remain. The ground is then planted with gooseberries, currants, &c., and an under-crop of vegetables is likewise frequently obtained. If this were not practised, the crop of filberts alone, except in particular years, would not defray the expense. The distance at which filberts are planted must depend upon their being mixed with other fruit.

Literature.

Dr. G. A. Pritzels Catalogue of Flowering Plants and Ferns, compiled from the Botanical and Horticultural Literature of the 18th and 19th centuries. [Verzeichniss der Abbildungen seltener Böhrender Pflanzen und Farne-krauter aus der Botanischen und Gartenliteratur des XVIII. und XIX. Jahrhunderts in alphabetischer folge zusammengestellt. Von Dr. G. A. Pritzel.] London: Williams and Norgate.—This is a Berlin publication of considerable importance to botanists and cultivators of plants. It is an

alphabetical list of all plants figured and described in works of authority published during the past 150 years, with references to figures and descriptions. The list of authorities prefixed comprises in all 94 works, the oldest of them, a French work on the plants of Canada, bearing date 1635, but the majority belonging to the present century. In the whole number there are enumerated 28 English books, or more than a fourth part of the whole. Amongst the English books we find Lowe's Ferns, Hooker's Himalaya, New Zealand, &c., Warner's and Bateman's works on Orchids, Lawson's "Pinetum," Seeman's "Flora Vitiensis," and Boott's "Genus Carex." About a dozen American works are entered, such as Asa Gray's Botany of the United States Exploring Expedition, Torrey's Report on the Mexican Boundary, and Nuttall's "North American Sylva." There is of course no lack of important continental works, such as Blume's "Museum," Fee's "Genera Filicum," Née's "Sammlung," Reichenbach's "Xenia Orchidacea," and Schott's "Aroidæ." Nevertheless, we cannot accept this as a satisfactory list of authorities, and regret that Dr. Pritzel did not include such authors as Lindley and Gordon, and he might even have gone back to the "Hortus Kewensis," and a few plants would have turned up that have been overlooked by later authors. Lawson's Pinetum is not advanced sufficiently to furnish references for conifers generally, and Gordon's excellent work would stand well in its stead. However, the result of the compilation from the 94 works enumerated, together with the "Garten Flora," the "Revue Horticole," the "Botanical Magazine," and a few other periodicals, is a list of 20,700 plants. One of the specially good features is a reference under the head of each natural order to the authority for its foundation, and the best exposition of its characters; and it would have been another good feature to have printed the orders in a different type to the names of genera: the only distinction attempted is what printers call "spacing out," which is insufficient. But forgetting these small defects, we are bound to praise the industry and accuracy of the author, and heartily recommend the work to all who can make any use of a mere list. It will be especially useful to botanists, nurserymen, and botanical writers, and is the most comprehensive key to information upon plants that we have at command at the present time.

The Children's Friend, and The Infant's Magazine. Published by S. W. Partridge.—The issues of these for 1866 are tastefully bound in coloured boards, and admirably adapted for presents, school prizes, and for every household that is blessed with the prattle of children. We confess to having spent many hours over these two books, and having at last put them down with regret, they are so truly fascinating for both young and old. Readers who are not acquainted with these publications will be astonished to hear that they are richly illustrated from the pencils of Birket Foster, J. Gilbert, Harrison Weir, Mr. H. Anelay, Mr. Ansdell, and other artists who rank highest among designers for books; and the faithful engraving of their works by Messrs. Dalziel and Mr. Knight ensures faithful rendering of the subtlest touches and richest effects. The "Half Holiday," at page 104 of the *Children's Friend*, "We are Seven," at page 45 of the same, and Birket Foster's lovely landscape at page 131 of the *Infant's Magazine*, are such gems as we might look for in guinea gift books; indeed, these works are quite as much entitled to notice as works of high art as they are for their perfect adaptation in style and subjects to teach the young idea how to shoot. We hope this notice may lead many of our readers to order these eightpenny books, for if not acquainted with them already, there is in store for them a delightful surprise.

The Intellectual Observer for February contains a paper by Mr. W. Duthie on ancient Jewellery, which is admirably illustrated in gold and colours; the paper called the "Trial of the Pyx" is a valuable addition to the many papers which have already appeared in this work on subjects relating to the Mint and processes of coining. There is a further contribution on the growth of shells, from the papers of the late Dr. S. P. Woodward, an interesting paper on the Mangrove by Mr. Jackson, of the Kew Museum, and essays on Telegraphy, Coal Supply, Fossil Forests, the Mammoth, and various matters connected with archaeology.

The Floral World for February contains a paper on Exotic Ferns adapted for open-air ferneries, with a very effective portrait of Woodwardia radicans; also practical articles on raising sub-tropical plants from seed, on the cultivation of the Auricula, further contributions on select herbaceous plants, and a variety of useful notes and suggestions on the work of the season and the fashions in floriculture.

Our Own Fireside for February is full of entertainment and rich in variety. In the scientific department is a capital sketch of Esquimaux life, with illustrations, and in another department is a most entertaining selection of anecdotes illustrative of animal sagacity, accompanied with two characteristic pictures by Mr. Harrison Weir.

The Ladies' Treasury for February is richly illustrated, and full of entertainment and variety. Mrs. Warren takes care to mix a due proportion of light reading with the serious historical, domestic, and scientific matters which form the staple literature of this excellent work.

The Journal of Botany.—The February number contains a notice of a new genus of Corallines by Dr. J. E. Gray; a translation of a paper on the tomentosa section of the genus Ra, by M. A. Deseglise; notes on the finding of Eriophorum alpinum and Acorus calamus in Ireland; a smart review of Mr. Clarke's little book on the botany of Andover, and the usual omnium gatherum of miscellaneous matters.

The Gardener for February contains papers on plants adapted for grouping, on the cultivation of geraniums as pyramids, on grape-shanking, and the culture of Luenlia gratissima, &c., &c.

Received—*The Watchmen of Ephraim, Old Jonathan, The Gospel Magazine, The Shipwrecked Mariner.*

Downie, Laird, and Laing, Frederick Street, Edinburgh, and Forest Hill, London.—*Descriptive List of French Hybrid Gladioli.*—Contains descriptions and prices of about 250 varieties, with a selection of cheap kinds for clumps and beds.

Drummond Brothers, 52, George Street, Edinburgh.—*Catalogue of Vegetable and Flower Seeds.*—We observe an offer in this list of a good strain of variegated kale for the embellishment of drives and shrubbery borders in winter. The selections are admirable, and the catalogue is nicely got up.

T. Pierpont, Warrington.—*Catalogue of Vegetable, Flower, and Agricultural Seeds.*—In the list of peas we notice "No. 1 Extra," described as next to First Crop in time, and in other points superior. This surely cannot be a *bona fide* distinct variety. This is a first-rate seed list; the cultural notes short and good, and the selections cut down to the fewest possible, and those the best.

Correspondence.

NIGHT STOKERING.—Mr. Clarke says at page 10 of this year's volume of GARDENER'S MAGAZINE, "Night stoking is abolished: how ridiculous!" I am an amateur, and my own stoker, and to keep my house at not less than 40° during such frosts as have visited us lately has been my aim; and it has been done by my stoking only twice in the twenty-four hours, viz., about 8 a.m. and 8 p.m. I have no damper, but when fixing I was very particular to get every crevice closed to prevent admission of air to the fire, except through the ash-pit door. In this door there is a slide that closes, or partially so, six openings cut out of the ash-pit door; each opening is about 1½ in. by ¾ in. By carefully leaving the slide to regulate the supply of air to the fire, and by a little attention to filling in the fuel, I can either burn it out in five or six hours, or keep it burning slowly fifteen or sixteen hours. Let Mr. Clarke try this plan carefully, and give the result in your pages as to night stoking, and also as to the cost of fuel—mine is coke broken and small coal such as blacksmiths use. Reading some time ago, I think in the GARDENER'S MAGAZINE, that the great point was to regulate the supply of air to the fire, drew my attention to the subject, and I feel convinced this simple plan is the main point in the so-called patent stoves. My ash-pit door is closed in by a sheet of iron, and a piece cut out of the centre for the door, with slide; this was suggested by the writer, who now considers it, after a fair trial, to answer admirably, and it is the stoker's sheet-anchor against night-work. I only wish now I had read your remarks on copper boilers sooner, as when worn out there is a value in the old material—not so in iron; and we amateurs could have our own fancy in the shape of boilers, a matter of importance to a fussy old fellow like me, who was not content even with your suggestion to hang woollen strips over the openings to admit air, so I had slight wood frames made, and sheets of perforated zinc nailed on to fit the openings. These pleased me well, and experience teaches me to prefer the zinc. CHARLEY.

Replies to Queries.

Broccoli.—Centranthus.—We had a head of Cattell's Eclipse last summer, the weight of which was a trifle under 4 lb., and for beauty and flavour could not be surpassed. We have not grown Williams's Alexandra, but it has been reported to us on good authority to be one of the best varieties yet introduced to cultivation to stand the winter, superseding Snow's Winter White and Knight's Protecting. The following are reliable sorts: Carter's Champion, Dalmeny Park, Cornish White, Frogmore Protecting, and Elkton's Mammoth.

Asparagus.—J. B.—It is quite a mistake to suppose that there are several sorts of asparagus. There may be many names in vogue, but asparagus seed from one place will, as a rule, be as good from any other. Of course it is possible to obtain bad seed, but there is but one form of the plant. Its condition, whether fat or lean, is the result of cultivation.

Removal of Plant Houses, &c.—Little Florist.—If you took the ground upon the understanding that you were to occupy it as a florist, growing thereon plants for sale, you can certainly remove your houses, plants, &c. If you took the ground as a person not engaged in trade would do, and on the *prima facie* supposition that you would cultivate the ground for your pleasure only, the landlord can legally prohibit the removal of whatever is *bona fide* fixed in the soil, but you may remove whatever merely rests on the soil. Thus all trees and shrubs, and even a box edging cannot be removed; generally speaking, plant houses may not be removed, except where they are merely placed on the surface—for instance, the Paxtonian houses made by Messrs. Hereman. As to the agreement you have, and which is not stamped, we suppose it to be null and void; but the value of an unstamped agreement is quite a question for a solicitor. We have many queries relating to questions such as the above, and as a rule we pay very little attention to them, for they too frequently bear the appearance of attempts to get legal advice gratis. We do not profess to give legal advice, or to know anything of law, and we would rather offend any number of correspondents by declining to answer their queries than offer an opinion on a subject of which we are confessedly ignorant.

Broccoli Seed.—Veritas.—It is impossible for us to name one seedsman out of perhaps fifty equally respectable and reliable, without manifest injustice. In respect of novelties and specialities, we do give the names of traders who introduce them, but the subject you inquire about may be obtained of any really first-class house.

Barometer.—Under Gardener.—Meteorological instruments are usually read off at 8 a.m. or 9 a.m. daily. A barometer should be hung so that the register of 30 inches is on a level with the observer's eye. A nail driven at 5 feet 9 inches from the ground will in ninety-nine cases in every hundred just suit for banging a barometer. To read the barometer, slide the vernier up or down till it marks exactly the top of the mercurial column, and then note the figure registered in inches and tenths. No one need trouble about hundredths for any practical purpose. Registering thermometers are usually placed about four feet from the ground, but systematic observers use many instruments placed in various positions.

Planting Potatoes, &c.—J. Wright.—The sooner the heavy ground is dug the better; let it be laid up ridge and trench by a good workman. At planting time, instead of dibbing in the sets, lay them in the trenches and throw the soil from the ridges down upon them. This plan produces a well-pulverized and aerated seed-bed. Of course the trenches should be as far apart, or half as far apart, as the rows are to be. In putting new gravel on an old road, it is necessary to pick over the old surface, or the new material will not incorporate with the old.

Books.—J. Wright.—Much sound information, intelligibly conveyed on such subjects as landlord and tenant, I O U's, partnership, insurance, duties of executors, &c., &c., may be found in "Rights and Wrongs," by Albany Fonblanque, published by Routledge and Co. The price is something under 5s.—W. Wilson.—Bentley's "Manual of Botany," published by Church-hill at 12s. 6d., and Grindon's "British and Garden Botany," published by Routledge at about the same price, will suit you. One of the best books to refer to in writing garden labels is Grindon's "Manual of British and Foreign Plants," published by Pitman, the price 3s. or thereabouts. It is a pity the price is not stamped on the backs of books; it is impossible always to remember it, and we should never answer queries at all if we had to hunt through catalogues for the price of every book inquired about.

Primula Seed.—Miss Harmer.—It is time now to sow the first pinch of seed. The surest way to proceed is to nearly fill the pans with manure that

has been two years rotted and then sifted. Sprinkle the seed upon the surface, and do not cover the seed with soil, but lay over the pan a sheet of glass smeared with clay to render it nearly opaque. If the soil becomes dry before the seed sprouts, put the pans in a vessel containing one or two inches depth of water till the soil is quite moistened. A warm house or hotbed is the proper place for the seed-pans. As soon as the plants appear, remove the glass, and as soon as possible pot them off separately.

Ivies—Pampas Grass.—J. A. Stephenson.—The largest collection of variegated and other ivies in the trade is in the nursery of Messrs. E. G. Henderson and Co., Wellington Road, St. John's Wood. Messrs. Lucombe, Pine, and Co., of Exeter, have a considerable variety, and the entire stock probably of the creamy-leaved tree ivy referred to in our remarks on the embellishment of the garden in winter. You will probably not easily obtain dwarf bush ivies ready for plunging out, but you will easily obtain plants that by a few years' training may be made very effective. We have never known the pampas grass to flower the first year from seed.

Ground Vinerias.—H. Smith.—The vines are planted *outside*, close to the end of the frame. The training is of no consequence at all; a few pegs thrust into the ground between the slates suffice to keep the rod in its place. There is no rafter; in fact, the vine lies on the slates with which the soil under the frame is covered, and the bunches of grapes in like manner rest on the slates, but which "of course" does not "spoil them." When two vines are grown in one structure, the slates are merely laid on the ground as if only one vine were in it, but as the frame is wider, wider slates will be required. In the case of two vines, they are kept in their places by pegs twelve or fourteen inches apart. There is one difficulty in communicating information on ground vinerias, and it is this—the whole affair is so extremely simple that it appears to a practical writer as if there was nothing to describe, and so some few points about which beginners may wish to be informed are pretty sure to be omitted altogether. It appears to be highly beneficial to the grapes to rest on clean slates under a glass roof, for the heat they are thus subjected to is such as they have when growing on rocky and sandy soils in the native countries of the vine.

Seedling Cinerarias.—J. E. Rhug.—Of the three flowers enclosed in your letter, one is a real beauty, being of medium size, with very broad florets overlapping, so as to present a smooth and perfect circle. It has rather too large a disc, but is very substantial, and the colour a fine deep magenta-crimson.

Bedding Plants from Seed.—J. H.—We cannot understand from your letter what plants you have lost, but as you ask for the names of a few subjects that can be got up from seed, the following notes may be of some use: *Amaranthus melancholicus*, rich claret-coloured foliage; *Lobelia erinus speciosa*, blue; *Dwarf French Marigold*, and the pretty miniature marigold called *Tagetus signata pumila*, orange; *Portulacca Thellusoni*, crimson, fine for a hot sandy or stony soil; *Ricinus communis*, superb foliage, useful for bold groups; *Tropaeolum minor* of several kinds, the Tom Thumb section being the best to raise from seeds; *Viola cornuta*, slaty-blue. Asters, Balsams, Stocks, Candytufts, and the dwarf Campanulas are valuable, but are not so well adapted to plant out once for all as the foregoing, as they are less lasting.

Seakale Beet.—R. Simson.—We are not at all in raptures with this vegetable. To see it growing is to be filled with temptations to see it cooked, for it is most elegant with its thick ivory-white stems and elegant white-veined leaves. But however carefully cooked it comes to table a bad colour—a sort of greenish-white washed with black. We have seen it tried in the fairest way possible, but it never could be served a good colour. Then it has but little flavour, and is only an apology for a vegetable. Any one with an eye and a palate would prefer a dish of any sort of greens to this imitation of seakale.

Peas.—S. W.—It is no use to expect a fine dish of peas from impoverished soil. Trench the ground if it is deep enough to allow of it, and put in a liberal dressing of manure, stirring it into the earth at the bottom of the trench. Sow 4 inches deep, and put sticks in good time.

The Editor is desirous of recommending for employment, where three or four (or more) hands are kept, a Head Gardener. He is a man of ability and character; possessed of experience in every department of garden work, and of good deportment, obliging, and thoroughly businesslike in his habits. Communications addressed to the Editor at 119, Aldersgate Street, London, E.C., will be forwarded as soon as received.

EFFECTS OF THE FROST ON ROSES—MARECHAL NEIL.

In the article on the "Effects of the Late Frost on Standard Rose Trees," I quite forgot to mention *Marechal Neil*. Last April two plants of it came here along with some new roses from Messrs. Wood and Son, of Maresfield. In May they were planted out against a south wall, and in due time they bloomed. Although the plants (pot plants) were weak, I think I never saw more beautiful blooms. It is a lovely yellow rose; colour fine and good. The flower droops, on account of the stem being weak, which I consider a merit in the habit of the plant, as no rain can get to the centre of the flower, nor sun to spoil its beauty. My two plants, I am happy to say, are not affected by the frost. I protected them with a double coat of spruce firs. *Solfaterre*, *Triomphe de Rennes*, and *Madame Falcot*, protected in the same way, were killed. I therefore conclude that it is much hardier than any of those varieties. I budded fourteen briers with *Marechal Neil*; it takes on the brier more freely than any rose I know; not one bud failed, and some of them were weak and bad.

I never take the wood out in budding any variety; I find it much better practice. The French, I believe, never take the wood out of the bud. I merely cut a small shield the size of a barleycorn, and insert it neatly; I do not tie close, but leave a space between each two folds, which leaves room for the shoot to swell. The frost killed all my *Marechal Neils* in dormant bud, fourteen in number.

Great Fencote, Bedale, Yorkshire.

HENRY TAYLOR.

TO KILL INSECTS IN GREENHOUSES.—Mr. W. W. Saunders stated at a meeting of the Entomological Society, that for some years he had used spirits of wine in his greenhouses for cleansing plants and clearing them from insects; he mixed the rectified spirits and pure water in equal proportions, and this mixture, which was found to answer better than undiluted spirit, was applied with a brush. It was very efficacious in the destruction of the common mealy-bug (especially when young) and other common pests, and he recommended it as worthy of application in the greenhouse generally.

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M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.			M. Imp. avg. of 43 yrs. Growth	Orchids that may be in bloom, I, Indian House; II, Mexican House; G, Greenhouse.	M D
			rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain							
1867																
24	S	Sexagesima Sunday	6 59	5 29	1 42 a.m.	9 25	a.m.	29.92	29.27	46 30	41.0	.01	39.5	<i>Camogone cristata</i> , I	<i>Nepaul</i>	1867
25	M	Length of day 10h. 38m.	6 56	5 30	0 10 "	9 56	"	29.58	29.31	47 30	35.5	.08	39.7	<i>Brassavola glauca</i> , I	<i>Mexico</i>	24
26	T	Thomas Moore died, 1832	6 54	5 32	1 0 "	10 30	"	29.39	29.10	49 30	39.5	.43	39.8	<i>Cattleya Walkeriana</i> , II	<i>Brazil</i>	20
27	W	John Evelyn died, 1706	6 52	5 34	2 6 "	11 9	"	29.41	29.38	38 27	33.5	.04	40.0	<i>Ansollia Africana</i> , I	<i>Fernando</i>	27
28	Th	Treaty of Amiens signed, 1802	6 50	5 36	2 58 "	11 54	"	29.37	29.15	37 17	27.0	.00	40.1	<i>A. gigantea</i> , I		27
1	F	St. David's Day	6 48	5 37	3 45 "	0 44	p.m.	29.49	29.46	40 22	31.0	.00	40.0	<i>Dendrobium nobile</i> , I	<i>India</i>	2
2	S	Rev. John Wesley died, 1791	6 46	5 39	4 27 "	1 41	"	29.66	29.59	41 19	30.0	.00	39.9	<i>D. macrophyllum giganteum</i>	<i>Manilla</i>	1

The Gardener's Magazine.

SATURDAY, FEBRUARY 23, 1867.

ACCLIMATIZATION IS POSSIBLE WITH BOTH ANIMALS AND PLANTS to a limited extent, and the extent of the possibility is much more limited than is generally supposed. It is a popular fallacy that an animal or plant fitted by its organization for residence in a hot climate may by degrees be adapted to a cold climate; but experience proves that *the limits of adaptability are fixed* in the constitution, and the art of acclimatization consists, not in altering the constitution, which is impossible, but in discovering the limits of its adaptability. Our domestic animals are wonderfully adaptive in constitution: we find sheep and oxen thriving in Spain and in Denmark; horses attain perfection in the sunny lands of Arabia, and have vigour and endurance amid the snows of Russia. Even the tiger, which is peculiarly a tropical animal, goes as far north as 45°; and the reindeer, which is peculiarly an arctic animal, goes as far south as 45°; and thus tiger and reindeer may meet, and the result may be as pointed out by Sir Charles Lyell in his grand work on the antiquity of man—some curious problems for geologists, when the bones of these two animals are found embedded side by side in the same rocky stratum. Mr. Burley remarks, in his interesting paper on this subject, that animals have a wider range of adaptability than plants, which is true as a rule; but there are exceptions. The chimpanzee never lives long when removed from its native land; it has a small capacity for constitutional adaptation to climates colder than those in which it is met with wild; but perhaps our common groundsel, compared with the chimpanzee, would, if one comparison were sufficient, prove that plants have a wider range of adaptability than animals. We are apt to lose sight of the fact that every separate organism has a constitution of its own; yet it is so. Look at a bed of Sweet Williams this moment. We will suppose the seed was sown last year, and that it all came out of the same gathering, yet we shall find in the bed many plants quite unhurt by the recent severe weather, some browned and disfigured for the present, but prepared to recover quickly, and a few have been killed outright. If we knew nothing of the race, and had the dead plants only to furnish us with ideas respecting it, we should be bound to decide that the Sweet William is not a hardy plant; but having more experience, we pronounce that it is hardy, and that the losses out of the bed are exceptions to the rule. Now it is a very easy matter to be led astray by the behaviour of plants respecting which we have had fewer experiences than with Sweet Williams—or to be more dignified, as this is a "leader," we will say *Dianthus barbatus*. We find that certain plants introduced from foreign countries where the mean temperature is higher than that of Britain, and the minimum temperature is never so low as here, bear our ordinary winters with equanimity, and we may, if given to delusions, conclude that cultivation has "acclimatized" them. But there occurs an extraordinary winter, such as that of 1860-61, or 1867, and lo! the delusion is undone; we find that our foreign pets have in no way changed in respect of constitutional power to bear excessive cold; they are changed, because death has made an end of them; the limits of their adaptability were overpassed, and life ceased because the conditions of life were withdrawn. In every class of domestic animals and cultivated plants there are to be found races needing warmer climates than others, and races that will bear greater degrees of cold than the class generally. Thus our Leicester and Cotswold sheep, when taken to Spain to cross with merinos, soon lose their peculiar fleeces, and are of no use at all. So the merino, transferred to the highlands of Scotland, changes its garb, and ceases to be the silky-coated creature it was originally, and these are cases of true acclimatization. But take either of these races to the hottest parts of tropical Africa, and they perish; take them to Esquimaux land, and they perish; the most experienced adept at acclimatizing fails in such a case. It is the same with plants. Advancing pea, one of the most useful in cultivation, is lost entirely if sown

in January in the north of Scotland; but Lynn's Marrow braves the cold, and is hardier than any promiscuously selected fifty varieties of peas, though derived, no doubt, like the rest, from *Pisum sativum*. That animals should be better fitted than plants for ranging over wide latitudes, is consistent with their power of locomotion, for the scheme of nature is perfect, and if an organism is endowed with volition and powers of locomotion, it must encounter climatic influences differing more or less from those which pertain exclusively to its home. Indeed, its home is the spot where the climate, soil, and food suit it most completely. Yet, as we have seen, it may live, and that not unhappily, in places where there is a defect of warmth and food, as is the case with the horses of Shetland, which are dwarfed by cold and short commons. But it is the peculiarity of the nutritive system of animals that explains their larger powers of adaptability. The generation of heat, and the constancy of that heat when the trial does not exceed a certain limit, are the two grand facts in the philosophy of acclimatization. Corresponding with the action of the nutritive system is that of development, which comprises the fashion of the outward covering, as well as the solidity of the muscular fibre and the proportion of fatty tissue. We happen to know a fine hog that was purchased in Scotland and taken to Teneriffe. The skin of the animal was covered with a thick down, but after a few years' residence in a hot climate, the down disappeared, and the original bristles became more like bodkins than the pliant defences they were before, showing plainly that this was a case of acclimatization. The elephant bears the rigours of this climate tolerably well if not rashly exposed in winter, and the celebrated Siberian elephant that was dug out of a block of ice, and found in such a good state of preservation that dogs ate the flesh, was a veritable woolly elephant, and a much better example perhaps of wool than Mr. Barnum's woolly horse. On the other hand, plants have no nervous system, no pumping central organism analogous to a heart, and no source within them of a constant temperature. Hence, those that are not adapted to endure a condition of freezing die when subjected to low temperatures, and we could not hope to acclimatize them if thousands of years were given us for the experiment. We consider the *Araucaria imbricata* to be hardy, and it has been long enough in the country to be thoroughly acclimatized, if such a thing were possible; yet we could point to a garden where at the present time there are a number of trees completely killed by the recent frost, the value of which, previous to their destruction, cannot have been less than £500. The very trees now killed survived the winter of 1860-61, though in the same garden in that disastrous season hundreds of Araucarias were destroyed. The frost on that occasion may be said to have selected such as were unfit to endure it, and on the occasion of the frost of January last it did precisely the same.

The endurance of frost by plants is not wholly a question of its intensity. After a hot summer, finishing off with a bright autumn, the majority of trees in our gardens will bear without harm any degree of frost possible in this climate. But after a cold summer and a wet autumn, a sharp frost will kill the soft shoots of apple, pear, plum, and peach trees—will kill, in fact, almost anything that we reckon hardy, even the youngest shoots of ivy and Virginian creeper. The reason why the Japanese subjects have suffered so much of late is probably not wholly the degree of cold, but because they have not the summer heat they enjoy at home, and so their juices and secretions are not in so perfectly an elaborate state as is requisite for a complete state of rest when winter overtakes them. Acclimatization consists much less in attempts to alter the constitution of the subject sought to be acclimatized, than in discovering the limits of its adaptability. We know nothing of the hardness of a plant until it has been tried, and there is a value in the humblest of experiments in testing the relative hardness of animals and plants, if faithful reports of facts are published. Man is undoubtedly the most adaptable of all creatures. There is not a spot on the globe on which he can set his foot but he can manage to live on it, however hot or however cold. But then clothing, fire, highly artificial forms of food and drink, come to his aid, and in one case he may derive health and strength from pumpkins and water, and in another case from potted beef and brandy. Plants have no such resources; their limits of adaptability are narrow, comparatively speaking, and it is vain for us to contemplate changing their natures. All we can hope to do is to discover what are the extreme conditions within which life is possible.

CULTIVATION OF THE CHRYSANTHEMUM IN POTS.

Having been requested by many amateur cultivators to offer some remarks on the system I have followed in the production of my specimen chrysanthemums that have been exhibited at the November shows during several years past, I have drawn up a few notes in which I have endeavoured to state the case briefly but completely. I think it only proper to remark, by way of preface, that the hundreds of prizes I have won have been obtained by means that are within the reach of every amateur cultivator, and indeed I would say more, that the amateur ought to beat the trade grower, for one of the greatest secrets of success is constant attention to the plants; this the private grower has more time for than the nurseryman. I would emphasize the remark that *constant attention* will do more than the most extraordinary skill fitfully exercised. To excel in this department of outdoor recreation, in common with every other pursuit, the grandest quality is *perseverance*. By being constantly among his plants, and taking a pleasure in *every* stage of their progress, the whole year round, the cultivator learns to understand their wants, and can tell at a moment's notice whether or not they are in health, and in the event of any ailment occurring can take steps to remove it before the plants are irreparably injured; whereas intermittent attention may at any time result in serious disasters, while the possessor of the plants is ignorant of what is going on. It is on record in the reports of the horticultural journals that I have been for many years a successful prize-taker in every part of London, and on some few occasions in distant provincial towns. I can honestly say that I owe very much of my success to my *own* love of the plant. I am unremitting in my attention; I superintend the whole routine of cultivation followed, and watch over my plants from first to last, at home and abroad. The splendid exhibition which I have yearly in my show-house would amply repay me if I were less successful at exhibitions, and I am convinced that any lady or gentleman who has not hitherto thought much of the chrysanthemum needs only to behold once, in the dull month of November, the splendid display of colour which a well-grown collection presents, to become thorough converts to the patronage of this useful and most beautiful flower, which demands little from us, and which keeps its glories veiled till the summer is past and gone, and then revives the summer when all around it is gloomy and flowerless.

CULTIVATION OF SPECIMEN PLANTS.

In treating of the cultivation of the chrysanthemum in pots, I shall commence with the varieties that are most suitable for growing as specimen plants, such as are shown in 11-inch pots, a select list of which will be found at the end of this paper. The cuttings should be established in 3-inch pots by the middle of March; they are then stopped—that is to say, their points are pinched out. This induces them to throw out numerous side-shoots; this stopping or pinching back, as it is sometimes called, should be done with care and discretion, for as the object is to secure as many laterals to start with as possible, the extreme point of the shoot only should be taken off, for I have invariably found that treated thus they throw out more freely. About the first week in April the plants are ready for shifting into 6-inch pots, and I may remark here that *nothing is more injurious to chrysanthemums in the early stage of their growth than allowing their roots to be confined or cramped*; therefore, as soon as they have filled the pots, they should be immediately shifted to the next largest sized pots. The plants are kept in a cold pit until about the middle or end of May. The lights should be taken off on all favourable occasions, and the plants frequently syringed overhead to keep the foliage clean. As soon as I consider the weather sufficiently forward that there is no more probability of frost, I plunge them about half way up the pot in a sheltered but open piece of ground; and in order to prevent the worms making their way into the pots, I stand each upon a piece of slate, or perhaps what might do as well, a small pot inverted. They remain here until about the end of June, being stopped or pinched in the meantime when necessary; they are then shifted into their flowering pots, which measure 11 inches across inside, and are plunged as before, their shoots being secured with sticks, to prevent the wind breaking them. About the middle of July the plants are stopped for the last time (I may here observe that I never shift and stop at the same time). After this they require a little more attention in the training and regulating their shoots, which I keep tied down as near the rim of the pot as possible; this is more easily done now than when they have made their growth, on account of the brittleness of the wood when older. About the middle of September they are trained into something like the shape they are intended to be when in flower—that is, a round bush-like form—in order that the plants may be seen to equal advantage from any side; the one-sided plants so frequently seen at exhibitions being, in my opinion, most objectionable. As soon as the flower-buds make their appearance, I disbud, leaving only one to bloom on each shoot, as I consider quality of flower much better than quantity, more especially, as by a little judicious management I can get from 100

to 150 good flowers on each plant. I use manure-water liberally until the flowers show colour; indeed, this may be applied until the blooms are fully developed. I generally house them about the second week in October; but in this I am guided by the state of the weather, for they are better outside until the buds show colour, the foliage being improved by remaining in the open air as long as possible; it being a very important feature in a plant to have the leaves of a nice healthy green down to the very edge of the pot. When housed, I give all the air possible, when the state of the weather permits. I treat pompones in every respect the same as the large-flowering varieties, excepting that I do not disbud to the same extent.

CULTIVATION OF SPECIMEN FLOWERS.

The varieties most adapted for growing for the purpose of obtaining blooms of extraordinary size, or perfectly symmetrical shape, seldom make good specimen plants, being usually of a robust habit, consequently not so easily trained to form a compact head, and moreover do not bloom so freely. The magnificent stands of cut blooms to be seen at the metropolitan and local exhibitions show to what a state of perfection this flower can be brought by skilful management; indeed, by a careful selection they may be had in flower from October to the end of December. The general treatment of this class is the same as that directed for the growing of specimens, except that the shoots *should never be stopped or pinched back at all*. Most growers for exhibition put two plants in a 10-inch pot, and allow each plant to run up with a single stem. As they grow vigorously it will be found they will naturally throw out several shoots, or breaks, as they are called, but not more than three or four of the strongest of these are allowed to remain on one plant, and a single bud only is allowed to grow on each shoot; all but the the terminal ones should be carefully removed as soon as that can be done without injury. The whole strength of the plant is thus thrown into the three or four buds that are left for flowering.

CULTIVATION OF STANDARDS.

These are useful to break the monotony of a display, as their round heads on clear stems stand up above the dwarf trained plants, and have a very beautiful appearance. In case the reader is not familiar with the various forms in which the chrysanthemum is grown, I may say that a standard bears a near resemblance to a standard rose when the head is round and well furnished, and completely covered with flowers. The merest beginner may grow very pretty standards by following the directions I give, but it requires some practice to produce standards of first-class excellence, hence we do not often see at exhibitions good examples of this class. Some growers keep their standards several years, and the stems thereby become very stout and strong, and if well managed they have fine heads. But all the standards I have exhibited have been yearling plants—that is to say, raised from cuttings and grown to full dimensions in one season, after which they are destroyed. The reason I prefer yearling plants is that the old ones are not to be depended on; the old wood may die in the winter. The large-flowering kinds are not well adapted for standards, through a few, such as Little Harry for instance, might be managed successfully. As ornaments for the dinner-table are in demand, I would suggest to practical gardeners that standard pompones are admirably adapted for the purpose, as they do not interrupt the view across the dinner table, their heads being above the line of vision when the guests are seated, and they have a delightful appearance under artificial light. The way I treat them is similar to the others. I select good strong cuttings as early in the spring as possible, and when well established in small pots they are shifted into 48's, kept in the greenhouse, and staked the height I want the stem to grow, which is generally from two feet six inches to three feet. After they have attained that growth, they are then stopped in the same manner as I have before explained, the secret being to get as many breaks as possible from the first stopping to form the framework of the head; all side-shoots on the stem must be removed, but not the foliage. I invariably shift them for the last time about the middle of June; they are then plunged like the others, secured at the neck of the plant to prevent the wind breaking them, and liberally supplied with manure-water. The varieties best adapted for this purpose are the early and free-flowering sorts, so that they can be stopped a fortnight later than the others. As a long season of growth is desirable, the amateur may be led to take autumn cuttings for the formation of standards. I feel bound to say that experience has taught me that *spring cuttings are far preferable*, as they can be kept growing from the first, and they have such health and vigour that if properly cared for they make fine free heads, which plants from autumn cuttings will not always do.

REMARKS APPLICABLE TO EVERY SYSTEM OF CULTIVATION.

The young buds are apt to suffer much from the attacks of green-fly. Whenever this pest makes its appearance, the tips of the shoots should be dipped in tobacco-water, or what will perhaps

have a more permanent effect, be dusted over with dry snuff. The earwig is also a great enemy to the chrysanthemum, and should be destroyed by every available means; trapping with short lengths of bean-stalks, laid on the ground, and with small pots with a little moss in them inverted over the tops of the flower-sticks, are the best means.

The compost I use is one-half rich loam and one-half well-rotted dung, with a little leaf-mould, and a liberal sprinkling of sand added. The pots are drained with oyster-shells, and pounded oyster-shells may be advantageously mixed with the compost.

The manure-water used is made up in the following way: I have a large tank into which I put a sackful of soot and a barrow-load of cow or sheep's dung, or a half of each, it being filled with rain-water; the whole is stirred frequently for a few days, and then left to settle before being used.

Before drawing this short treatise to a close, I wish to impress on amateurs the necessity of avoiding exciting them with fire-heat, more especially when the buds are bursting, because it takes the colour out, and frequently makes a good incurved flower reflex. On the other hand, they must be protected from frost and storms, and hence a cool conservatory is the best of all places in which to flower them.

A SELECTION OF 50 LARGE-FLOWERING VARIETIES FOR SPECIMEN FLOWERS.

The best 25 marked thus *.

Abbé Passaglia, brassy amber; Alber tHelyer,* large rose purple, a noble flower; Alfred Salter, delicate pink; Antonelli, salmon orange; Beauty,* peach blush; Bernard Palissy,* bright orange; Beverley,* cream white; Cardinal Wiseman, crimson; Cherub,* golden amber; Dr. Brock, reddish orange; Duchess of Buckingham,* white, sulphur centre; Duchess of Wellington, delicate rose; Dupont de l'Eure, orange; Empress of India,* white, very large; Eve, sulphur yellow, incurved; General Bainbrigg,* dark orange amber; General Hardinge, Indian red; General Slade, red, tipped orange; Glohe, white; Golden Ball, bright orange, beautifully incurved, and fine form; Golden Dr. Brock,* bright golden yellow, beautifully incurved; Golden Eagle,* Indian red and gold; Golden Trilby,* (Forsyth's), fine yellow; Her Majesty, silvery blush; Iago, dark purple violet, incurved, good for pot culture; Imogene,* rose, shaded silver, incurved, fine show flower; Jardin des Plantes,* bright golden orange; King of Denmark,* bright rose lilac, incurved, fine show flower; Lady Carey,* large rose lilac, incurved, a beautiful show flower; Lady Hardinge,* delicate rose; Lady Slade, lilac and pink; Margaret Vatcher,* large rose, pink, incurved, and fine; Mr. Brullees,* large, Indian red, tipped gold, incurved, and fine; Mr. Wyness,* violet puce, incurved, a beautiful flower; Mrs. W. Holhorn, ivory white; Mrs. Kaines, blush, incurved, a fine late flowering variety; Pink Pearl, delicate pink, shaded silver, incurved, fine for specimens; Prince of Wales,* purple violet, beautifully incurved, a fine show flower; Princess Alexandra, lilac blush; Princess of Wales, white tinted rose; Queen of England,* blush; Raymond, golden fawn; Robert James,* orange cinnamon; Sam Weller,* Indian red, tipped gold, incurved, a fine show flower; St. Patrick, ruby red; Stafford, rosy purple; Stellaris globosa, carmine; The Glohe, bluish white; Themis, fine rose; Venns,* lilac peach, finely incurved, a beautiful show flower; Virgin Queen,* pure white, beautifully incurved, fine for specimens or cut blooms.

A SELECTION OF 50 LARGE-FLOWERING VARIETIES FOR SPECIMEN PLANTS.

The best 12 marked thus *.

Alba multiflora, white; Alma,* rose crimson; Annie Salter, golden yellow; Arigena, amaranth; Attraction, large bluish; Auroa multiflora, pure yellow; Beauté du Nord, violet carmine; Bernard Palissy, bright orange; Blanche of Castile, pure white; Cardinal Wiseman, red crimson; Chevalier Domage, bright gold; Christine, peach; Crimson Velvet, velvety crimson; Défiance, white; Edwin Landseer, rosy ruby; Eve, sulphur yellow; Florence Mary, bright salmon red; Florence Nightingale, pale sulphur; General Bainbrigg, dark orange amber; Gloria Mundi, brilliant golden yellow; Golden Christine,* golden buff; Her Majesty, silvery blush; Iago, dark purple violet; Jewess, orange and red; Julie Lagravère, crimson; Lady Hardinge, delicate rose; Lord Clyde,* bright crimson, fine foliage; Lord of the Isles, rosy orange; Lord Ranelagh, red orange; Little Harry,* golden amber; Mr. Murray,* violet rose; Mount Etna,* red; Mount Vesuvius, fiery red; Pelagia,* orange cinnamon; Pink Pearl, delicate pink; Plutus, bright gold; Prince Albert, crimson; Prince of Wales, fine purple violet; Progne, amaranth; Quilled Beauty, orange cinnamon; Rifleman, ruby; Sam Slick, ruby; Sam Weller, Indian red; The Glohe, bluish white; Venus,* fine lilac peach; Vesta,* ivory white; Virgin Queen, pure white; White Christine,* white; Yellow Perfection,* yellow.

A SELECTION OF 18 VARIETIES OF POMPONES FOR STANDARDS.

Best 9 marked thus *.

Boh,* flowers early as a standard; White Trevenna,* Rose Trevenna,* Cedo Nulli,* Golden Cedo Nulli,* Lilac Cedo Nulli,* Duruffet,* Antonius, Andromeda, Miss Nightingale, Firefly,* Madame Montels, La Vogue, Salamon,* Lizzie Holmes, St. Tbais, Astrea, Florence.

ADAM FORSYTH.

Brunswick Nursery, Stoke Newington.

APPLE TREES FROM CUTTINGS.

How it comes that among plants of the same species, and even among seedlings reared from the same plant, some strike root much more freely when propagated, either by cuttings or layers, than others, is a physiological question which no botanical Fellow has yet undertaken to enlighten us upon. Certain it is, however, that among seedlings—say of *Rhododendron campanulatum*—which appear in all other respects exactly alike, some when laid down root readily within one year, while others scarcely furnish a sufficient supply of rootlets in two years to maintain life if then detached from the parent plant; and among zonal geraniums some grow freely by cuttings under the most careless treatment, while others can only be

tardily propagated even by the most judiciously applied skill. The same differences are more or less conspicuous among the varieties of all our cultivated plants, but in few of these are they more distinctly marked than in those of the wild and uncultivated apple. The name of *burr-knots* is very fittingly applied to the most easily rooting varieties of the apple, in consequence of their branches producing, more or less abundantly, hurr-like excrescences composed of thickly set rudimentary rootlets. These protruding rootlets may occasionally be seen, either solitary or few together, on the one-year-old shoots, but it is only on several years old branches and spurs that they assume those well-developed burr-knot forms, which have only to be cut from the parent tree with a branch attached, planted in ordinary garden soil, and that branch becomes a healthy small apple tree, not unfrequently bearing a fair crop of fruit the first summer after planting. Among crab or stock apples the burr-knots are represented by the Paradise, Doucin, and others, which assume the characteristic appearance when allowed to grow for some years, and which, although usually propagated by layers, may be grown by cuttings made from two or three year old shoots having no burr-knots, with almost as much facility as are willows and poplars. Among true apples, that excellent old variety, the Arbroath or Mother apple, has long been prominent as "the hurr-knot apple." And in pre-Reformation times, as well as since, it appears to have been chiefly propagated by cuttings in the orchards and gardens about Arbroath, St. Andrews, and other places where there are many old trees growing on their own roots, and not grafted, as other and neighbouring kinds have been, upon crab-stocks. Of more modern varieties the Manks Codlin, or Eve apple, as it was first called when simultaneously introduced from Ireland, about 1790, by Provost Ballantyne of Ayr and Mr. Wilson of Paisley, is one of the most prolific in burrs. The Keswick or White Codlin, as well as several other frequently cultivated kinds, also produces them freely. And among the nameless old varieties in the Carse of Gowrie orchards are five or six all designated "the burr-knots," although widely dissimilar in other respects.

The propagation of apples from burr-knot branches, although occasionally practised, is by no means so generally adopted by professional gardeners and orchardists as it deserves; for by this mode trees may be had in full bearing the first summer after planting, of all sizes, from 6-inch high spurs, to 3 or 4 feet high well-furnished plants, as thickly loaded with fruit as if they had been still retained on the parent trees. When so furnished, they make excellent pot-specimens in orchard-houses; and as a stock for dwarf, abundant-bearing apple trees of all kinds, the Manks Codlin will be found equal, if not superior, to either the Paradise or Doucin stocks. And as both it and the Keswick Codlin produce the finest fruit when the trees are young and vigorous, cutting propagation is an easy mode of keeping up a succession of these two abundant and constant bearing, indispensable, culinary, autumn ripening sorts.

In selecting burr-knot branches for planting, the first care requisite is to choose only true root-producing burrs, avoiding those excrescences which are caused by that worst of apple insect pests the American bug or woolly aphid; as well as those solid woody knobs which are occasionally produced on the branches of some old trees, neither of which will grow, while planting the first would only be at the risk of spreading and perpetuating an intolerable and destructive nuisance on neighbouring healthy trees. Having selected a branch with a proper burr or burrs near its base, it only requires to be pruned or trimmed into shape, leaving a few blossom buds, if they exist, to yield a supply of fruit the first season; then plant it in ordinary garden soil, mulched on the surface with well-decomposed dung, as is usual with newly-planted fruit trees, for the purpose of protecting them from the first summer's drought. If the soil is of a stiff or clayey nature, it will be necessary to surround the cutting with at least 6 inches of light sandy loam, which will be all the better if mixed with a third of peat and leaf-mould. The only further attention requisite is to watch the expanding flower-buds, and pick off any small caterpillars when they first appear, and apply water freely, but not too frequently, in the event of severe drought setting in. In the case of large branch cuttings, a coating of clay paint laid over their surfaces will be further serviceable in preventing the injurious effects of scorching sunshine upon the bark, before the young rootlets are able to furnish the requisite moisture supplies. When cuttings without burr-knots of free rooting kinds are planted, their success will be greatest if shaded northerly-exposed wall-borders are chosen for them.

These burr-knot formations are not confined to the apple alone, but also occasionally appear on Mayduke cherries and plums, especially when these are grown on moist shaded walls. In all cases where they exist the mode of propagation above described may be successfully resorted to. To amateurs and occupiers of small gardens, who find agreeable and healthy recreation in gardening, the rearing of apple trees from cuttings is especially recommended, as they will find its practice both interesting and profitable; for with what interest will such cuttings be watched and tended from the time of planting till that of fruit gathering in the succeeding autumn! And supposing that a redundancy of plants of any particular kind are so produced, they can always be usefully employed as stocks for grafting or budding other sorts upon, without the trouble and expense of applying to a sale nursery for wanted supplies, or the tediousness of waiting till they are reared from seed. "Waste not, want not," is an old and well-known axiom; therefore do not throw away hurr-knot branches in the pruning season, but rather carefully search for and plant them, resting assured that either for home use or presentation among friends they will be wanted before they attain overgrown or cumbrous sizes.—*The Farmer.*

DRYING PLANTS.—Twenty years ago, observes a correspondent in "Science Gossip," when botany was my hobby, I adopted a plan for drying my specimens which was both rapid and very effectual in preserving colours. I borrowed a tin dripping-pan from the cook, which was just the size of my sheets of blotting-paper. In this I laid the produce of the day's excursion between sheets of blotting-paper, in the usual way, and, when the pile was complete, I covered it over with a layer of common scouring-salt, half an inch thick, so that the tin dish appeared to be simply full of salt. I then placed it on the kitchen fender, or on the hob, or in the oven, if it were not too hot, and in three or four hours the whole batch of specimens was perfectly dried. It required a little care to take them out at the right moment, when they were baked just enough, and not too much; but this care being given, the success of the plan was perfect. Many specimens still in my herbarium bear witness to the superiority of such rapid drying over the old method.

TROPÆOLUM TRICOLORUM.

This lovely climber is seldom well grown, though it is a very easy subject. Everything is easy if you know how to do it:

It would be easy work to cleave the sky,
If we had wings, and knew how to fly;
Equally easy, too, to pierce the deep,
If we had gills and fins, and never needed sleep.

However, how to do it is the question, and as you admired my specimens the other day when "dropping in" to look round, I will fulfil my promise of a word or two as to their management.

I am never in a hurry to see my bulbs begin to grow. I never "s'art" them, as the saying is, but wait till the young shoots begin to push through the old soil of the pots they were flowered in the year before, and then I knock them out and repot. This occurs in January, February, or March, according to circumstances. Sometimes a bulb will take it into its head (or feet) to have a whole year's rest. It never troubles me—I let it rest. In repotting, I remove nearly all the old soil, but take care not to injure the young roots that are then pushing. The proper size pot to use is 32-size for a fair-sized root. There must be plenty of drainage crocks, nicely packed at the bottom of the pot, and over them a few lumps of tough fibry peat, as large as walnuts. The compost to fill up with should be equal parts nice fibrous peat, bright yellow loam, neither sandy nor clayey, and clean leaf-mould of the very best description. If this mixture is not granular and siliceous, add silver-sand about a sixth part of the whole, but the need for sand depends on the character of the other ingredients. Small bulbs must be potted with the points of the crown just peeping out of the soil, and in 48-size pots, but large bulbs in 32-size, and the bulb quite covered.

The best place for them is a top shelf in a sunny greenhouse, and as near the glass as possible. All tropæolums are fond of sun, and this plant is no exception; but take care it is not exposed to cutting winds or a damp and stagnant atmosphere. Supply moderately with water. When the stems are a foot high, put in the trellis; nothing so good as a balloon, I think, but every one to his taste, as you say in reviewing a toady catalogue. Now a very important matter after putting in the trellis is to place the pots inside larger ones, and fill the space between with moss. This keeps the roots moist, and somewhat makes amends for cramping them; besides, as the plants love sunshine, the roots are apt to be burnt unless protected in this way. Train as you go on; that is simple enough—a mere matter of careful fingering. When the flowers begin to open, take the plant to the conservatory, and shade slightly; when the bloom is over, give less and less water; and when the plants are really beginning to look shabby, return them to the shelf they came from, and dry them off for the winter. Do not disturb them till they grow again, and as S. H. sometimes says, "so on for ever."

R. E. P.

MARTYNIA FRAGRANS.

This charming annual is now rarely seen; indeed annuals, like perennials and everything else that ought to be prized by gardeners, are thrust out by the pressure of bedding plants. It is one of the very best plants for the adornment of the greenhouse when the bedding plants are turned out, and should be especially prized by those who grow Cockscombs, Globe Amaranthus, Balsams, and other beautiful soft-wooded and herbaceous plants, as the treatment they usually have suits it to a T. To grow it to perfection, treat it as a tender annual. Sow the seed now—that is to say, before February is out if possible, and if that is not possible, sow it the first opportunity in March. Sow a small pinch in a pot of light rich soil, and place on a good hotbed or other warm place to start it. Pot the plants singly as soon as they are large enough to handle; the stuff must be light and rich; there is no need to give a recipe, because any good compost that is about will suit it, but it must be good. Keep in a warm place till the plants are growing freely, and as soon as their pots are full of roots shift them to the next largest size, and as soon as weather permits place them in a cold frame. Treat them in the same way as Balsams, shifting them on till they are in 8-inch pots, and then shift no more. Of course they may be flowered in 5-inch pots, but they are not so fine as when grown on. Give plenty of water and air when the weather has become summery. No stopping is required, for the flower-stems are succeeded by laterals, and these soon flower, so that if in good soil and well treated the plants will make a height of three feet, and as much through, and be splendid objects in August and September. If planted out in the early part of June, it will flower well in a rich sheltered border. As to the flowers, they remotely resemble the Antirrhinum, but the throat is open, and the upper and lower portions are like huge jaws. The colour is chocolate-purple, with veins of yellow and rose in the throat. As its name implies, it is delightfully fragrant, and this quality adds immensely to its value.

E. K.

ON ACCLIMATISATION, AND THE EFFECTS OF THE LATE FROST.

"Have you any faith in acclimatization now?" asked my boy of me after returning home on the morning after a severe frost, which I had spent up to then in viewing the damage done to some plants of mine that had been out on hire in various conservatories. I answered, "That depends on circumstances. Why do you ask?" "Because some one writes in this gardening paper that 'the destruction by frost is fallacious.'" "Indeed! let me read the passage." And sure enough there it was: it also said, "There may be a gradual hardening of an exotic plant, though it never reaches the hardiness of a native." Oh, yes! I thought, after reading it, much after the way the man did who took it in his head to try if his poor horse could not do altogether without eating; and so the horse did for a certain time, but just as he got used to it he died. And so much about the same I have found it with plants. I have placed them, say, from a stove, very early in the spring, and they did pretty well in a warm corner of a greenhouse (but no draughts, mind you, or else away goes the top or young wood at once). Well, as the summer advances, and the temperature out of doors is quite as high as one can expect to get in a stove in the dead of winter, of course they do, and do well; and as the summer advances, and heat increases, they make their new wood, and nice sturdy growth it is. And so they continue so long as the temperature holds high; but so sure as winter approaches, they must have warmth; they will not do without it. I have tried plants of all sorts, but I never could get on without heat in the winter. I have lost many plants trying to do what Sam Slick would call *go in agin* natur, but I never could get an exotic to be gradually hardened. In fact, it is only in a winter like this that one can speak from experience what plants will really go through, for plants that I have always thought would stand anything in a conservatory are dead; and others, again, are but little the worse for the cold; and these last are the very ones you would have thought would have suffered. How is this? Simply because plants when first they are introduced are placed in a stove, if the place they come from sounds at all tropical (as was the case of the common *Aucuba* at first); they are there "coddled" up in heat until they get a hit plentiful, and distributed about. Some one, for instance, who admires the plant, has only a greenhouse to grow it in. He will try to grow it there, and succeed. Would this be called acclimatization? or would it not be better to say that now the plant has got in a temperature more like its native habitat, it of course flourishes accordingly? That I think would be nearer the truth.

Now I quite agree with naturalists that much may be done in the way of acclimatization as far as animals are concerned, and especially with birds for the blood of many animals remains at the same temperature, no matter if under the burning sun of Africa, or exposed to an arctic winter with the temperature 30° or 40° below zero. But with plants the case is vastly different, for many exotic plants contain an oil which becomes coagulated or frozen (in a certain sense) at a temperature of 40°. So in a case of this sort how are we to act when the plant that we have been hardening off, and has up to the present looked so well in a greenhouse, finds its flow of sap retarded and clogged at the first fall of temperature? Why, unless the plant is removed to warmer quarters, it will be sure to die! I have seen it so often; and I can assure your readers that all experiments of this kind have always ended in "grief" to the plant and disappointment to me, the only exception being with plants, as I said before, that should have been at the first placed in a cool house instead of a warm one. I will now give you a few instances of the various plants that have stood in a greenhouse this winter where the temperature has ranged from 35° in the very coldest weather to 60° in the warmest days. First, there is a large plant of *Dillenia speciosa*, that has always been thought a stove plant; it has up to now been growing well through the winter, and has not received the least damage from cold, whilst on the other side of it, and quite close, there is a *Rhopala* and *Acacia Drummondii*, both looking very brown and discoloured; in fact the tops of the *Rhopala* quite gone. Then, again, there is a plant of *Brexia chrysophylla*, side by side with *Sansevieria Javanica*, both stove plants, and in a warm part of the same greenhouse; the *Brexia* is dead half way down, and the *Sansevieria* looking very badly. Now the *Brexia* especially I have kept in a cool airy place since April last; by so doing it made very little growth, but all no good when the cold came. Again, I have had a large plant of *Aralia Sieboldii* not the least injured, although exposed to a frost one night of 8°. I must tell you that the frost was allowed to gradually thaw out, or the matter might have been different. In the same house stood several camellias, and these everywhere with me stood the best of any plants, even better than the *Aucuba*, for the leaves of the latter were browned, whilst the former received no injury. I will just mention, also, that in the same conservatory a nice plant of *Woodwardia radicans* is quite killed, whilst that graceful fern *Nephrolepis pectinata* received no injury. I mention these few facts for the benefit of your readers who have conservatories or greenhouses that are imperfectly heated, that they may know what plants will stand the cold and what will not; and I can assure them I have paid for learning to the cost of many plants, and I wish none of them in this instance "to go and do likewise;" and I think many of them will say with me, whilst looking over the sad havoc that the frost has done this winter, "Is it possible that any one can say in the face of facts that 'the destruction by frost is fallacious'?"

JOHN BURLEY, F.R.H.S., &c.

Bayswater, W.

MOST PERFECT PLANTS.—Those plants are most perfect in which the organs discharging different functions are most distinct both in position and structure. The thalloid fronds (of Cactaceæ) and the hypoblastoid embryos of Endogens indicate a lower degree of organization. Plants which have the stamens and pistils either naked or in the axil of an unmodified leaf (*Naias*, *Hippuria*, *Callitriche*) are inferior to those whose flowers are never complicated. Diclinal flowers are lower in position than those which are hermaphrodite; ternary verticils lower than quinary, spirally arranged floral organs lower than those which are verticillate, polypetalous flowers lower than gamopetalous, apocarpous ovaries lower than syncarpous, atropous ovules lower than those which are inverted, homogeneous embryos lower than those which are fully developed. Trees and shrubs are more common among imperfect plants. In the lower orders flowers are very numerous, in the higher the number of seeds produced by each flower is very great. Yellow and green colours in the flowers of the lowest rank are changed into red or white in those of a higher order, and in the highest plants the colour of the flower is generally blue.—J. G. Agardh, in *Theoria Systematis Plantarum*.

Calendar.

WORK FOR WEEK COMMENCING FEBRUARY 23.

Kitchen Garden and Frame Ground.

OUTDOOR WORK may be carried on most advantageously while this weather lasts, and until stopped by return of frost or wet. Land ridged up to the frost will get mellow and fertile. As ample notes on outdoor work have been given during the past few weeks, reference may be made to them, and arrears must be made good by extra activity. Winter may linger with us far into March, which will perhaps be less injurious in the end than it appears, for late springs are usually good ones. Therefore those who are now complaining may hereafter have cause for rejoicing. A little more patience, and spring will burst on us suddenly, and startle us as of old with its wealth of song and beauty, and the kindly and quickening glances of the sun fast ascending towards the northern regions of the heavens.

EDIBLE AND ORNAMENTAL GOURDS.—Gourds are now grown in collections, and add very much to the interest of the kitchen garden, while a few of the smaller-growing kinds are invaluable for decorating trellises, arbours, summer-houses, &c. The London public have had very fair examples lately of the attractiveness of gourds as subjects for exhibition. Mr. Young, gardener to R. Barelay, Esq., West Hill, Highgate, has exhibited 1,000 varieties, covering about 60 feet run of table space, and comprising specimens varying in size from that of a "big drum" to a nutmeg, and of all colours and shapes. 1,000 varieties have also been shown by Mr. Blundell, of Burlesdon, Southampton, who was the original introducer of the cattle melon. Here, again, were samples of all sizes, many of them gorgeously coloured, and not only curious, but wonderful in outline. In each of these instances the seeds had been supplied by Messrs. Barr and Sugden, in the regular way of trade, a fact which affords some idea of the popularity gourds have acquired among amateur cultivators. Many persons who see these collections, and who know that to grow them is scarcely more difficult than to grow a bunch of turnips, are nevertheless deterred from engaging in so profitable and amusing an undertaking by the general fear of poison which prevails. There is no proper ground for any such fear; nearly all the ornamental gourds in cultivation are edible, and if ever a question should arise, the flavour of the gourd will determine it in an instant. All pernicious examples of *cucumis* have an obnoxious taste, and the quality of a gourd may be ascertained without cutting it, by merely taking a small slice from the stalk and masticating it. If that is nauseously bitter, it would not be wise to eat the gourd. But even this test is unnecessary, because poisonous gourds are too disgusting in flavour for any human being to swallow enough to do injury. As to the use of gourds, it is well known that any of them may be boiled when young in the same way as the common vegetable-marrows, and make a most acceptable accompaniment to roast meat. The common pumpkin of the cottage gardens, cut when as large as a good-sized turnip and boiled, is quite equal to the best of the marrows. But it is not so well known that the green tops nipped off the vines (three inches long at the utmost) make the most elegant and delicious dish of greens ever cooked. People grow spinach beet, which never cooks a good colour, because during very hot weather spinach is always stringy and seedy. It would be much better to plant out a few common pumpkins on purpose to supply green tops, for when kept nipped they throw out new shoots abundantly, and pay as well for greens as for fruit, but no one should expect both in large quantity. If the seeds are sown in the open ground on small hillocks on the 1st of May, a good crop of either fruit or tops may be expected; in fact, all the gourds may be grown by this simple method. But it is much better to sow on a gentle hot-bed about the 10th of March, and get all the plants potted in good time, and plant out early in May on beds prepared for the purpose, and raised a little above the general level, both to catch the earliest rays of the sun, and to throw off excess of water during heavy rains.

Flower Garden.

GARDEN PLANTS IN FLOWER.—*Aubrietia deltoidea*, and others; *Systirinchium grandiflorum*, *Hepatica angulosa*, *Saxifraga cordifolia*, *Adonis vernalis*, *Pulmonaria rosea*, *Draba azoides*, *Viola odorata*, *Viola collina*, *Fumaria cava*, *Ranunculus ficaria*, *Potentilla fragaria*, *Anemone pulsatilla*, *Snowdrops*, *Crocuses*, various; *Narcissus nanus*.—*Frame*: *Dielysra spectabilis*, *Cyclamen Europeum*, *Cyclamen comn*, *Bulbocodium vernum*, *Erica herbacea* and *codonodes*, *Russian* and *Neapolitan Violets*, *Leucocium vernum*, *Erythronium dens canis*; various *Narciss*, *Jonquil*, and other bulbs.

BEDDING PLANTS may be multiplied to any extent with the help of a good hotbed, and the necessary plants to begin with. However ingenious and useful may be such things as *Waltonian*, *Bijou*, *Maling*, and other plant cases, the amateur who has any ambition to grow plants in earnest, and especially if anxious to make a good display of bedding plants, ought to master all the small difficulties of making and managing a hotbed. Supposing the means for propagating to be at hand, a few hints of a general kind on the essentials of success may be of some service. Usually it is a waste of time and trouble for amateurs to attempt to root cuttings which consist of old wood. Suppose, for instance, a verbenas in a pot saved from last year. It consists probably of a few long woody shoots terminating in clusters of leaves, and a few short and rather hard side-shoots clothed with leaves. It may be in perfect health, and one of the finest varieties known, but in its present state it is useless for propagating. If I cut some portion of one of the old, hard, woody stems, it is simply a waste of so much wood, for it will sooner perish than throw out roots. But if this same verbenas is placed in a genial and rather moist atmosphere, say in a frame placed upon a dung-bed in a nice sweet condition, or if it is placed in the coolest part of the stove, it will soon throw out a number of small shoots. When these shoots are an inch long, they may be slipped off with what is termed a "heel"—that is, removed by separating them at the point where they are articulated to the stem, or they may be cut through with a sharp knife. Those soft shoots only require to have one or two leaves removed, so as to make a bare space sufficient to allow of them being planted firmly, and they are ready for use. The simplest and surest way of dealing with them is to dibble them firmly into pans filled with silver-sand, placing them close together, and then place the pans on the hotbed, and shut them up close. If the heat is about 60°, and never exceeds 70°, every one of those little cuttings will make roots.

To help them along, the first essential is to look at them pretty often. No plant, however small or large, will prosper without being looked at by its owner. When you look, observe if the leaves of the cuttings are dry; if they are, sprinkle them with tepid water. If the heat is steady, they will bear to be quite moist, and in fact may be so wet that there is a film of water on the top of the sand. But this is not advisable; a moderate degree of moisture suffices, and as for air they scarcely need it until they begin to grow. When the points of the cuttings assume a lively green hue, you may be sure they have formed their roots and are about to grow. Let them grow a little before disturbing them, and then remove them carefully so as not to injure the delicate roots, and put them into what are called thumb-pots singly, or pot them three or four together in six-inch pots, using for the purpose fine, light, rich soil. A mixture of equal parts mellow loam, very old hotbed manure, leaf-mould, and silver-sand, well broken up together, will do admirably for nearly every kind of greenhouse plant at the first potting—certainly for all kinds of bedders. The plan thus adopted for propagating *Verbenas* may be followed with *Fuchsias*, *Petunias*, *Heliotropes*, *Ageratum*, *Alyssum*—in fact everything, if a few modifications are allowed for the varying habits of the plants to be dealt with. Beginners will find that young shoots just getting firm will root more certainly than those in a very soft state. It will next be observed that plump and strong shoots of *Geraniums* answer better than mere inch lengths of new growth, and that *Geranium* cuttings require less water than most other cuttings. It will also be noticed that a sudden outbreak of sunshine causes many of the pans of cuttings to look very odd, and that in a batch of cuttings suddenly visited by his solar majesty, many never recover from his fervid glances. Practical gardeners make very short work with sunshine; they just lay over their cuttings a newspaper; but the amateur will prefer to tack to the roof a breadth of tiffany or some other shading, to prevent the roasting of his whitebait which he has intended for a stew. There is one result that every beginner must expect and that is an outbreak of mildew. With experienced cultivators, mildew is almost unknown; but your novice seems to attract it to himself by some unenviable charm. Mildew implies that the heat is too little and the damp too much. If the temperature can be raised, let it be so; at the same time give a little air cautiously, and abstain from giving water until it is absolutely necessary to prevent the cuttings flagging, which they should never do. Warmth and dryness are the best cures for mildew; but if they do not appear to be sufficient, dust the affected leaves with flowers of sulphur. An instrument called the *Boite à Houppes* is the best contrivance known for sulphur dusting; it may be obtained of Messrs. Burgess and Key, of Newgate Street, for half-a-crown. Some growers use a pepper-box, and some a box with a bit of muslin tied over it. Another good plan in case if mildew is to sprinkle dry peat-dust or dry silver-sand amongst the cuttings, so as to form a new surface-soil amongst them. But the grand thing is to keep the heat steady, and accidents will be few and far between.

Fruit Garden and Orchard House.

FRUITS IN SEASON.—*Apples*: *Alfriston*, K; *Asbmead's Kernel*, D; *Barcelona Pearmain*, D; *Beauchampwell*, D; *Bedfordshire Foundling*, K; *Bess Pool*, K; *Borsdorfer*, D; *Boston Russett*, D; *Brabant Bellefleur*, K D; *Braddick's Nonpareil*, D; *Bringewood Pippin*, D; *Brownlee's Russet*, K D; *White Calville*, K; *Claygate Pearmain*, D; *Cockle Pippin*, D; *Coe's Golden Drop*, D; *Cornish Gilliflower*, D; *Court Penduplat*, D; *Dumelow's Seedling*, K; *Dutch Mignonne*, K D; *Federal Pearmain*, D; *Forman's Crow*, D; *French Crab*, K D; *Gooseberry Pippin*, K; *Hambleton deux ans*, K D; *Hanwell Souring*, K; *Holbert's Victoria*, D; *Hubbard's Pearmain*, D; *Lamb Abbey Pearmain*, D; *Lemon Pippin*, K D; *Mannington's Pearmain*, D; *Margil*, D; *Minchall Crah*, K; *Minier's Dumpling*, K; *Morris's Nonpareil Russet*, D; *Newton Pippin*, D; *Nonpareil*, D; *Norfolk Beefing*, K; *Northern Greening*, K; *Northern Spy*, D; *Ord's*, D; *Pearson's Plute*, D; *Pennington's*, D; *Pile's Russet*, D; *Pinner Seedling*, D; *Reinette Blanche d'Espagne*, K D; *Reinette du Canada*, K D; *Reinette Grise*, D; *Reinette Van Mons*, D; *Rhode Island Greening*, K D; *Ribston Pippin*, D; *Ross Nonpareil*, D; *Royal Pearmain*, K D; *Royal Russett*, K; *Scarlet Nonpareil*, D; *Sereveton Golden Pippin*, D; *Spring Ribston*, D; *Stamford Pippin*, D K; *Striped Beefing*, K; *Sturmer Pippin*, D; *Sweeny Nonpareil*, K D; *Tulip*, D; *Wheeler's Russet*, *Winter Colmar*, K; *Winter Strawberry*, K D; *Winter Quoining*, K D; *Wyken Pippin*, D.

Pears.—*D'Avril*, *Bergamotte Espere*, *Buerré Bretonneau*, *Buerré Gris d'Hiver*, *Buerré de Rance*, *Bezi de Bretagne*, *Bezi de Caissoy*, *Bezi Goubault*, *Cassante de Mars*, *Chaumontel*, *Colmar*, *Easter Bergamot*, *Easter Buerré*, *Elisa d'Heyst*, *Fortunee*, K; *Groom's Princess Royal*, *Jean de Witte*, *Joséphine de Malines*, *Leon le Clerc de Laval*, K; *March Bergamot*, *Morel*, *Ne plus Meuris*, *Pengthley*, *Prince Albert*, *Rameau*, *Spanish Bon Chrétien*, K; *Uvedale's St. Germain*, K; *Van de Weyer*, *Bates*, *Verulam*, K; *Winter France Real*, K. The above lists of apples and pears comprise good varieties, or varieties good for the season, that may be in condition in the month of March. It would be rendering a most practical service to pomology, and would therefore be mutually beneficial, if our fruit-growing readers would send us a few particulars of their present fruit stores, giving the names of such kinds as are still good, and such also as were in use last month.

Grapes.—Of last year's crops there may yet be good bunches of *Black St. Peter's*, *Barbarossa*, *Black Hamburg*, and *Lady Downe's Seedling*. Where grapes are forced, supplies may soon be expected of such varieties as *Chasselas Musqué*, *Muscat Hamburg*, *Purple Constantine*, *Red Frontignan*, and *White Frontignan*.

WALL GRAPES.—A moderately fertile sandy loam will be found the best for the growth of grape vines out of doors. As rules are easily remembered, a rule is offered here, the colder the position, the poorer must the soil be. Rich soils and fat manures are not at all desirable for the growth of outdoor grapes; and in a cold, wet summer, the vines on the poorest and driest borders will do better than those on moist, well-manured borders. It must not be supposed, however, that the grape vine can live upon nothing; indeed, it would be a folly to plant grape vines on a worn-out, sour, or pasty loam, on which nothing else could be grown satisfactorily. Should it be necessary to prepare a border for vines, two feet depth of prepared earth will be sufficient, and this should rest on a dry bottom; if on a stratum of stones or bricks all the better; but this is not needful. It is needful, however, that the border should be perfectly drained, either naturally or artificially; if water stagnates upon it all the winter long, the vines will become afflicted with disease, and to expect grapes from them will be absurd. Turfy loam, sharp sand, half-inch bones, and clean build-

ing rubbish are the best of all materials wherewith to make a border for out-door vines. If the mixture consists of one-half loam, and the remaining half equal parts of the other materials, it will answer admirably. If the loam is not turfy or fibrous, or is suspected of being poor, some good manure may be added; say in the same proportion as the sand, bones, and building rubbish. "Clean" building rubbish consists of nodules of brick, old mortar, flint, chalk, and plaster. If laths, tin kettles, old iron, and scraps of sheet lead are mixed with it, it is not fit for any horticultural purpose, except it might be for the foundation of a walk. Generally speaking, however, the common soil of the garden can be made suitable for vines at a small expenditure of labour and money. One reason why wall grapes are not much thought of, is that, generally speaking, the worst kind of grapes that can be discovered are grown upon them. The following will produce plenty of fine fruit, and ripen it well, unless the season is very cold and wet, on any good wall, except in places that are absolutely bleak and notoriously unsuitable:—

Grapes for South and West Walls.—Chasselas Vibert, large, golden amber, juicy and rich. Royal Muscadine, large, greyish green or pale amber, juicy and sweet, a first-class grape to grow for light wines. Prolific Sweet-water, large, pale amber, flesh juicy and sweet. Far surpasses the Dutch Sweetwater. Cambridge Botanic Garden, large, oval, brownish black, with fine bluish bloom, flesh firm, sweet, and highly flavoured. Esperione, large, round, jet black, covered with blue bloom, flesh very juicy, sweet, and rich, bears abundantly, and generally considered the best of all wall grapes. White Romain, small oval, rich amber, transparent, very sweet and rich, bears abundantly. Miller's Burgundy, an excellent out-door black grape, which may be distinguished from all other varieties by the hoariness of its leaves.

Grapes for very favourable South Walls.—Chasselas Musqué, round, greenish white, or pale amber, flesh firm, rich, sugary; a most delicious grape; in fact, one of the finest dessert grapes known. Early Smyrna Frontignan, medium size, round, bright amber, very juicy and delicious. A very early grape, and always ripens on a good wall. Muscat St. Laurent, small, oval, pale amber, juicy, with a high muscat flavour. Early and reliable. Muscat Lierval, medium, round, deep purple, with light bloom, flesh rich and sugary, with trace of muscat flavour. An excellent early grape, but rather shy in setting. Black Hamburg needs no description. It is the most useful variety known; it requires a hot wall in the south and west of England, but is no use as a wall grape in eastern and northern districts.

Greenhouse and Conservatory.

GREENHOUSE PLANTS IN FLOWER.—A great many hard-wooded plants are now coming into bloom, such as *Coborozema flava*, scandens, varia, and spectabilis; *Acacia armata*, spectabilis, rotundifolia, dealbata; *Boronia pinnata*, latifolia; *Hovea purpurea*; *Callistemon rigidum*, speciosum, semperflorens; *Bossia ovata*, tenuicaulis, cordifolia; double-flowering Plum, Peach, and Cherry; *Camellias*, *Azaleas*, *Hibbertia flexuosa*, *Cytisus* of various kinds; also *Primulas*, *Cinerarias*, *Cyclamens*, *Echeveria secunda*, and *Pelargoniums* Gauntlet, Crimson King, &c.

ERICAS IN FLOWER.—*Aristata major*, *aristata vittata*, *acuta*, *humana*, *pomifera*, *viscaria*, *persoluta alba*, *mandula*, *vernalis*, *acuminata*, *fragens*, *atrorubens*, *Blandfordiana*, *cerinthoides*, *Bonplandiana*, *purpurea*, *nigrita*, *vestita*, *lacticolor*, *pendens*.

CALCEOLARIAS of the shrubby kinds are now growing freely. All autumn-struck cuttings should be potted into separate pots without delay, or a weak growth and a late bloom will result. Herbaceous *Calceolarias* must never get pot-bound till they are in their blooming pots, or they will throw up their blooms prematurely. If these are in a dry atmosphere now, they will soon be smothered with green fly and red spider. Prevention is better than cure, so keep them moist and growing, and if any vermin, smoke at once, and make an end of them.

HYACINTHS.—A complaint made by amateurs is that the flower-spikes of *Hyacinths* do not rise freely, and the flowers open confusedly close down to the bulb, and look ridiculous. Others write to say that in the majority of cases *Hyacinths* throw two and three spikes instead of one. Dumpiness has been the subject of many proposals, and the remedy most in fashion is the application of a paper funnel, a sort of sugar-paper with the pointed end cut off to draw the spike up to its proper length. This is a foolish practice, in spite of its having been advocated by men who justly hold a high position in the horticultural world. If the paper caps once get well soaked with water, which they are likely to do, they may subside in a shapeless and sticky heap about the flower-spike, and cause the rotting of some of the pipes, and the discolourization of all. If the spikes can be "drawn" by excluding from them all side-light, there can be nothing so simple and handy as an empty flower-pot inverted over the plant, the leaves being carefully brought together so as not to be broken by the edge of the pot. But query, does the cap, whether paper or flower-pot, assist in the development of a fine spike? Such a result was never heard of, and assuredly never will be heard of, for the simple reason that dumpiness is the result of weakness, and a nightcap is known to be no cure for debility. All these dumpy *Hyacinths*, and all those that show canker on the spike, and that shed their buds instead of expanding them, are weak in the roots. If we turn one of them out, and shake away the soil, we shall find that the bulb has either made no roots at all, or only a few poor weak ones that seem quite unable to push through the soil, and find nourishment for the leaves and flowers. When the spikes of such begin to show colour, it is too late to do anything with them, but if taken in time, dumpiness may to some extent be prevented. Our date for opening the store of plunged *Hyacinths* in pots is the 1st of January. From the time of potting until that day comes, they are out of doors, packed close together, and covered with six inches of cocoa-nut fibre refuse. When taken out on the 1st of January, they are generally so far advanced as to have grown two inches above the bulb, and they are variously disposed of—some to the forcing-pit, others to cold frames, &c., &c., according to the existing and anticipated demand for flowers. Now it is when first removed from the plunge bed that the cultivator must determine which are likely to attain to their proper growth, and which, if left without special help, will be dumpy. Those that have the leaves and spikes closely packed together, and in the form of a pointed cone, may be considered the most promising. They have formed plenty of good roots, and intend to open their leaves freely, and send up their spikes in a dignified manner. But all those which exhibit a small club-like mass of flower-buds, with small leaves already parted from the centre and diverging from it, are candidates for dumpiness. The bulb is endeavouring to produce its leaves and

flowers without the aid of roots, and it cannot send up a free green growth through deficiency of sap. All these should be placed on a very gentle hotbed, and be covered with at least four inches depth of some clean material, such as cocoa-nut fibre refuse, fine soil—anything that will lie close about them, and keep spikes and leaves in the dark. The majority will make root in abundance, after a fortnight's sojourn in the hotbed, and when taken out the spikes will be considerably advanced, and promising well. The best way to flower these will be on the same bed, fully exposing them to light, that leaves and flowers may have their proper colour, and giving air (very little at first) by degrees, to render them comparatively hardy. A heat of 60° is quite sufficient for the cure of dumpiness; if put into a fierce heat, the bulb will melt into a jelly. The exclusion of daylight while the first process of rooting takes place is most important.

Stove and Orchid House.

ORCHIDS IN FLOWER.—*Dendrobium nobile*, *D. macrophyllum giganteum*, *D. pulchellum purpureum*, *D. densiflorum*, *D. Pierardii*, *D. aggregatum majus*, *D. Cambridgeanum*, *Pbajus Wallichii*, *Trichopilia navis*, *Blattia patula*, *Lycaste cruentata*, *Cattleya amethystoglossa*, *C. Mossiae*, *C. Mossiae aurantiaca*, *C. Mossiae superba*, *Chysis aurea*, *Cycnoches pentadactylon*, *Pbalaenopsis amabilis*, *P. grandiflora*, *P. rosea*, *Cymbidium eberneum*, *Cyrtopidium biflora*, *C. caudatum*, *C. caudatum roseum*, *C. hirsutissimum*, *Vanda cristata*, *Lpidendrum crassifolium*, *E. aurantiacum*, *E. Hanburyanum*, *Aganisia pulchella*, *Bolbophyllum saltatorum*.

STOVE.—Such plants as have done blooming must be cut back, and have encouragement to break before repotting them. Those which especially need attention now are *Euphorbia Jacquiniiflora*, *Eranthemum pulchellum*, *Poinsettia pulcherrima*, *Geissomeria longiflora*, *Gesnera lateritia*, *Justicia coccinea* and *calytricha*, *Linum trigynum*, *Gardenia florida simplicis*, *G. Thunbergii*, &c. Many orchids are now sending up their flower-spikes, and must have sufficient heat and moisture for their full development. Orchids needing a shift should have it just as they begin to grow. The orchid house should be carefully managed now as respects temperature; generally speaking, the thermometer may safely range from 55° to 75°, and the extreme maximum for these sunny days should be 80°. Be careful to exclude the frosty air, or spot will follow, but give air as much as possible, having regard to safety, while this weather continues. Another matter to be careful about is to prevent lodgments of water in the axils of the leaves. No doubt in their native climes the channels of the leaves are irrigating machines to the plants, but the artificial circumstances we place them in do not admit of allowing them to serve such a use.

FIRES have been kept up lately, and many things have got dry. We have just looked at a lot of seedling ferns in pots on a shelf close over a hot-water pipe, and found them as dry as dust; probably some of our readers may be in the same predicament. The remedy is at any one's fingers' ends, but if not used quickly the dried-up plants will die, and there is no remedy for death, though for mere dryness any one can guess at it. Heaths and New Holland plants generally will be likely to suffer by fire-heat just now, especially as owing to the recent mild weather many of them are in a rather soft state; keep down the day heat by giving plenty of air, for houses kept close now soon get up to 80° or higher. And keep down the night heat so that it just suffices to make all safe against frost, which is most severe generally from 4 a.m. to 6 a.m., when the fire is out or at its worst.

Forcing Pit.

CHERRIES in the forcing-house will probably have black or green fly. Do not be content to pass through the house and see them looking apparently well. The black fly will sometimes get a firm hold before it is suspected, and when at last, by the curling of leaves and other signs, the cultivator discovers the enemy, it is too late to save the crop. A dry heat will always fill cherry trees with fly, therefore syringe freely except when they are in bloom, and give air in plenty at all reasonable and seasonable opportunities. Hand-picking is the only way to deal with caterpillars; every curled leaf should be examined, and the worm removed and killed without injury to the leaf. Some careless people crush worm and leaf together, which is certainly a great saving of time over the more careful method.

CUCUMBERS.—Where the growth proceeds freely, woodlice will proceed freely too. Make them proceed more freely than they intended by watering round next the woodwork with boiling water. If this is done occasionally in the middle of the day, it will prove an effectual settler. Plants fruiting to be kept well fed, and the temperature steady. If any need for linings, let there be no delay in applying them, for if the roots get a few degrees too cold to sustain the demands upon them the fruit will be lost. Always water the roots with warm water; the simplest way of obtaining it is to keep a shallow can or pan in the frame, and fill it as needed. If any sun-heat, shut up at 80° or 85°.

PEACHES in the early house will now need training and disbudding. Secure wood where wanted, and suppress that which is superfluous. Keep rather dry at the root until stoning is completed, and then commence to thin the crop by degrees.

PINES.—If dealt with as advised a few weeks back, the succession plants will now be in the mood to grow freely. Fruiting plants will require a liberal top-heat and plenty of water, and as much air as can be given safely to assist the colouring.

VINES that are in a poor condition should be allowed to carry nearly all the wood they make, or at least only those laterals should be removed that have no chance of a due share of daylight. Cultivators often forget that when a tree is allowed to make a free head it will at the same time make a free root; and, on the other hand, if we check the growth above ground by pinning and pinching, the growth below ground will be equally retarded and restrained. Vines with swelling bunches must have every needful care, and especially as to the thinning of the bunches—a matter in which every grape-grower should seek to become dexterous. For these the day heat may be 70° to 85°, night 50° to 55°.

STRAWBERRIES swelling their fruit must be well fed, either by renewing the dung in which the pots are plunged, or by means of liquid manure. Strawberries showing colour now will acquire an admirable flavour with the aid of sunshine, and the more so if they have plenty of air. Keep them as near the glass as possible, and take care that they are well fed. If they get quite dry at the root, the crop will be lost.

A SELECTION OF FUCHSIAS.

As I have been a most successful exhibitor of the Fuchsia, and had the honour of carrying off the first prize for a collection of six plants at the Great International Exhibition, I may presume to name a few of the best varieties, both for purposes of exhibition and decoration; and these, if well managed, will surprise even experienced growers.

SCARLET FUCHSIAS WITH SINGLE DARK COROLLA.

Light Heart.—This has a nearly black corolla, changing to a violet-plum colour when fully expanded; foliage medium size; habit short-jointed; the best in habit of all the black corolla varieties. A very good and distinct sort for exhibition.

War Eagle.—Large violet corolla shaded with crimson; a bold flower, of great substance; free flowerer; habit good; fine exhibition variety. One of the best.

Lizzie Hexham.—This is a beautiful telling dark variety; tube and sepals brilliant scarlet, properly reflexed, large rich dark purple corolla; good grower and fine habit. This is certainly one of the finest fuchsias ever sent out.

Harry George Henderson.—This is a remarkable and very effective variety, with broad bright coral-scarlet sepals, well reflexed, and very large round rich plum-violet red corolla; of great substance, and certainly one of the finest fuchsias ever seen; good habit, and a strong grower.

Aurora.—The corolla beautifully expanded, well reflexed; good grower; fine for exhibition.

Charming.—A very fine flower; the corolla distinct from any other. A good grower; one of the best.

La Favorita.—The shape of this bloom comes very near to perfection, and the plant will no doubt become what its name denotes. One of the best.

Lord Elcho.—A very fine bold flower, and if well grown, one of the very best for exhibition.

In addition to these, which are fine sorts for exhibition, the following are valuable for purposes of decoration: Enoch Arden, a free-blooming variety, with the largest corolla and the most substance of any fuchsia at present in cultivation; Conquest, rather dwarf, a beautiful shaped flower, one of the best ever sent out; Land of Plenty, an elegant and effective variety, almost perfection in shape, requires good cultivation, but if well grown is a perfect model; Victor Emmanuel, the best, with yellow-tinted foliage, very attractive, distinct, and should be in every collection; Fame, good habit, one of the best; The Lord Warden, a very fine flower, the corolla perfectly distinct in colour from any other fuchsia; Bæceus, a splendid little fuchsia, one of the most graceful-habited varieties, and one of the best for exhibition or small pots; Exhibitor, one of the finest reflexed fuchsias, a strong grower, of good habit; La Traviata, a gem, and one of the best dwarf fuchsias for small pots; Lucrezia Borgia, a fine large flower, much the best variety with striped corolla.

SCARLET FUCHSIAS WITH SINGLE ROSE OR LAVENDER-COLOURED COROLLA.

Roderick Dhu.—Corolla blue, very large, opening out à-la-Crinoline; habit beautiful, and a free bloomer. The flowers being large, and of a fine colour, combined with a nice bushy habit, this is one of the finest varieties for exhibition purposes.

Father Ignatius.—Corolla beautifully cup-shaped, indigo blue, sometimes striped with rose, mostly on the first lot of blooms that open; foliage small, habit bushy, short jointed; very free bloomer. The corolla has the finest outline of any fuchsia extant. From its free-blooming habit and fine form, it is one of the finest for exhibition.

Consolation.—Sepals light carmine, bluish lavender corolla, changing to a plum colour when fully open; habit good, very free bloomer, and one of the best for any purpose.

Northern Light.—This is a fine bold flower, the corolla is of a bluish-purple colour; a good grower and habit, and fine for exhibition.

Sunshine.—This is a beautiful variety; good habit, and the colour of the bloom very attractive. One of the best.

Beauty.—A beautiful exhibition variety, with broad bright carmine-scarlet sepals, gracefully recurved; the corolla pure lavender colour, cup-shaped, of a model outline; growth free and vigorous, adapted for pyramid or bush specimens. This beautiful variety is one of the best.

For decoration the following sorts may be added: Constellation, a remarkable variety, and very attractive for the decoration of the greenhouse; Emblematic, a fine kind, very large and attractive, and decidedly one of the best, good and free; Don Giovanni, close dwarf habit and beautiful corolla, one of the best for small pots; Finsbury Volunteer, a good showy kind; Rifleman, a little gem, dwarf, of good habit, and a most profuse bloomer, one of the best for small pots, or the decoration of the dinner-table, young plants will bloom all the winter; Ben-e-Gloe, distinct and very dwarf, one of the prettiest little fuchsias ever seen.

WHITE FUCHSIAS WITH SINGLE PURPLE COROLLA.

Prince Alfred.—This is a splendid fuchsia, a most profuse bloomer, a strong grower, and one of the very best for any purpose. It must be well stopped when young.

Lady Haytesbury.—This is a first-class new fuchsia, decidedly one of the best for decoration; blooms and foliage good; fine habit.

WHITE FUCHSIAS WITH SINGLE SCARLET OR PINK COROLLA.

Rose of Denmark.—Corolla light pink, margined with rose; habit rather strong, but blooms very freely at the points; being distinct from the other light varieties, this should be in every collection, either for exhibition or conservatory.

Lucy Mills.—Corolla light pink edged with bright rose; after the style of Marginata in habit and bloom; the blooms being larger and brighter in colour, it is an improvement on that variety. A good white for exhibition.

Catherine Parr.—White tube and sepals, the latter well reflexed, great substance, corolla cup-shaped, of a rich scarlet tinted rose, a great improvement on Reine Blanche and all of that class; good grower and a fine habit. One of the best for exhibition; a model variety.

Arabella.—White tube and sepals, very large and long, reflexed, corolla rich rosy-pink, very fine flower, good grower and habit; a most profuse bloomer. This is a magnificent variety; for decoration one of the best.

Agnes.—Strong grower, great substance in the flower, free bloomer. One of the best for exhibition.

Mlle. Tiotjens.—This is a very nice fuchsia indeed, and certainly one of the best; it is of graceful habit, and an abundant bloomer; fine for exhibition.

Minnie Banks.—One of the best out; splendid corolla, quite distinct from any other, and one of the best for exhibition.

To these, for decorative use, may be added,—Bianca Marginata, one of the best of its class, large, the corolla very fine; Il Trovatore, large and of splendid shape, but the corolla is apt to become deficient; Merry Maid, a splendid fuchsia, one of the prettiest out, fine for small pots, or the decoration of the dinner-table.

SCARLET FUCHSIAS WITH SINGLE WHITE COROLLA.

Conspicua.—This is a first-class show kind, a good bloomer; the habit is very much improved when the plant is two or three years old. Best for exhibition.

Puritani.—This is by far the best habit of any of the white corollas out; one of the best for small pots, or for the decoration of the dinner-table.

Mrs. Gladstone.—The habit, and its fine large bold flowers and perfect shape place this beyond all others in its class. Tube and sepals bright waxy scarlet, the latter very broad and reflexed, equal to the well-known Guiding Star; the corolla pure white with a beautiful scarlet feather, and bell-shaped; a most abundant bloomer; fine for exhibition.

Of decorative sorts, Bland's Floribunda will introduce a new race, being perfectly distinct from all others sent out; it will become as great a favourite as the well-known Tom Thumb Pelargonium, and will be seen in every garden and on every window-sill; it is of very short stiff growth, requires no stakes, and will grow and bloom under almost any treatment. Queen of the Whites is a very dwarf, free-blooming, nice variety; the best for small plants.

SCARLET FUCHSIAS WITH DOUBLE WHITE COROLLA.

Emperor of Fuchsias.—This is a very fine large flower; the habit is bad when the plant is young, but when two or three years old it improves very much, and is a fine object in a conservatory.

Eva.—Bright waxy scarlet tube, and sepals well reflexed; good habit; a very nice and attractive kind.

Vainqueur de Puebla.—This is the best double corolla out, and will be as much sought after as Madame Cornelissen was; fine bold reflexed sepals, with a very large corolla, and a splendid glossy green foliage, which is much required in this class. A fine acquisition for the open garden.

SCARLET FUCHSIAS WITH DOUBLE DARK PURPLE OR BLUE COROLLA.

Grand Duke.—This has the largest and closest corolla of any fuchsia I have seen; free flowering. The leaves are smaller than Universal, and an improvement on that well-known kind.

Rifleman.—Similar to Sir C. Campbell, but far superior in every way.

Blue Beauty.—This is a very fine flower; good grower, free bloomer, spreading corolla. One of the best.

Agamemnon.—A good grower, the freest bloomer of all the doubles, and a very showy variety, of good habit.

King of the Doubles.—This will make a grand plant for exhibition; dark scarlet tube and sepals, the latter broad, and beautifully reflexed; the corolla very large and long, of a rich purple colour, and distinctly striped with red. In habit this is remarkably good.

Norfolk Giant (or Norfolk Hero).—This is a fine double variety, scarlet tube, and sepals very large; purple corolla; good habit and grower; small leaves, and superior to Universal. One of the best.

To these I would add, for decoration,—Grand Admiral, a good fuchsia, either for decoration or exhibition, fine for small pots; Alherta, a very pretty dwarf fuchsia, a free bloomer, with small leaves, fine for the table; Monster, the largest ever sent out, the corolla measuring from 2 to 2½ inches over, as large as a small rose, short stiff habit; the immense size and the abundance of its blooms, and its good habit, make this a desirable variety.

H. CANNELL.

Fuchsia Nursery, Woolwich.

DIG DEEP.—Baron Liebig sagaciously observed that all the attempts of Messrs. Lawes and Gilbert to grow clover continuously, by heavily dressing the surface soil with various manures, failed, because these manures never reached the subsoil or feeding ground of the clover roots, the top soil having arrested and fixed, or appropriated those manures, which really ought to have been buried and intermixed with the poor subsoil. In a rich old garden, where the subsoil had been long and well fertilized, the same gentleman could grow red clover annually. It is very probable that only enough of the manure we apply to the surface reaches the subsoil in eight or twelve years, so as to enable us to take a red clover crop once in that period. The young clover plant thrives well until in the spring its roots descend to the subsoil, and then it perishes for want of proper nutriment. When the clover crop was first introduced into this country and Germany, clover could be frequently grown; but it appears now to have exhausted the small store of its elementary constituents which existed in the subsoil. It is not unreasonable to attribute to the same cause the frequent failure of our deeprooted turnip crops. Many of us are not aware to what depth the roots of annual plants will penetrate where there is a free passage for the roots and for air and water. In a clay pit belonging to my neighbour, Mr. Dixon, of Rivenhall, which had been somewhat undermined for brick earth, a mass of earth twenty feet thick fell over loosely, and was afterwards sown with parsnips. My friend, observing a fine one, desired his man to pull it up, which he did, and the vertical root measured 13 feet 6 inches; but it was evidently longer, for it had broken off and left a piece of its root still deeper in the soil. Lucerne has been known to go very much deeper than this parsnip. The imperfect development of some of our cereal crops arises from an ill-conditioned subsoil. Wheat roots occupy the subsoil to the depth of four or five feet, therefore the condition of that subsoil as to manure and drainage must materially affect the crop, as we see by the yellowness or "going off" of many wheat crops in May, when the roots attempt to search for food in the un-aërated and unmanured subsoil. It was not known until discovered by Way, and confirmed by Liebig and others, that a few inches in depth of surface soil has the power to fix or retain all, or nearly all, the food of plants which our manure contains, such as potash, phosphate of lime, and ammonia, thus preventing its passage into the poor subsoil.—*Mech's Lecture on Modern Tillage.*

Correspondence.

WORMWOOD AND CHOLERA.—It would be well to have it generally known throughout the country that wormwood is considered a preventive of the attack of cholera. It is to be taken inwardly as well as applied outwardly. The herb may be scalded to make ready for use, the same as making tea, or it may be boiled as coffee. A wine-glass of it must be taken the first thing every morning, and a little at any time during the day to be taken just as it is, without mixing with anything. A little must also be put among the water every morning to wash the hands and face previous to going out of doors. This precaution has been adopted at various places, and considered very beneficial as a preventive of the attack of cholera, and prevention is always better than cure. The virtue of wormwood was held of vast importance by the Romans, hence it is called Roman wormwood. It strengthens the stomach, the appetite, the nerves, the voice, the eyes; it purifies the blood, and gives strength and vigour and courage to the body. No ancient place around this country could be found at one time that had previously belonged to the Romans, but wormwood was to be found growing abundantly. At all old homesteads, castles, and stations, wormwood flourished and grew spontaneously, but although once plentiful, and found to be growing wild everywhere almost around us, has now to be cultivated in the garden for security. I have often recommended this herb privately to those individuals who much enjoy a glass of "bitter" to quench the thirst, and nerve them in the morning for work. I have advised them to try wormwood. It never gets stale or flat, but is always a teller as a bitter draught. As this most lamentable pestilence, the cholera, is spreading among us, it would I think be well to adopt this homely preventative at once by every one, and also to set about cultivating this valuable bitter herb more generally than is at the present time thought about.

A. D. ALLASON.

Replies to Queries.

Ericas to Grow and Select.—I have seen in former issues of the GARDENER'S MAGAZINE some admirable treatises on the cultivation of heaths, and instead of going over the old ground I will endeavour to sum up, for the benefit of "A Young Gardener," who has forwarded a letter of inquiry on the subject, the rules to be observed in the treatment of these plants. The heath house should be light, airy, and dry. It must be heated to keep out frost, but should at all seasons be kept as cool as possible (within the limits of safety), and freely ventilated. Soft-wooded plants should never be mixed with heaths, but many hard-wooded plants, such as Hedaras, Tetrathecas, &c., agree well with them. The soil for heaths must be good peat, not such as may be found in Lincolnshire bogs, but Wimbledon or Shirley peat. For the freer-growing kinds, Epping Forest peat is very well, but it is not so good as that from Addington Park or Wimbledon. With the peat incorporate a fourth or fifth part of clean silver-sand. Those heaths that flower in the autumn should be repotted in March or April; those that bloom in spring and summer should be repotted as soon as they begin to grow after the bloom is over. The potting must be well done; the drainage especially must be perfect; if the roots form a hard ball, and it does not appear advisable to break it (which, generally speaking, it is not), put a few clean pebbles round the ball, and in filling in press the soil very firm. By this procedure you will ensure the admission of new roots into the new stuff. During the summer, the plants should, if possible, be kept in a bed or frame facing the north. The pots should stand on flags or slates, to prevent the entrance of worms. Shade slightly when the sun is very hot, but do not put the plants under the shade of large trees, for the drip will poison them. If kept in the house all the summer, keep air on night and day, and do not shade the top of the house constantly, or the heaths will be drawn. A roller blind is the proper thing, and the proper way to use it is to draw it down for about two hours only at midday in the hottest weather. In September the plants should be housed and put near the glass. Give plenty of air. Throughout the winter an average temperature of 45° will keep them admirably. At all seasons keep them moderately well watered. It is a mistake to suppose they dislike moisture; at the same time excess of water or a sour condition of soil are highly injurious. A very good collection might be wintered in a common pit, with the exercise of care during cold weather to keep them comparatively dry and safe from frost.

A Selection of 100 Species and Varieties of Ericas.—These comprise the most useful and most beautiful in cultivation, and none of them are high priced. Probably at any first-class nursery, one good plant of each might be obtained—that is to say, the collection of 100 sorts for £15; perhaps for less. Aitonians, A. superba, amabilis, ampullacea Barnesii, Andromediflora, Archeriana, ardens, aristata major, a. superba, Austiniiana, barbata major, Bergiana, Bowieana, Bruniodes, Caffra, Cavendishiana, candidissima, Candolleana, cerinthoides, c. magna, Clowesiana, colorans, c. verna, cubica minor, depressa major, d. multiflora, Devoniana, elegans, Eweriana superba, eximia, e. superba, Fairrisna, flويدa, f. campanulata, gemmifera, gracilis autumnalis, g. vernalis, grandinosa, Halfordiana, Hartnellii superba, Holfordiana, hybrida, hyemalis, infundibuliformis, insignis, Irbyana, Jacksonii, jasmiflora alba, Jubana rubra, Juliana, Lambertiana, Linnæana superba, mammosa major, m. pallida, Marnockiana, Massonii, M'Nabiana, melanthera, metuliflora bicolor, mirabilis, mutabilis, nitida, oblata, Parmentieriana rosea, Paxtonii, perspicua erecta, profusa, propendens, pulcherrima, regerminans, retorta major, rubro calyx, Savilleana, scabriuscula, Shannoniana, Sindryana, splendens, Sprengelii, suaveolens superba, tricolor coronata, t. elegans, t. exquisita, t. flammea, t. impressa, t. insignis, t. Kingscottii, t. rosea, triumphans, ventricosa Bothwelliana, v. coccinea minor, v. grandiflora, v. magnifica, v. rosea, v. tricolor, vernix coccinea, vestita alba, v. coccinea, Victoria, Webbiiana, Willmoreana.

W. F.

Variegated Ivies and Hollies.—J. E., Dunstable.—The following are the most effective of the variegated ivies: Hedera Canariensis marmorata and H. C. variegata, Hedera helix, Marginata Cullisii, Marginata robusta, Arborea aurea maculata, Arborea minor luva, and Arborea New Silver. The last named is the variety lately sent out by Messrs. Lucombe, Pince, and Co.; it is the most effective of all the arborescent forms of variegated ivies. Of hollies the following are the best; they are all varieties of *Ilex aquifolium*: Flammea angustifolia, Gold Milkmaid, Bronze, Aurea nana, Aurea myrtifolia (this is one of the best for beds in winter), Gold Queen, bicolor (this bears abundance of berries), Silver Milkmaid, Handsworth New Silver Striped, and Silver Queen.

Variegated Geraniums.—Alice.—You will certainly not find in any catalogue first-class variegated geranium seed. The majority of variegated geraniums are not seedlings, and the best seed cannot be depended on to produce variegated varieties. Without knowing it, you have put a query of a most solemn nature, for it opens the great question if variegated geraniums can be raised from seed at all. It is quite certain that variegated geraniums can be raised from seed, but the raisers save their own seed, and usually keep it, and the plants produced from it, under lock and key. The seedsman you first name can supply good zonal geranium seed. It is our rule not to name traders, except in peculiar cases, and on the present occasion to recommend any one house in particular would be most unfair.

Pansies from Seed.—W. B., Devon.—Pansy seed may be sown at any time from the 1st of February to the 1st of August. Now is a good time, because the plants will have the summer before them for flowering. Sow in pans filled with light rich soil, cover with a mere dusting of soil, and keep the pans in a warm rather dark place till the seed sprouts. This it will do in about ten days. Do not force the plants on in heat; pot them in a mixture of yellow loam and leaf-mould equal parts, with a half part of sand added. Plant them out in April. Pansy seed sown now may be expected to bloom in about ten weeks from this time. If you will forward your name and address in full, the books mentioned shall be forwarded gratuitously.

Salsify, the Vegetable Oyster.—R. W. B.—This excellent root is not sufficiently appreciated, or it would be much more commonly grown. Any ordinary good sandy loam will suit it if deeply dug some time ago, and laid up in ridges to the frost. In the event of having to prepare ground for it now, trench two feet deep, and put manure at the bottom of the trench. Sow in April, in drills fifteen inches apart; when the plants are up, thin to six inches in poor soil, and to nine inches in rich soil. The roots are usually taken up in November, and stored the same as carrots, but some cultivators leave a few in the ground for the sake of the shoots they produce in the spring, and which if cooked before they become stringy are by many highly esteemed. To convert the root of salsify into vegetable oyster, it must first be boiled till tender, then be mashed up with butter, and lastly be fried, a nice brown. It is then said to resemble oyster patties. It is certainly a very tasty dish, without any reference to its imitation of oyster.

Early Forcing.—Sub.—In proportion to the heat should be the amount of moisture, as also the circulation of air. We infer from your statement that the atmospheric moisture is much deficient. Is there, however, any source of bottom-heat which produces atmospheric moisture? Roses, and in fact most shrubs emerging from a state of partial torpidity or rest, are very averse to what is termed dry heat. Our advice is to use as much atmospheric moisture in the afternoon, in combination with a circulation of air, as will deposit dew on the leaves. A much less amount may be used from daylight until noon. Drah is a good colour to paint your house to show off vegetation; as to matters of cultivation, it is quite of secondary importance. The management of the atmosphere carries the chief weight. Achimenes coccinea cannot be got well through the winter—more light in conjunction with heat is wanted. Pot off some now which were rested early; plunge them in bottom-heat without water; as soon as up, transfer them in groups to pots or pans, and cultivate as you would a balsam. Pot again once a month for succession from those at rest. Plunge gesnerias in bottom-heat, and treat them as achimenes. Use a little water, increasing it with increased vigour. Your temperature is rather too low; if sunshine occurs, run the glass up to 75° or even 80°, provided there is a little motion in the air. A cold greenhouse will suffice for camellias.

Shady Bank.—R. B.—When grass will not grow for want of light, spargula is no use. Nothing better for the bank than periwinkle, of which there are several varieties; the minor white will make the best bank. Common English (not the large-leaved Irish) ivy would make a splendid clothing for the bank in a few years. Moneywort is a first-rate thing to cover a bank, the plants to be inserted on the upper edge, whence they will soon trail to the bottom. Violets would not flower well there. Primroses would do, but they look poor in the autumn.

Exotic Ferns.—Subscriber.—These should be repotted when just about to commence their new seasonal growth. The soil must depend upon the species, but as a rule turfy peat two parts and sandy loam one part will grow stove ferns well. Some like rotten wood, and they are all partial to leaf-mould. There is no cheap work on exotic ferns. Mr. Lowe's work in eight volumes is the best yet produced.

Asphalt Walks.—R. W. Robson.—In "Jones's Gardener's Receipt Book is the following: "The place intended to be asphalted must be previously levelled, then put on it a coat of tar, and sift some road-sand or coal-ashes all over it very thickly; after this is dry, repeat the operation until you have got four coats of tar, and as many of coal-ashes or road-sand. You will then have an excellent, clean, dry, hard path. It will make excellent walks or floors for sheds, out-buildings, &c., and will wear for many years.

Slug-trap.—Simson.—The Somersetshire trap you inquire about is not intended for slugs, but for mice. It consists in half filling a jar with greasy water, and placing it sunk to its rim in the ground. The mice go in, but cannot get out, and are drowned; and usually slugs go in too, and are likewise drowned, though slugs can swim, and to climb up up a jar is no trouble to them.

Potted Peach Trees.—R. Bakewell.—No dependence can be placed on peach trees for a crop of fruit this year, if the potting has been delayed till now, and especially if they were taken up or out of pots in November last. When potted in November, fruit trees begin to make new roots at once, and continue growing at the root all the winter, whereas if delayed till February they are then beginning to start their buds, and there is not enough root action established to enable them to carry fruit. The house will no doubt accommodate them well if freely ventilated. Feeders are of use chiefly to supply more moisture to plants than they can have by ordinary watering. The Noblesse, Royal George, and Violette Hative are all first-class peaches; the first is the most ornamental when in bloom, as it has large flowers, and it is also the best peach to choose for general purposes, as it is a constant bearer, and the fruit unsurpassed among peaches.

Artillery Plant.—Miss Mary.—The plant is *Pilea allitrichoides*, or Pistol plant. It is a native of the West Indies, and a very elegant and interesting subject for stove and greenhouse culture. We have frequently used it to furnish Wardian cases, for which purpose it must be grown to a good size in pots, and be plunged in the place it is to occupy, and it will continue to grow and bloom from May to October in the temperature of a dwelling-room. The minute, fern-like leaves and reddish pins'-head sort of blossoms, fit it well for association with fine-leaved plants. It is named the Artillery or Pistol plant, because when sprinkled with water on a hot sunny day, the flowers emit little puffs of pollen like discharges of smoke from fire-arms.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun		Moon		WEATHER NEAR LONDON, 1865.					M. temp. avg. of 43 yrs. Grain	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D	
			rises.	sets.	rises.	sets.	Barometer.		Thermometer.						Rain.
1867			h. m.	h. m.	h. m.	h. m.	IN.	MR.	MX.	MM.	MS.				
3	S	Quinquagesima Sunday	6 44	5 41	5 4 a.m.	2 42 p.m.	29.66	29.59	42 23	32.5	-00	39.9	Dendrobium densiflorum, I ...	India	3
4	M	Length of day 11h. 3m.	6 42	5 43	5 38	"	29.72	29.54	42 28	33.0	-00	40.1	D. pulchellum purpureum ...	Sylhet	4
5	T	Shrove Tuesday [at 8h. 17m. a.m.]	6 40	5 45	6 7	"	29.74	29.62	41 25	33.0	-00	40.1	D. Pierardii, I ...	"	5
6	W	Ash Wednesday. Eclipse of sun beginning	6 38	5 46	6 36	"	29.45	29.21	44 23	33.5	-10	40.1	D. agerogatum majus, I ...	"	6
7	Th	Hort. Soc. of London founded, 1804 (1863)	6 36	5 48	7 3	"	29.16	29.17	45 25	35.0	-02	40.1	D. Camb. degatum, I ...	"	7
8	F	Princess of Wales entered London, Mar. 7.	6 34	5 50	7 29	"	30.11	29.57	46 34	39.0	+3	40.9	Phajus Wallichii, I ...	"	8
9	S	Prince of Wales married, March 10, 1863	6 31	5 51	7 57	"	29.97	29.87	46 29	37.5	-00	40.3	Trichopilia suaveis, M ...	Mexico	9

The Gardener's Magazine.

SATURDAY, MARCH 2, 1867.

THE AFFAIRS OF THE INTERNATIONAL HORTICULTURAL EXHIBITION OF 1866 are being slowly but effectually wound up, and the latest work of the Executive is of a most satisfactory character. The "Report of Proceedings" just issued and distributed amongst subscribers, contributors of papers to the Congress, and others having general or particular claims, is not only a creditable document, but a very important contribution towards the history of botanical and horticultural science, and as such will be valued for all time to come. It is a substantial octavo volume of 428 pages, beautifully printed, abundantly illustrated, and comprising in its contents a complete record of the proceedings from the first dawn of the idea in 1864, to its realisation in the summer of 1866, and the temporary closing of accounts in November last. As only a limited number has been printed, some account of the contents of this work may be useful to many of our readers. There are complete lists of Officers, Patrons, Subscribers, and Guarantors, lists of Foreign Visitors to the Botanical Congress, and of the authors (with their subjects) of papers contributed thereto; a Catalogue of the Exhibition, and the Schedule of Prizes, followed by lists of Awards, Jurors, Exhibitors, and lastly of the music performed on the several days of exhibition. The "Summary of General Proceedings" gives a lucid account of the steps and stages of the undertaking from first to last. It is followed by a report of Proceedings of the Congress, and by a selection of the several papers presented and discussed, some of these papers being elaborately illustrated.

We gladly avow the gratification experienced on receipt of this noble volume, but it is a gratification not unmixed with regret that the Executive have forgotten some essential things, and have apparently allowed mean motives to influence them. At page 19 of the report will be found a complete list of subjects proposed for discussion, and of papers presented to the Congress. At page 42 commences the reproduction of a selection of the papers in full. The catholicity of the selection is open to question; indeed it is next to impossible for those who know what jealousies, prejudices, and personal animosities lie below the surface of horticultural discussions, to avoid the conclusion that some papers have been admitted because their authors were held in favourable personal regard by the committee, and other papers were excluded because their authors were not on the roll of favourites, or perhaps were on the roll of those who were to be tabooed if possible, even if at so tremendous a price as the degradation of science to serve personal interests. Amongst the papers inserted is that ridiculous essay by Mr. Wills "On the Sporting of Pelargoniums and other Plants," in which, in opposition to recorded facts, he expresses his belief that no variegated leaved pelargonium has ever been raised from seed. The impartial critic will be tempted to ask if Mr. Wills has been made the most of in the interests of a journal to which he contributes papers quite in keeping with its literary standing. The three papers by Mr. Rivers are undoubtedly interesting and valuable, but many of the points elucidated in them have been treated at such length for many years past by their author in his contributions to our contemporaries, that we cannot avoid associating with their appearance in full the existence of a delightful harmony between the Executive and Mr. Rivers—a harmony not altogether void of principle and interest. If every paper contributed had been reproduced in full, we should point to Mr. Rivers's papers as amongst the most useful of all for a place in a permanent record, but the omission of several important and original contributions compels animadversion in a case where it would be most agreeable to avoid it. Three good papers—namely, that by Professor Karl Koch on the classification of plants; that by Professor Morren on the effects of coal gas on plants; and that by Professor Schultzenstein on the presence and source of nitrogen in turf or peat, are presented in the original text, but they would be

far more useful to a majority of the subscribers if accompanied with translations, which could have been furnished at but little expense or trouble. Amongst the papers omitted, the following appear from their titles to have merited a better fate, and we fear that motives not unmixed with personal feeling must have prompted their omission: Mr. Bull, of Chelsea, "On the Relation of Horticulture and Botany to Mankind in General;" Mr. Hibberd "On the Naming of Plants;" M. Krelage "On the Names of Garden Varieties;" and Signor Triana on the Mutis collection of drawings of the plants of New Granada. The insertion of these papers would not have added £10 to the whole expense of the printing of the report; their omission damages the report, and reflects unpleasantly on all who have had a hand in its production. To think that after all there should mingle a little shop with the winding-up of this great affair! *Acta exteriora indicant interiora secreta!!!* The lists of awards, jurors, and exhibitors is a most interesting and valuable section; and it appears that great pains have been bestowed in rendering the particulars as accurate as possible. Possessors of this beautiful volume may now dispense with the official catalogue that was sold in the exhibition tent, and which was unavoidably crowded with inaccuracies, for they have here a complete and correct record of all exhibitors, all winners of prizes, and the names of all the plants in the most important collections.

It only remains to remark upon the balance-sheet, the principal items in which are the following: Subscriptions paid, £5,604; receipts by payments on entry and sale of tickets, £9,960; sale of catalogues and advertisements in ditto, £301; sundry receipts, £151. The total receipts were over £16,018. On the other side we find entries as follows: Paid Unite for tents and fittings, £3,666; paid Royal Horticultural Society for use of ground, £300; advertising, £998; prizes awarded, £2,000; banquet expenses, £970; music in Royal Horticultural Gardens, and conversazione, £304; salaries and gratuities, £1,641; Gardeners' Royal Benevolent Society, £1,000. There is a balance of cash at Coutts and Co.'s bank amounting to £2,000, on which interest is accumulating, and another balance at call amounting to £438. There remain to be paid for out of these balances the expenses of printing the Report (£637), and of levelling the ground on which the exhibition was held (£130). Probably when these items are disposed of, the Executive will still have about £2,000 in hand, for the interest on the larger portion of the balance will amount to something by the time the account is closed. The question is what shall be done with the money? It is a question of considerable importance.

Turning again to the credit side of the account, we cannot forbear remarking that the lumping system has been carried a little too far. We cannot discover whether there was a gain or loss by the sale of catalogues, for the entries in respect of printing are all on the lump plan. So in respect of salaries, gratuities, &c., we obtain no hint of the £300 understood to have been presented to the three secretaries, Messrs. Moore, Masters, and Hogg. No one grudges them so small an acknowledgment as £100 each; it might as well be boldly stated in the balance-sheet as lumped in under the ambiguous but comprehensive "&c." Well, then, as to the surplus, an offer has been made to the Royal Horticultural Society of means for founding a library of horticultural and botanical books, which up to the present time has not been very graciously treated by that august body. Indeed, the Society's last report treated the International Exhibition in a rather ungenerous manner, so that it is still an open question as to how the surplus is to be disposed of. We will take this opportunity of commending to the consideration of the Executive a good old saw which prompts us to be just before we are generous. If it was right to acknowledge the services of the secretaries by means of honoraria, the judges we think may claim a like consideration. It is not generally known that *the judges gave their services gratuitously*. They did so in precisely the same spirit that the guarantors put down their names, in the spirit of anxiety for the success of the undertaking; and as they gave their time, strength, and talent, they assuredly are entitled to some share of the surplus; many of the judges could ill afford the sacrifice they made in behalf of this great undertaking. Now that it has been crowned with success, they who contributed no small share towards its success are surely as much entitled to generous consideration as the secretaries, and have quite as good a claim to a share of the overplus which the committee are so much puzzled to dispose of.

THE GENUS FRANCISCEA.

This lovely genus belongs to the Solanaceæ of the tropics, and the species are the most gorgeous of our stove flowering plants—the rich mauve-coloured flowers harmonize so effectually and beautifully with the dark, somewhat ovate, shiny leaves, which are thickly and regularly seated upon the young growths. Coming as they do from the interior of the Brazils, their successful management depends mainly upon the knowledge possessed of the physical nature of that peculiar country. There, it is well known, the weather is most seasonal, and the seasons distinctly marked. At one period vegetation is subjected to the debilitating influence of a vertical sun which parches the atmosphere to aridity, following which are deluging and for a time incessant torrents of rain. It is in the latter season that the plants luxuriate and make a rapid growth, their roots fixed in a terrestrial temperature of from 80° to 95°, with an atmospheric temperature of the same power, and highly charged with moisture in the form of floating aqueous vapour. This warm humid atmosphere is peculiarly necessary for the complete development of their leaves and growths, and it is in these situations that that important agent carbon so largely abounds, consequent upon the rapid decomposition resulting from the extinction of vegetable and animal life. Following this condition is the dry season, or season of rest. A low temperature with corresponding dryness of the atmosphere has the effect of arresting growth, consolidating the juices, and thus transmitting the new parts into flowers and fruit, after which a partial deciduous state is brought about, and vegetation remains torpid until the exciting influence of the recurring season again arouses them to activity and vigour. This cursory sketch of the climatic influences to which this genus is subjected will be sufficient to prove how important it is that we should take the opportunity of starting plants into growth at this season, when solar light and heat every day strengthens and aids us in securing all the conditions necessary to a complete development of the functions upon which wood, leaves, and flowers mainly depend. Therefore a bottom-heat of about from 70° to 80° should be secured, and the pots plunged up to their rims, keeping the atmosphere at about the same ratio, also at the point of saturation. If this is persevered in, the plants will imbibe nearly all the moisture they require through the stomates of the leaves and young parts, and thus render watering almost unnecessary; and in this condition they will effectually resist red-spider, thrip, and other similar evils which always beset ill-managed half-starved plants; growth will be quickly made and matured; and if at this stage moisture is partly suspended, still keeping the same temperature, flowers will form, which when expansion commences should be taken from the bottom-heat and placed in the coolest part of the house, where they should be kept until flowering ceases, when a lower temperature must be sought, and the plant exposed to the full influence of the sun's rays throughout the autumn months, in order to harden and ripen the current season's growth, which, if effectually done, the plants will be in a state to resist the dull and almost sunless period of our British winter, without engendering the diseases which too often attack this class of plants, such as growers call fogging, canker, &c., &c., which may in all cases be traced to an incomplete state of the refining process, and the exercise of too little care previous to the plant going to rest.

The species of this fine genus are nearly all worthy of cultivation, but those appended below marked with an asterisk, are especially worthy all the attention that can be bestowed upon them. The magnificent species *Calycina*, recently introduced, far surpasses all other known species, and being a good grower will ere long become one of the leading gems of our plant stoves; and even a limited collection of stove plants will be most incomplete without this valuable addition. The best known species are *Acuminata*,* *Calycina** (major), *Confertiflora** (syn. *aurifolia*), *Lindeniana*, *Augusta* (syn. *ramosissima*), *Eximia*,* *Hopeana* (syn. *uniflora*), *Latifolia*,* *Macrantha*.

J. R. TANTON, F.R.H.S.,

Epsom Nurseries, Surrey.

POTATOES FOR 1867.

At page 556 of last year's issue I gave some account of the potato crop on the trial ground at Stoke Newington, and as planting is now in progress, some particulars, not then available, but likely to be of service to potato growers, have forced themselves upon my attention, and therefore I propose now to make a few remarks supplementary to that report. All our good stocks of potatoes saved from the fearful havoc the disease made here were pitted on the field, and from time to time have been brought home for use. Thus throughout the winter the merits of several varieties have been tested and compared under circumstances of some importance; for if, after such a visitation of the murrain, we can still keep the table supplied with good potatoes, the names of the sorts, and the conditions attending their production, cannot be matters of indifference. Another matter, not altogether unimportant, is the experiment made to ascertain if potatoes in store could be inoculated with the disease. I have always asserted, and that unhesitatingly (see especially pp. 229 and 253, 1865), that when a potato is once ripened, it is incapable of receiving the disease, and that if disease once begins, it is impossible to stop it. There are

but two courses left to the cultivator to choose between; either to take them up, and make use of them in some way as pigs' food, or send them to market, or put them in the mash-tub to furnish wort for cheap brandy, &c.; or, on the other hand, to let the disease have its way, and in due time take up such tubers as remain untouched. No attempt was made in 1866 to save a single root from the disease. Not one was lifted till the haulm had died down, and consequently the autumn was far gone ere the harvest was completed, for rain set in during the first week in August, and continued with few intermissions till the end of October. When the late kinds were lifted, we learnt two facts respecting them: first, that there was an enormous crop, and, secondly, that nearly all the produce was diseased. There was a piece set apart for the whole of the collection, three picked tubers of each. Other pieces were set apart for a few choice sorts to multiply for stock; and there were some twenty rows of twenty yards each planted with sorts selected for home use. Respecting the samples in the bed devoted to the collection, the potato book furnishes the following particulars:—

Sutton's Racehorse.—Entirely destroyed. Not one potato so large as a marble saved from the wreck. Messrs. Sutton have supplied me with sets to begin again. This is one of the best early kidneys known, if got off the ground before July is out, as it may be in fact, and it may be dug for use at the end of May if helped in the early part of the season, and is one of the best varieties that can be planted in a garden.

Hibberd's Improved Fluke.—This was a seedling raised here. The stock found its way, by mistake, to the kitchen, and was consumed. Three sets were planted in the collection, in the hope of recovering a stock of it. They made enormous stools, about half a bushel in all, but not one root was sound enough to keep.

Rintoul's Early Don.—Entirely destroyed. This is a lamentable thing, for this potato is handsome, highly productive, and good in colour, texture, and flavour. First-rate, especially as a market potato.

Golden Drop.—Entirely destroyed, and no matter. Pity it was not destroyed long since, for it was never of any value except as pig food.

Webb's Telegraph.—This pretty white-fleshed kidney was swept off the field. Messrs. Sutton and Sons have supplied sets for this season.

Webb's Imperial.—Entirely destroyed. This was a most remarkable case. There were three fine samples planted in the bed allotted to the collection, and four rows of 20 yards each—that is, 80 yards run—for home use. We did not obtain one sample, and have been obliged to send to Messrs. Sutton for sets, and by their kindness we have enough for a fresh beginning. The loss of this potato was a real calamity, because for many years past it has been one of our best for table use in spring, and towards the opening of summer, for the later it is kept the better it eats. If eaten before Christmas, it lacks flavour, but after the turn of the year it improves, and continues improving until it is too much sprouted to be fit for cooking. At its best it is surpassed in flavour by a few other varieties, and notably by *King of the Potatoes*, which is one of the best flavoured sorts known, but by none is it surpassed in whiteness, fineness of texture, and meanness. There cannot be found a nicer looking potato when well served, and looks are of some importance in these matters. Lastly, it remains to be said in reference to this variety that it is not usually very productive—scarcely so productive as the *Fluke*, which is quite second-rate in respect of fruitfulness; but in 1866 it appeared to have been extravagantly fruitful; the rows were thickly covered with large tubers at taking up, but not a sound one could be found amongst them.

The foregoing varieties are all that were extinguished on our ground by the disease. I shall now name a few that proved extra-good, and first of all let every proper respect be paid to

King of the Potatoes.—This was planted for home use, and makes a respectable appearance daily on the table at the present time. It is unquestionably one of the finest varieties known, having only one fault, and that is yellow flesh. But the texture is good, the flavour excellent, and a careless cook can scarcely spoil it, so well does it hold together, and so dry does it keep for a long time after cooking is finished. In growth it is very robust, and gives a larger proportion of handsome roots than any other variety I am acquainted with. I have weighed six average samples, taking them as they rise from the basket in the storeroom, and I find the average of the six to be 9 ounces. Now potatoes weighing 6 ounces each are a good size for cooking, but in my opinion the larger they are the better up to 12 ounces, which should be the maximum. The best sample of *King* I can find at this moment is a tuber measuring 8 inches in length and 4½ inches in breadth, the weight of which is 22 ounces. This is a handsome root, rather flat, approximating in form to the *Fluke*, and if carefully baked would serve to accompany chops for two people. I have no doubt from the weight it is perfectly sound at the core. This variety produces both round and flat roots, but the largest and handsomest are the flat or kidney-shaped.

Mitchell's Seedling.—By a mere chance a few rows of this were planted, and the produce was enormous in quantity, and the proportion diseased was very small. It is good for both autumn and spring; in fact, it keeps well, and scarcely ever varies in quality, whether dug before ripe, or taken up ripe and kept till far into spring. It is never large, and the average of good samples are less in size than the Ashleafed sorts. The flesh is greenish-white, scarcely mealy, and not well flavoured. It is in fact quite a second-class potato, but its fruitfulness and healthiness commend it to the attention of cultivators who cannot afford to lose a potato crop entirely.

Lapstone.—We got a few out of many. This potato always suffers much when a general outbreak of disease occurs. It is a beautiful root, and when served as it should be the flavour is excellent. It is not mealy, but quite dry, and almost of a nutty flavour.

Prince of Wales Kidney.—I observe that opinions differ as to the value of this potato, but it must be remembered that a great many persons write about potatoes who are quite incompetent to form an opinion—who, in fact, scarcely know a good potato from a bad one, whether on the ground or on the table. But with the most competent of judges, opinions will differ, because soils and climates differ, and a potato that has a high quality in one place may have a poor quality in another—to say nothing of the occasional sending out by little local seedsmen of any sort they can get hold of cheap under the name of a new sort that is selling at a large figure. We should have been had off last autumn but for this variety, for in the midst of a field of corruption, this sort came out scarcely touched, and was very useful during November and December. The crop was good in quantity, and consisted in great part of roots weighing from 6 oz. to 10 oz. each, though 15-oz. roots were not hard to find amongst them. In colour and texture it is far inferior to *Webb's Imperial*; in flavour it is inferior to *Lapstone*; but if we had cast our lot upon the two last-named

noble varieties, we should have been without potatoes altogether. So much then for "the boon," as the raiser properly called it.

Pheasant's Eye.—A short row of this gave a good crop. It is an excellent variety.

Milky White.—A great crop, scarcely a taint of disease, and the tubers of even size throughout—neither large nor small. As to quality, there is nothing better: it should be largely planted in every garden in the land.

New Round Scarlet.—Very productive and sound, and apparently one of the best disease resistors. It is an even potato, with a glossy red skin, averaging large, and very prolific. When cooked, the flesh is white, moderately mealy, and as to flavour bearable, and that's all. It is a first-rate poor man's potato, giving a large yield of wholesome food, and safe in event of disease occurring.

Skerry Blue stood well against the plague. This is reckoned a first-rate potato in the western parts of England. It is ugly, white fleshed, not mealy, and almost flavourless. Its fruitfulness, healthiness, and the whiteness of the flesh are three admirable qualities.

Mona's Pride.—This has become famous, and deservedly so, for it is one of the best in cultivation. It has no bad quality, in which it ranks with the *King*, and that is the flesh is yellow. Otherwise it is good in flavour and texture, and eminently serviceable as an esculent. In 1866, its behaviour was admirable here. The crop was ripe on the 8th of August, and averaged twenty to forty tubers to a stool, the greater part of them handsome and of good size.

Fairbairn's Pink.—This new variety did well in respect of escaping disease, and in every other particular was good. The flesh is white, mealy, and of excellent flavour.

Paterson's Victoria.—A short row was planted. The result was a heavy crop of handsome tubers. Quality all that could be desired. It is a capital sort for the table—white, mealy, and good flavour, and not easily spoiled by the cook.

Paterson's Regent.—Saved by the skin of its teeth. From three stools in the collection and six elsewhere we managed to pick out about six roots worth keeping and cooking; and by the way, they were not worth cooking, for they were waxy, evil-flavoured, and emitted an unpleasant odour. It is an ugly potato, to begin with; no one who understands potatoes will expect any good from it.

Paterson's Napoleon.—Good every way. Very prolific, and as compared with the best potatoes we have, fully deserves to be classed as second-rate. With the view of again testing the whole of Paterson's varieties, I have obtained a complete set from Messrs. Hooper and Co., of Covent Garden, who have obligingly sent me clean picked samples. We have them now three times over, and shall plant them in three separate plots of ground, in order to obtain the fairest results possible with the means at command here.

The foregoing are all that I see reason to refer to, especially in reference to the potato crop of 1866. The samples to be planted this week are now (and have been for some time past) displayed on the fronts of the bookshelves, and on the tables, and in the windows of my study. Every root is marked with a number corresponding to its place in the potato book, the ink used for the purpose being that indelible mixture of sulphate of iron, lamp-black, &c., &c., which is used for zinc and other labels out of doors. Most of the samples are well greened, and have short, plump, purple shoots a quarter of an inch long. I shall select from them a few for special mention, shaping my notes so as to be useful, if possible, to many of our readers.

Abson Ashleaf.—I was too late in looking after this last year, but I have some good samples of it supplied by Mr. John Scott, of Yeovil, Somerset. This is at once an early and a late variety: early if planted in a warm soil, ripening off by the first week in July, and in a cold soil ripening before July is out; but late in the sense that if kept cool it is reluctant to sprout. It is fruitful, a good grower, and one of the best potatoes that can be eaten. I have known it three years.

Pink-Eye Radical.—A tawny round potato, hard as iron and heavy as lead, eyes very shallow, and altogether much like Daintree's Early in appearance. The flesh is quite white, very mealy, and of excellent flavour. One of the best round potatoes in the market. With these samples came from Mr. Pierpoint, of Warrington, the following note:—

"The large tubers No. 1 are put into pits in the usual way at lifting time. In the spring taken out, and any sprits knocked off. This causes the potatoes to respire freely, and at every eye. These are planted whole for stock seed, and the result is a greater crop of healthy medium sized tubers later than No. 2. The reason for planting largest sets of the whole potatoes is to renew the stock true and vigorous. The reason for planting whole is to obtain a greater number of medium sized tubers. No. 2 are small potatoes of same crop. These are placed in spritting boxes immediately upon getting up, and kept dry until planting time, when they are set whole. The result is earlier and larger produce, but less total weight of crop than No. 1. To ensure the earliest possible crop, cut a small piece, say one-eighth of an inch, off each No. 2 a day or more previous to planting. The reason for 'boxing' at lifting time is that by that means one or two early strong sprits are secured, and this very materially aids in obtaining size and earliness of crop." The average weight of No 1 is 5 oz., a fair cooking size, that of No. 2 is 2 oz. The small size has one fat sprit an inch long from the crown eye; the other eyes have not started.

Grimsdale's Early Kidney.—From Messrs. Grimsdale and Sons, Uxbridge, Middlesex. This is evidently one of the Ashleaved race. I know nothing of its growth, but the samples sent to me are handsome, very even and uniform, and a dish served to table established its character as first-rate in texture and flavour.

American Red.—This, with several other varieties that were wanting, has been received from Messrs. G. Gibbs and Co., 25, Down Street, Piccadilly. The tubers are large, round, slightly flattened, rounding up boldly from the eyes, which are depressed, but not deeply. The colour of the skin is a mixture of fawn and pale red, with much roughness. The size and beauty of this potato distinguish it among hundreds, so that the uninitiated would be likely to select it as promising good things by its distinct and handsome appearance. It is as good as it looks; the flesh is as white as snow, the texture fine and quite mealy, and the flavour first-rate. It is reported by Messrs. Gibbs to be a heavy cropper; on that point I can say nothing now, but on the other points I speak from observation.

Goldfinder.—For this, with several others, I am indebted to Messrs. G. Gibbs and Co. It would be needless to name it here, except that it enjoys some sort of repute as a good variety, whereas in truth it is a very bad one. Having known it several years, I can say without hesitation that

it is very subject to disease, and that at its best it is not good enough for any table. It is a great cropper, but if it be regarded as a cattle food it is at once beaten by the Chardon, which is equally fruitful, more healthy, and may be put upon the table without causing nausea; in fact a Chardon well cooked and piping hot is not to be despised with a steak hissing from the gridiron. I speak from experience, having eaten both lately at a game-keeper's cottage after a walk of eight miles, some part of it up stiff hill-sides, and some through bogs where, if one were to lie down, one's earthly history would be closed instantly.

Ashtop Fluke.—Messrs. James Carter and Co., of High Holborn, have forwarded samples of their new variety hearing this name. It is a handsome kidney, said to be bred from the Ashleaved and the Fluke, and in its appearance and qualities it agrees perfectly with its alleged origin. Of its growth I can say nothing now, but as a table potato it leaves nothing to be desired; it has the whiteness and meanness of the Fluke, and the fine flavour of the Ashleaf. It is a capital keeper, for my samples have been in a warm room some months, and are now barely started.

The foregoing are all that appear to be desirable to remark upon at present amongst the varieties added to the collections for 1867. Respecting the selection of potatoes for garden cultivation, it must be evident to all who are influenced by reason rather than prejudice, that to grow several varieties is by no means so absurd a practice as some shallow, hasty, and narrow-minded people imagine it. It is common enough to hear some over-wise gardener say, "Two sorts of potatoes are enough for me." Some go as far as six sorts, but always with a protest against the multiplicity of varieties that have places in the lists. There is one thing certain, the man who grows all the varieties he can obtain must grow a vast amount of rubbish. Bad sorts are more plentiful than good, and very many cultivators who are not new to the business are not fully aware of the points that constitute good quality. But in avoiding the error of too many, it is not desirable to run into the other extreme of too few. I think we may safely say that wherever the table is to be supplied the whole year round with good potatoes, there should be at least a dozen sorts grown; and from time to time new sorts should be tried with a view of multiplying the chances of a crop in the event of disease occurring. We are well supplied with potatoes of the finest quality, and with plenty to spare. A gift of a bushel of good potatoes now and then where wholesome food is not over-abundant, is not a bad way of utilizing the results of experimental culture, and we are never much troubled about our surplus. But how would it have been with us since October last, and henceforth till June or July next, if in 1866 we had trusted to our own Improved Fluke, Rintoul's Early Don, Webb's Telegraph, and Webb's Imperial? Here are four as good sorts as can be chosen—sorts that compel admiration by that best of tests, the eating. Yet if we had trusted to those four, and had covered ever so much ground with them, probably we should not have had a potato to eat of our own growing for at least six months of the whole year.

(To be continued.)

AN EFFECTIVE MODE OF HEATING.

Observing many and grievous complaints of several correspondents in the GARDENER'S MAGAZINE and *Floral World*, touching the havoc made by the late severe weather in their respective plant establishments, and thereby raising the important question of heating the said structures, I am induced to set forth, in as brief terms as possible, the performances of a most useful apparatus, whereby, with a minimum of attention, our entire stock has been preserved unscathed. Our greenhouse, which was constructed from my plan two years ago, is 23 feet long, 12 feet wide, and 14 feet high. It is fitted with the usual 4-inch hot-water service piping, very sparingly supplied. The boiler is multitubular, the tubes are vertical; it is circular in form, and surrounded by a sheet-iron casing; its height is under 4 feet, and its diameter is 18 inches. The fuel is supplied from the top. The boiler stands on its own base, and requires no setting or brickwork of any kind, save a small smoke shaft. It is fitted with a self-regulating apparatus, on a principle at once simple, scientific, and unfailing—to wit, the expansion and contraction of mercury acting in conjunction with a balanced air valve, and thereby regulating with faithful exactitude the quantity of air requisite for the due combustion of the fuel. The advantages of this invention are extreme regularity of temperature in the pipes, careful utilization of the heat evolved from the fuel, and consequently great economy of fuel (one bushel or four pecks of ordinary gas coke sufficed to keep our apparatus in full operation in the most severe weather, without any attention, for twenty-four hours and more). Its other advantages are great saving of labour, independence of action in respect of careless fixing, and the vicissitudes of draught incidental to varying conditions of wind and weather; and, lastly, the complete and utter abolition of "night stoking," notwithstanding the dictum of an esteemed correspondent in the GARDENER'S MAGAZINE for this month issued against the possibility of so desirable a climax. I assert this with the confidence acquired by two winters' practical and personal experience of the working of the apparatus, and I think no one will venture to dispute the severe character of the weather we have lately had to contend with. Out of many hundreds, we have not lost a single plant from the effect of frost; on the contrary, to use the words of a friend who saw them lately, the whole stock rejoice in the most robust health, which fact, considering the circumstance of our being amateurs and mere beginners, I leave to tell its own tale as to the efficiency of our heating arrangements. The system is capable of extension to almost any limit. One friend, who adopted it from my recommendation, heats seven different structures from one boiler, and he speaks most highly of its action. In conclusion, I beg to say that in publishing this statement I have no earthly interest or motive whatever beyond a sincere wish to benefit my brother amateurs, and to call the attention of the horticultural public in general to the merits of a most ingenious and effective invention. The boiler is patented, and is manufactured by Mr. Bower, St. Neots, Huntingdonshire.

Belloft House, February 13, 1867.

R. ROADLEY DIXON.

DOGS' TALES.—Three dogs belonging to M. de S. and M.P. of Bordeaux, went hunting on their own account, but one of M. de S.'s dogs failed to return, and the other two only turned up late at night covered with sweat, blood, and mould, and evidently quite worn-out with fatigue. They both made off early next morning, and returned again at night in the same state as before. This continued for several days, when at last the third dog made his appearance in the most emaciated condition between his two liberators. It appears that the emaciated animal, in pursuit of a rabbit, had gone full pelt into a hole, from which he had been unable to extricate himself. His friends had to dig him out, and were several days about it.

ON SOME EXPERIMENTS IN TEMPERATURE.

BY G. HADWEN, ESQ., F.H.S.

(From the Journal of the Royal Horticultural Society.)

Being interested in horticulture, yet, unfortunately, denied a climate suitable for trying outdoor experiments, it occurred to me that if I made an application to the Council of the Royal Horticultural Society, they might perhaps permit my experiment to be tried at their garden at Chiswick, already rendered famous by the valuable thermometrical readings that have been taken there for so many years. I therefore wrote and asked that a few additional daily observations might be taken for me. This application they in the kindest manner acceded to, and the subject was warmly taken up by Mr. Robert Thompson, who was only too glad, he wrote me, to be of service to horticulture. My application was that, in addition to the daily maxima and minima in the open air, the maxima and minima of a south wall should be taken, and the maxima and minima of the large conservatory. In this latter case I asked that the progress of the crop should be noted, as also when fire-heat was used. Thus the matter rested till I went up to the Great International Flower Show, where I encountered the Rev. M. J. Berkeley, who invited me to write a few notes explanatory of my reasons for making this request, so that when the result of the observations was published in the Journal of the Society, the Fellows would be better able to understand the value of the tables. This, I thought, was more than I was able to perform; but subsequently I have seen in the Journal of the Society the paper on "Border-heating" by the Rev. W. Kingsley, and his concluding remarks have not only accorded with my own opinion, when he says, "I am sure that unless our experiments are based upon some principle to begin with, they will never be of value for making correct inductions; and so I shall be glad to give some time to experiments of a scientific kind in order to obtain results that, as an individual, I should never live long enough to see, but which by the united efforts of many may be arrived at in a few seasons;" but I have also felt such a strong desire to assist him in his laudable efforts, that I have concluded to write a few notes to try and draw the attention of the Fellows, not only to the value of such scientific experiments, but also to point out to them my reasons for thinking the garden of the Society at Chiswick possesses peculiar advantages for such experiments. The first is, that to be of any use to horticulturists, it is of the utmost importance that the experiments should be made by some one of experience, whose interest in horticulture is undoubted, who has time carefully to observe all changes, and in whom every confidence can be placed as having no previous prejudices that could warp his judgment, and so prevent him having the full benefit of all his perceptive faculties; secondly, that the experiments could be tried in a suitable locality; thirdly, that the place should be the one where the experiments could be tried at the least possible expense. I think that all who know the garden of the Society at Chiswick will join with me in thinking it offers all these advantages—in its staff employed under the Garden Committee—in its climate, as we are told that in July the valley of the Thames is as warm as any part of England, not excepting the southern coast of Devonshire and Cornwall; and since the garden has all the sorts of houses required for the experiments, it would only need a light expense, such as making a warm border, buying wall-sheeting, and supplying the thermometers to carry out any experiments that might be required. I am one, if more can be found, willing to join in the expense of the following experiments, say, for two or three years.

That the maxima be taken each day and the minima each night, in the open air, in the shade, on a south wall exposed to the sun, on a south wall well sheeted up each night, as also during the day, if required, which practice is to be noted, in a heated border in the open ground at the same depth, both borders to have plants in them wall-trees and standards; the sheeted-up wall to be also used in like manner; in the orchard-house, glass wall, in the lean-to vinery, and large conservatory. In each case the progress of the crop to be mentioned, and when fire-heat is used in those that have it. My reason for making this proposal is because I think we do not fully realize the power of sun-heat any more than the advantages of border-heat. Who was prepared to find, what the experiment of this year has shown, that a peach tree or vine planted against the south wall at Chiswick would, during the warm sunny days, have had a much higher temperature than was required to bring the crop of grapes to a successful maturity in the large conservatory? Turning to the minima table, I think there is every probability that if a sheet had been employed to check the loss of heat by radiation, we might have said as much for the night temperature also. The disadvantage of unheated glass walls is that the sun in spring advances the trees, and yet the glass is not able to prevent during the night the injury from low temperatures caused either by frost or radiation during clear nights; and the peach trees or vines suffer from this last evil quite as much in the autumn as in the spring, for the trees are by this cause often being put to rest before the crop is ripe. Again, who was prepared to learn that a lean-to orchard house, with the back wall facing the south, had such a manifest advantage over a span-roofed house with the same aspect, as we must believe it has, if in the open air such a wall indicates a heat of 100° without any glass to retain the air heated by its radiation? With respect to border-heating, the Rev. W. Kingsley gives some important information from his experiments, which I can fully believe from my own, though, as I have said, my climate has confined me to experiments under glass. A few years since, I communicated to one of the papers, though at the time it attracted no attention, what very much surprised me. I planted down the centre of a span-roofed vinery I had supplied with bottom-heat to grow Muscats in, some early French vines, with the intention of cropping them till the roof was covered. The catalogue from which I ordered them said some of these very early ones would be ripe nearly two months before the Muscat of Alexandria; yet the result did not give two weeks, and I am still of opinion that with this treatment the Muscat of Alexandria is not a late grape in the meaning of that term. If I am correct, forcing should still mean what its name implies, that the crop by extra heat has been produced in an unusually short time, and not that it was commenced at an earlier date. Producing a crop in a shorter time is what we want, that our fruit may ripen while our days are still warm, and, what is as important, while the days are long. In Scotland, from this last cause it is thought, an average wheat crop can be grown at a lower temperature than in France, and I believe in a smaller number of days.

I had, the other day an opportunity of questioning a gentleman who had just landed from Canada upon these points, as I wished to know if he

would confirm what a friend of mine from St. Petersburg had previously told me respecting the amazingly rapid growth of all the crops. He told me that he left Montreal on the 10th of August, and that the new apples were then beginning to come into the market, though they did not consider the crop to be ripe till near the 20th of August, and that this year, which was not a late one, there was not an apple-leaf to be seen on the 20th of May. I said, "Do you say an apple crop can be perfected in three months?" He said, "Yes; you seem to overlook the length of the days, and the great heat we have—often 110° in the sun and 90° in the shade." I asked him if they found that the drainage warmed the soil and made the crops earlier; and he told me it was being largely carried on for this reason. No doubt the nature of the Canadian apples helps to explain a part of this, as all I have seen that I knew were Canadian were very light for the size. I give this for what it is worth, that it may be confirmed or disproved, but I believe it will prove to be no exaggeration. It will thus be easily seen how interested I was with this paper on "Border-heating" by the Rev. W. Kingsley; and I think he will take as much pleasure in examining these tables collected by the Royal Horticultural Society at my suggestion.

The daily history of the life of this crop of grapes is of itself a valuable paper, and I know of no treatise on the vine that contains such a one; but yet we want still more of such; and I hope next year to obtain one from a house where no heat but sun-heat can be obtained, and which yet produces yearly a very heavy crop of good grapes; but we also want, on "standard authority," the relative advantages of the different sorts of houses now built; and I venture to think that this is as much within the sphere of usefulness of the Royal Horticultural Society, as the trials of the various merits of fruit. It is said that the Council are anxious to make their garden at Chiswick as useful as their means will permit; and I believe this is true. My intention is not to raise a discussion as to whether what I propose is within their means or not, but simply as a producer of fruit I wish to obtain this knowledge, and, as I have said, I am willing to contribute towards the expense.

THE FROST AND THE ROSES.

As some of your correspondents, Mr. Editor, are favouring us with the effects of the late frost on their roses, it would I think add much to the value of their information if in addition to their showing us the hardness of a rose as compared with others of the same class, they could tell us the result of the late cold upon the same rose grown on its own roots, the manetti, or briars. As I consider every little bit of information to be of value upon this point, especially when it relates to so splendid and comparatively untried a rose as "Marchal Neil," I will give you my modicum of experience. Last spring I planted against a south wall a fair-sized plant of Marchal Neil, propagated on the manetti; it grew freely, and in the autumn flowered abundantly. About Midsummer I planted a few feet distant a second plant of the same rose—in fact, a cutting taken from the former one; it had been pushed in heat, and was at the time I turned it out of the pot a little weak wee thing, but it soon gained strength, and grew fast, until it had attained by late autumn the height of three feet. Both these plants I protected by placing before them a narrow slip of an old easement window, taking means to prevent the wet running down from the top, and leaving the sides partly open so as to admit of a current of air passing freely through. Thus protected alike, and under precisely similar circumstances as to locality, the first, viz., the parent plant on the manetti stock, succumbed completely; the cutting, which is on its own roots, is not only alive, but the eyes (which were actually green and pushing during the severity of the frost) have burst forth into vigorous young shoots; it has also retained its foliage fresh and green throughout the winter. If one can form an opinion from a single plant, I should pronounce this loveliest of all roses to be decidedly hardy when grown upon its own roots, even under the baneful influence of London smoke.

Judging, Mr. Editor, from the gloriously vigorous bushes of hybrid perpetuals I have seen growing in your garden, there seems to be no doubt of that class doing best upon their own roots in our murky atmosphere; in fact, the advantages in various ways of having our roses upon their own roots seems to me so obvious, that I cannot understand why it is that there are no nurserymen to be found who will undertake to provide us with them. I am told that the facility of propagating them on the manetti renders that method the most profitable. Granting that to be the case, I would say, get over that difficulty by charging us more. We should not grudge paying a fair percentage more for what we want, could we but depend upon obtaining them. The time required for producing a marketable sized plant by cutting is not so long as to be unremunerative either, in my opinion; for instance, cuttings I planted last September twelve months made decent-sized plants last summer, many of them flowering in the autumn. In November last I removed them to their permanent positions, and should have been well satisfied to have received similar plants from a nursery. Thus, a little over twelve months had sufficed to make cuttings of four eyes' length into established bushes, and doubtless with a nurseryman's appliances, attention, and skill, by striking from buds, the application of heat, and in various ways, time could be saved, and propagation in large quantities expedited. But even after all, if raising roses upon their own roots could not be accomplished so speedily as under the present system of grafting on the manetti, I repeat, then charge us more—only let's have them.

I believe there is a good opening and a fair field for any enterprising young man who would make it his business to carry out this method of rose propagation.

AN AMATEUR.

Stoke Newington, February 18.

[We have seen the plants mentioned in the foregoing communication. The Marchal Neil on its own roots is as lively as a bird, and as green as a willow in the month of May.—ED. G. M.]

EXHIBITIONS ANNOUNCED.—*Royal Horticultural Society*, Spring Shows, March 10th and April 16th; Great Show, June 4th to 8th; Rose Show, July 2nd; Exhibition at Bury in connection with the Royal Agricultural Society, July 15th to 19th. *Royal Botanic Society*, Spring Shows, Saturdays, March 23rd, April 13th and 27th; General Exhibitions, Wednesdays, May 29th, June 19th, July 3rd. *National Exhibition, Manchester*, June 7th to June 15th. *West of England Rose Show, Hereford*, July 9th. *Dundee Floral Fête, Baxter Park*, Sept. 4th, 5th, 6th, and 7th. *Clifton*, Spring Show, May 23rd; Rose Show, June 25th; Autumn Show, August 29th. *Leeds Horticultural Society*, Great Show, June 13th and 14. *Brussels*, April 14th, 15th, and 16th. *Malines*, March 17th, 18th, and 19th. *Paris Universal Exposition*, April 1st to October 31st.

A FEW WEEKS IN NORTH WALES.

A VISIT TO CROGEN.

The name Crogen means in English "a shell." I was assured by a friend, Mr. Strwdwick, that I should be amply paid for a journey, even if it was a long one, to behold the many elegant and various charms which surround this domain. As I had already ample cause for estimating his worth in conveying just notions of the excellences connected with natural scenery, I was of course influenced by his present advice. Moreover, he said I could review the beauties of this romantic and rugged landscape with pleasure equal to any I had derived from any of my foreign explorations, and he offered to accompany me and introduce me to the gardens at Crogen, where he is well known. I appreciated his kindness, and was glad to embrace the opportunity. We left Rhug, the abode of my friend, about ten o'clock, provided with a few of the luxuries of life. It was a clear, bright, and crisp morning; the pure air of the mountains gave a spirit and a cheerfulness to our walk. We found in our journey much to admire, particularly when the road passed over an eminence. My companion allowed very few objects of interest to escape without notice, and as we approached Crogen, the scenery became more varied and beautiful—the majestic trees that stood isolated showing all their fine proportions, and the grandeur of the woods indicating the approach of an ancestral estate. At a sudden turn of the road I came in sight of the lodge which marks the entrance to the park. As soon as I had entered, I caught a glimpse of the Hall between the trunks and branches of the trees. I found Crogen highly merited Mr. Strwdwick's description: a delightful spot, a charming retreat in the vale

from home, he has not imbibed much taste for flowers or decorative features. He had no wish to alter any untamed situation, or even attempt to invent anything where nature has been lavish of her charms. I must say, however, that here at Crogen the shrubbery was deficient of overgreens, which add so much to the coziness of a place in winter. Evergreens, indeed, seemed to be the only things wanted to give an artistic tone to the foreground of a splendid picture. There are good drives and walks, composed of stones from the river, kept clean and firm; plenty of deciduous trees and shrubs; and the disposition of the ground is naturally beautiful. I pointed this out to the gardener, and he quite agreed with me, saying that Mr. Robertson was very fond of planting, and had made new plantations to the extent of three hundred acres. The trees planted are chiefly larch and Scotch firs, and these have had a singular success; but he did not confine himself solely to those kinds, and he had no doubt that his employer would plant a few shrubs, which would add both comfort and beauty to the place. We were now conducted to the kitchen garden, which is a spacious one. There were visible signs that the gardener was well up to his work, as the gardeners say; and I think winter is the best time to tell for it, as I found here plenty of salads, such as endive, lettuces, and celery, all good—the last in particular, for I never saw better: there cannot be much room for complaint. The celery most prized was that good old variety Cole's Defiance. The brassica tribe was well represented with Brussels sprouts, broccoli, and greens of every description. The variegated kale was beautiful in its markings; they used it principally to decorate the dessert, such as apples and pears; and by-the-bye I was shown some fine specimens of Bull's Golden Reinette apple; this is a scarce variety.



THE ROBIN'S NEST IN MRS. CASH'S FERNERY.—(See page 93.)

of Ediernion, on the banks of the river Dee. The waters here are but a few yards across, gliding silently and smoothly along, reflecting the impending foliage of its banks. It is situated on the right of the turnpike road, three miles from the picturesque little village of Llanderfel. Crogen is the property of the Earl of Dudley, but the present occupant is H. Robertson, Esq., M.P. for Shrewsbury. As we traversed the carriage drive, which was in gentle sweeps through groves of majestic oaks, elms, and beeches, we saw on the left the undulated surface of the park, and on the right the high and massive rocks, their shaggy sides richly clothed with various foliage, and many diversities of colour. Conspicuous among the timber were the beeches; their trunks looked like pillars of shining marble; the white stems of the young birches, and the ragged and rufous bark of the older trees presented singular and striking contrasts. On arriving at the house, I found it a very ancient specimen of architecture. This venerable structure it is conjectured was erected prior to the sixth century. It is mantled with the "ivy green," and from the thickness of the stems it must have clung to its support for many generations, screening the walls from many mountain blasts. The walls seemed to be in a good state of preservation, and would still weather the storms for ages to come. But this mansion appears to me, from its construction, to have been of British origin; it was built, no doubt, to defend the narrow pass through the vale, a benefit which it seems capable of affording even now, though in ancient times it must have much more effectual. I was now introduced to the head gardener, Mr. Edward Jones, a Welshman of course. I soon found out that the kitchen garden was the place that received his best attention. Being a native of the mountains, perhaps never twenty miles

I once took a first prize with this sort at St. James's Hall, London. Everything looked neat and tidy, and before I left the garden I was curious enough to peep into the rhubarb and seakale pots. It was a pleasing sight; many a dish could have been cut fit to set before the Queen. We were now conducted to the best point where we could get a bird's-eye view of the place and its neighbourhood. We passed through a wood, and ascended to a promontory that jutted out above the waving branches. On reaching this elevated point, the unexpected manner in which the prospect burst into view proved the truth of all that Mr. Strwdwick had said of it. The Dee's transparent stream is seen winding elegantly in varying curves; the mountains on the opposite side of the vale are finely diversified in shape and tints; they rise in the order of an amphitheatre, and are richly covered with forest trees of gigantic size, their forms presenting every degree of grace, and where thickest affording the richest depth of shadow. The scene is that of a grand mountain forest such as I suppose Mr. Prosper is best familiar with amongst the many well-travelled men who write for the magazine. I was struck with admiration with the beauties of this situation. Right and left the vale presents a prospect of almost unequalled variety and beauty, the mansion in the midst being an object of peculiar interest in the landscape. The keeper's house, the gardener's lodge, and the labourer's cottages, all lend their aid to heighten the beauty of the scenery; for after all, much as we may talk of solitude, we do love the mingling of human life with the glories of nature. Some are rude and singularly built, and would present the young artist with good subjects for the pencil. I believe it would be difficult to find a spot that can be put in competition with it, considering it either

as the joy of a painter's eye or poet's mind, or as a desirable residence for those who admire the beautiful wildness of nature. Those who are fond of healthful exercise and recreation have here ample opportunities to gratify them, and the lovers of shooting, fishing, hunting, and boating need never lack good sport. From the various discoveries made from time to time on the spot, and in the immediate neighbourhood, of things connected with ages gone by, such as old earthenware, coins, and weapons of Roman origin, it would be an interesting place. It is, in fact, a sort of Paradise for antiquarians. In a word, so many are the delights afforded by the scenery of this place and its vicinity, that a mind imbued with any taste could not fail to be happy in it; and to the traveller who has pleasure for his object it is one of the choicest spots in Britain. If in such a spot I for once lose myself, I hope I shall be forgiven. I intended to gather a few facts for horticulturists, but how can I break a spell that is so pleasant? I am enraptured with the bold abruptness and softened swells of hill and valley. Now, as I am seated upon the brow of a projecting rock, I behold rivers, woods, and forests—the grand belts of timber ascending to the summits of the mountains, and gliding down into the embracing bosoms of the vales. How fresh, how pure, is this sweet mountain air! Let me tarry awhile and breathe a little more, while I look below upon the garden, with its trim terrace and gravel walks, and catch a glimpse of that wilderness, and the rustic borders where every sound is echoed, so that the song of a bird is like a concert, and a merry laugh has its answer still more merry from the rocks around. No; to be practical now is out of the question, and instead of prosing about plant-growing, I shall be content to say that I am happy, and that for the present my tale is done.

N. COLE.

WALKS AND DRIVES.

The walks of a garden, and especially those near the house, and much frequented in all weathers, are worthy of more attention than they generally obtain, for upon them very much of the comfort of a garden depends, especially in winter and spring, when a pleasant walk on dry, crisp, level, and nicely-moulded walks is the only outdoor garden pleasure we can take. Therefore a few hints on the subject may not be out of place at this season, when so many must experience the discomfort and inconvenience of had and shaly walks.

The first consideration is how and whence we shall obtain suitable materials. In some parts of the country there is, on or around the spot, a superabundance of material for walk making, the removal of which would improve the ground; in other parts only indifferent material can be obtained in the shape of broken stone or some kind of gravel, and that from a long distance. A thoroughly good path should be pleasant to walk upon in all weathers, but it is not always easy to find materials to form it—some walks, pleasant enough at one season, becoming rough and unpleasant after a continuation of dry weather; others sticky and unpleasant after wet and slight frost; and others, again, combining all the above-named defects. In some extensive gardens a loose gravel is preferable, which can bear a broom lightly passed over it, just to turn the stones, and then rolled to give it a level surface, but still on walking over it it seems loose. In a manufacturing district, with the atmosphere constantly charged with smoke, there is an advantage in thus turning the pebbles; it gives the walk a fresh surface, and removes the black appearance caused by the settling of the soot. As to the best colour for walks, there are various opinions, and we must regard that point as being as much a matter of taste as any other arrangement of colour—independently, of course, of the facility of obtaining the materials. In the gravel we usually obtain here the colour gradually varies from different shades of yellow to varieties of red, both of which, when very decided, are as unpleasant as a very white walk on a bright sunny day. The pebble gravel is objectionable as a rule—it does not set well, especially if under hard traffic; and walking on irregular roundish stones is anything but a luxury.

In making walks we must take into consideration the nature of the soil, for if it is of a stiff clayey nature, the water will drain into them from the sides—to some extent even if the ground has been drained, which of course should be the first proceeding in making a garden. But we often find ground drained in patches—an expensive and unwise mode, which has to be supplemented if any slight alteration has to be made in the walks; so that the first thing is to see that there are proper outlets for the water to pass off quickly, if possible by drains independent of those in the surrounding grounds. Among the reasons for separate outfalls for the surface water are these—it is expected to pass from the walk at once, the drains are more likely to get choked with gravel, leaves, &c., and it is not necessary to place them as low as would generally be the case in draining the soil.

In walks from 4 feet to 6 feet wide, one drain is sufficient, which I would place at one side of the walk, giving it a slight fall from the opposite side, under the walk-making material. For a walk of these widths 4-inch drain-tiles would be large enough, with grates at sufficient distance to keep water from standing, or the walk from washing by the running of a heavy shower—which the nature of the ground would at once decide; if it were a binding gravel from which the water all ran off, it would require more grates than a loose one through which most of the rain filtered at once into the drainage material under. For the narrow walks I should use about six inches of rough stones, and if a loose gravel, a coat of rough gravel, finishing off with a thin coat of fine gravel, which, when well rolled, would give a thickness of about three inches of gravel. If stone be scarce and brick rubbish plentiful, that may be employed. Some of the best walks in the London parks are made of brick rubbish, surfaced with a few inches of yellow gravel, and then thinly sprinkled with fine shell gravel brought from the seashore. Where sand is abundant, but of a character that does not bind, it may be induced to do so by being mixed with about one-fifth of loam, which will cause it to bind well after being well rolled.

In making walks of from 16 feet to 20 feet wide, we should require extra drainage. It would be then necessary to have two drains, and also to have an additional thickness of stones or other rough material as a foundation.

In the making of carriage drives, the earth should be taken out to a depth of about 16 inches at the sides and 12 inches or so in the centre, with a 4-inch drain at one side, and gratings at from 40 feet to 60 feet apart to take away the surface water—gratings at each side of the walk, observe—those on one side communicating with the drain on the opposite side by pipes across the walk. Under each grating should be a bricked pit or "lodge," to catch the sediment of gravel which rushes off so much with heavy rains and showers; and these little pitfalls should be occasionally emptied. These pits should sink a foot or more lower than the drain pipe. Then over the whole surface of the drive should be placed rough stones or brick rubbish to the depth of 8 inches or 10 inches; over that a couple of inches of stone,

broken small, and, finally, 3 inches of gravel placed on the surface and rolled down till it becomes quite solid. The carriage road should be 3 inches higher at the centre than the sides.

The plan described for the making of carriage drives will do equally well for the chief garden walks, only that the excavation need not be so deep by 6 inches, and the several layers of stones or brick rubbish and gravel may be proportionately thinner and smaller.

Walks should not be round or high in the centre, as they are then very unpleasant to walk upon, although there must be a slope to the sides for the escape of water, but we often see a very unnecessary fall, which in all cases should be avoided, and of course the more soil the material the less fall is required. A slope from the centre to the sides, so gentle that it may be perceived by the eye, but not be sensible to the foot, is the happy medium.

There is generally the pest of weeds on gravel walks—in some sorts of gravel more than others. Our gravel being the waste from lead works, we have not so much of that; and I believe when walks are made from the refuse from copper works weeds are still less troublesome.

We still occasionally see walks turned over with the spade and also the hoe in the sun, but that is almost a thing of the past, and a few hundred-weights of salt would not only save the labour, but keep the walks in good condition with an occasional rolling.

Asphalte walks are very good when well made, but if badly done they soon prove a thorough nuisance, from the tar melting in summer and the repulsive odour; and with hard wear they soon get into holes, which are only receptacles for water, and cannot be repaired satisfactorily; yet with general garden traffic, and in places where there is a difficulty in obtaining good gravel, asphaltic is preferable to the very rough and slovenly paths called "walks" seen in some gardens.

In the making of asphaltic walks too much tar is often used, which, while rendering them a nuisance, by no means adds to their wear or utility. The fall from the centre of an asphaltic walk should be slightly less than in the case of gravel walks; the grates for drains must be at a little less distance, for of course all the water has to be carried off an asphaltic walk, whereas in a gravel one, no matter how firm, it soaks in to some extent. The foundation of the walk should be made in precisely the same way, but every part should be rammed more thoroughly solid in the case of an asphaltic walk, leaving space, after all is finished, for one inch of asphaltic. What we use here is composed of three parts coal ashes, sifted through a half-inch sieve, and one part gas lime. The gas lime may be dispensed with if not readily obtainable, and the four parts of ashes used mixed with sufficient gas tar to moisten the whole mass without saturating it. The tar should be used in a hoiling state, and the ashes should be tolerably dry, for they are only mix better, but less tar is required, and the less the better. Great care should be taken to mix it thoroughly without using too much. The whole should be well mixed and laid in a heap under cover a few days previous to being laid down. In depositing, of course a favourable state of the weather should be chosen. After it has been laid quite level, it will require three or four rollings to make it quite solid. But previous to rolling it should be thoroughly levelled and sprinkled with any gravel that may be considered best in colour and texture. Here we use the white spar gravel, and put as much on thinly and evenly as almost to obscure the asphaltic, and give us a nearly white walk. In many places this white spar gravel is not to be obtained, and other convenient gravel must be used. But it must be sifted fine so as to form a crisp surface that will not loosen; let no large pebbles go in, or the thing will be injured thereby, as if dislodged by any means holes remain. The advantages of these walks are that we may employ very useless rubbish in making them, and a mere sprinkling of gravel makes the walk look as well as if three inches were deposited on it. Frost does not affect them if well made; weeds are entirely shut out; and after heavy rain or showers they dry immediately. They are, therefore, particularly well suited to the immediate neighbourhood of the house or out-offices, or any positions liable to be much traversed in all sorts of weather and seasons; and for the floors of sheds and such structures there is nothing to equal asphaltic or concrete. It is impossible, however, to entirely do away with the smell of the tar in hot weather.

The cement concrete walk is made by taking out six inches of soil at the sides and four at the centre, to cause a fall from centre to sides, and the bottom should be made perfectly firm with any rough refuse material convenient to hand—stones, lime rubbish, clinkers, &c., mixing with these one-sixth of fresh lime, and filling in to the depth of four inches and a half. For the remainder, mix one part of good Portland cement to six of finely-broken stones, and lay this over the surface an inch and a half thick, making it perfectly level with a very slight fall from the centre to the sides.

JAMES TAPLING, in "The Field."

VARIEGATED CUPRESSUS MACROCARPA.

The subject of sports in plants, incidentally alluded to last week, reminds us of bringing under the notice of our readers a very remarkable, and if permanently "fixed," a very valuable sport from the beautiful Californian Cypress, *Cupressus macrocarpa*, which we noticed on the occasion of a visit to Mr. Niven's interesting nursery at Drumcondra, some weeks since. Few, if indeed any, of the division of the invaluable tribe to which it belongs are more ornamental, or destined to add a more striking feature to park or other scenery, even in its normal colour, than this. Its perfect hardness, rapidity of growth, imposing appearance, and the readiness and advantage with which it submits and accommodates itself to the pruning knife, whenever the use of the latter is desirable or necessary, are further recommendations in its favour. Beautiful, indeed, as it is in the simplicity of its bright, cheerful green, will not a new feature of interest be added if its rich verdure can be splashed with blotches of more than pearly whiteness? Such as this is the variety or sport which Mr. Niven has been fortunate enough to secure. On a handsome tree, of the normal type, in his grounds, he observed one or more branchlets coming beautifully and strikingly variegated; with his usual acuteness and decision, he set about propagating it, and at the time of our visit we noticed several nice little specimens under bell-glasses, worked, we believe, but are not quite sure, on stocks of the original variety. As seen beneath the protecting glasses, the variegation appeared to be very pure and decided, and looked to great advantage. It is not a sickly-looking pallor over the whole plant, like that of the variegated *Wellingtonia*, but a combination of the richest green blotched with the purest white. Should it be constant, as we have no reason to doubt but it will, how effective will it be, either standing singly or grouped with its fellows. Of course, it will be a little time before Mr. Niven will have multiplied his stock to such an extent as to allow of its being sent out, but when he does it will, as a matter of course, be eagerly sought after, and the stock speedily cleared out at a considerable figure.—*Irish Farmer's Gazette*.

Calendar.

WORK FOR WEEK COMMENCING MARCH 2.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Get manure on to the plots that are to be sown or planted this month and next, and dig the ground over deeply, and leave rough. Level down the ridges of ground prepared last month, so as to be ready to sow and plant as soon as weather permits. Plant the main crop of potatoes where the ground is well drained at once, but on damp soils wait till next month. It is not safe to manure for potatoes, but charred rubbish, old mortar, and other dry materials may be used to lighten the soil and nourish the crop. For main crops choose a plot that was well manured last year; for early sorts that are to come up before the autumn rains set in, manure may be dug into the trenches. Potatoes are best planted in trenches, and covered loosely with soil; dibbling is apt to cause rotting by the holes getting filled with water. Horseradish may be planted in any spare corner, but the ground should be dug deeply, and the roots will come finer if the subsoil is well manured. The crowns should be planted fifteen inches deep, and six inches apart every way, and the holes filled with fine coal-ashes, or the sets put in as the trenching proceeds. Any part of the root will do as well as the crowns, if cut into inch pieces. Mark out onion beds, and let the soil be liberally manured. Get ready for all successional summer crops, so as to have the ground firm and well sweetened in time to receive them. Sow turnip, long radish, main crop of parsnips, horn carrot, cauliflower, cabbage, savoys, broccoli, main crop of onions, peas for succession, lettuce of all kinds, round spinach, parsley, and small salads.

BROCCOLI for autumn use to be sown in small quantities this week and next. Early White, Walcheren, and Purple Sprouting will give a good succession.

CAULIFLOWERS will be growing as soon as the weather is milder. Give air by tilting the lights, and let them have warm showers; but cover up at night in case of frost.

SPINACH to be sown in successive breadths between rows of peas. This crop is apt to come in a glut, and this should be guarded against by sowing only a sufficient breadth at one time for a fair supply. Where there is plenty of room, New Zealand spinach may be sown in heat for planting out; a dozen plants will be enough for his family.

Flower Garden.

FLOWER GARDEN.—Lightly fork the borders, so as not to injure the roots of herbaceous plants, and make the surface moderately fine, to give a neat appearance. Sow hardy annuals in the borders, and put a tally to each patch; as soon as large enough to handle, thin the patches, and plant out the thinnings wherever required; or pot them for blooming in the windows. Put stakes to newly-planted roses and other trees, and mulch beds of roses to protect their roots from dry bleak winds.

GERANIUMS that have been kept in pits, windows, and cool houses, in a rather dry state, now require pruning and a little water. If they can be put in a warm house, to give them a start, they will bloom earlier. Those that are to be flowered in pots require a shift; those that are to be turned out into beds may remain in pots as they are.

HERBACEOUS PLANTS.—Continue to divide and plant the borders. The early-blooming kinds are now coming into flower, and may be propagated from cuttings as soon as the bloom is over.

PANSIES to be pegged out in the style of Verbenas, so as to display their blooms over a large surface, and root if they please at every joint. For those who use Pansies in beds and front lines, Magpie and Trentham Blue are two very valuable kinds; but they are not show flowers. Sow now to bloom during the summer.

PROPAGATING to be carried on with spirit, that the bedding and other summer stock may be strong when required to be turned out. Sow in heat *Brachycoma*, *Phlox*, *Portulacca*, *Schizanthus*, *Stock*, *Cockscomb*, *Globe Amaranth*, *Balsam*, *Zinnia*, &c. Fine plants for bloom this season may be had by putting in cuttings now of *Fuchsia*, *Geranium*, *Salvia*, *Heliotrope*, *Verbena*, *Petunia*, &c. Those struck early will now require stopping and shifting. Always stop first, and wait a week to shift.

AURICULAS.—These will require frequent watering and plenty of air, but must be sheltered from cutting winds. Weak liquid manure will strengthen the trusses. Green-fly will appear as the plants make their new growth, and must be promptly met by means of tobacco-smoke. *Polyanthuses* the same treatment.

CARNATIONS AND PICOTEES.—Clean up the plants, and wash the outside of the pots. Make ready for potting in the second week of the month, and search the compost well for vermin, or much mischief may ensue.

HOLLYHOCKS not yet planted out must be hardened by free exposure to the air, but protected from severe frosts and storms. Those already hardened should be planted without delay, and stakes placed for them at once, as driving the stake down hereafter will do injury to the roots.

TULIPS must be kept hardy by free exposure, but severe frosts, especially after rain, will do them much harm. Protect, therefore, as occasion may require, but be careful not to retain the coverings one hour after the change of weather has rendered them unnecessary.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Mulch raspberries with four inches of half-rotten dung; the ground between them must never be dug, not even with a fork. Trees newly planted to be securely staked, and in dry soils it will be as well to mulch their roots. Finish pruning and nailing, have ready calico, netting, or whatever else is used for protecting wall trees which will be in bloom early this year. Lay down plenty of rotten dung between strawberry-beds. All kinds of fruit-trees and fruit-bushes may yet be planted, though it is full late.

WALL FRUITS are now pushing into bloom, and protecting material should be put up at once if not done already. We use Haythorn's hexagon netting, and find the large meshes as effectual as the small, and the price is considerably lower. Beware of coddling the trees by means of shelter; sunshine and air are beneficial—frost and rain do the mischief; a breeze playing among the blossoms helps to set the pollen.

VINEYARD GRAPES FOR ENGLISH WINES.—Those who have suitable walls, and who wish for good home-made wine, will do well to appropriate their walls to such varieties as are most suitable, as there will be a greater certainty of the grapes being well ripened than by open vineyard culture.

But in spots moderately sheltered, and enjoying what may be understood as an average good climate, open vineyard culture will answer well, and is at once the simplest and cheapest mode of producing grapes for wine. The vines may be planted out in rows six feet apart every way, which will allow of a free circulation of air amongst them, and enable the cultivator to move amongst them freely. If land is expensive or limited in extent, some useful crops of summer vegetables may be grown between the rows, or the rows may be put at four feet apart, and if they run east and west they will not much shade each other. But in any case the vines must be six feet apart in the row, because of the system of cultivation to be followed. This, of course, will be what is termed the "long-rod system." But there is a right and a wrong way of doing it, and the wisest course to follow will be to cut the vines down to four or five buds after they have been planted one year. Four strong shoots are to be allowed to grow, and all others are to be suppressed. These should be trained out sufficiently apart that their leaves do not overlap, but as nearly upright as possible, and they are to grow as long as they please—that is to say, they are not to be pinched or pruned during the whole of the season. In the winter they are to be pruned to three, four, or five feet lengths, and the length of each rod must be determined by its degree of ripeness. Better cut them back to one foot, and have hard, brown wood, and plump, well-ripened buds, than allow any length of soft, greenish, or slender wood to remain for fruit bearing. When pruned, these ripe rods are to be trained down horizontal within a foot or so of the ground. They must be kept sufficiently far apart that their leaves do not overlap, and the rule must be to bring them as low and as nearly horizontal as possible. Sometimes the vine will not produce fine canes to take the place of those tied down; in such a case it may be advisable to allow some of the old canes to remain until there are suitable canes to replace them, thus allowing them to fruit a second or a third time, as they will do. This would be called a combination of long-rod and spur pruning, a combination by no means desirable, and only to be adopted when, by a shyness of growth or any accident to a particular vine, there happens not to be at the end of the season canes suitable for the next year's use.

SELECTION OF GRAPES FOR ENGLISH VINEYARDS.—The very best varieties for the purpose are the following. *Royal Muscadine*: There are several varieties in cultivation under this name; the proper one for wine-making produces a round berry of medium size; the bunch is broadly shouldered, the leaves are roundish, and die off in autumn a bright yellow colour. *Miller's Burgundy*, which is not useless if unripe, but will generally ripen well if grown in a sunny spot, even if the season is not so good as the average. *Claret*: The best wine grape known; it is the kind generally grown in the south of France, and produces the real Bordeaux, which is the best of all wines, though not in high repute in this country; rather tender in constitution, and needs a dry soil and a good climate to do well. The four which follow require a warm soil and a good climate. *Cambridge Botanic Garden*: Of no use for the wine-press, except to mix with others. *Early Black Bordeaux*: Flesh melting, and very rich, hardy, and early. *Macready's Early White*: Well adapted to make a light still wine, if sided with sugar. *July Cluster*: Pretty sure always to ripen on stakes, and useful to mix for wine-making, to give richness and colour.

Greenhouse and Conservatory.

CONSERVATORY to be kept as much as possible without fire-heat, as the natural temperature will now be high enough for most of the forced flowers, such as *Cinerarias*, *Cytisus*, *Deutzia*, &c., and they will last longer than with heat. But as frosts often occur at this season, with cutting east winds, a fire may be occasionally needful, in which case get it up without delay, for many of the subjects in bloom now are of a delicate nature, and climbers growing on pillars and rafters will suffer much if chilled. To keep the conservatory gay, put *Roses*, *Rhododendrons*, *Azaleas*, and early *Pelargoniums* into a moderate warmth, to bring them into bloom. Give plenty of water and liquid manure to plants coming into bloom, especially *Americans*, *Camellias*, *Pelargoniums*, and *Acacias*. Plants done blooming should be tended with care to secure a healthy growth of new wood, and be cut in if required before they spend their strength at the ends of flowering shoots. Give plenty of air, and increase the heat in all plant-houses. Use the syringe freely, to keep a clean foliage; repot any plants that want more root-room; see to the training of greenhouse and conservatory climbers before they get into too free a growth to be handled conveniently.

CALCEOLARIAS may be struck in any quantity for blooming this season; a very slight heat is sufficient. Use young, tender shoots, and root them in sandy peat. Specimen plants for early blooming will come on nicely along with *Americans* and other plants that like moisture; but they must be in the coolest and airiest part of the house, for much heat is an injury to them. Give liquid manure once a week.

CINERARIAS must have plenty of light and air, and all superfluous shoots and injured leaves should be cut clean away. A cool shelf near the glass is the best place for them; and they must be watched that green-fly does not take complete possession of their succulent foliage.

DAHLIAS should be got to work without delay. Divide the old roots, one eye to each piece, and pot in light, rich loam, and plunge the pots in a warm pit on the tank of a propagating-house. Those started last month may be propagated by cuttings, if stock runs short; the cuttings must be taken under a joint, and rooted in thumbs filed with poor sandy loam, to be shifted in rich light soil as soon as rooted.

REPOTTING VARIEGATED BEGONIAS.—A rich, light soil suits them all alike; none of them are peculiar in that respect. The soil we use is a mixture of fresh turfy peat chopped to the size of eggs, leaf-mould thoroughly rotted and well frosted, fibrous loam, and sharp sand, equal parts. If the peat is poor in fibre, we add a half part of old cow-dung, but with first-rate peat and loam we prefer to do without the dung, except it be for top-dressing plants intended for large specimens. About the middle of February, and thence on to the middle of March, they should be shaken out of their pots, all the old soil removed, but with care not to injure roots or tubers, and repotted, with the crown of the plant level with the surface of the soil. They should be potted firm, and it would be well to sift the soil, so as to remove from it all the fine stuff, for they grow best in lumpy, elastic compost, the materials of which are well incorporated; the sifting should be done before adding the sand. After repotting, they should be placed in a moist brisk heat, and there is nothing to equal for this purpose a sweet hotbed. Wanting this, a tan-bed or pine-pit will do, but the plunging material must be kept very moist, and the plants have but little water until growth has fairly commenced. Any excess of

water at this stage would cause them to rot at the collar; but when in full growth they should have plenty. The cultivator will have to guard against giving too much air, admitting too much light, and above all against wotting the leaves. A few waterings overhead will soon spoil the finest lot of begonias ever raised, and those that escape utter ruin will be denuded of their exquisite beauty. In furnishing a conservatory with them, therefore, take care not to admit any cold draughts, and see that the shading is in its place before removing the plants from the stove. Many a disappointment has occurred through neglect of these precautions.

PROPAGATION OF BEGONIAS.—It is nothing new now to talk about propagating plants from leaves. Prepare a good sweet, moist hothed; take off a complete leaf, and lay it on the bed, and it will root in a few days. Or to do the work in a more wholesale way, incise the leaf across each of the principal veins, and it will at once produce a number of young plants, which are to be potted in thumb-pots, as soon as fairly rooted in rather fine turfy peat and sand only. Some of them may be increased by cutting the leaves in small pieces, and pressing the cut edge of each piece gently on the surface of the bed. In propagating-houses we generally see begonia leaves at work under bell-glasses, and at a tremendous temperature. There is no need of either; a sweet dung-hed in full play will cause the formation of roots almost immediately; and there is no need of bell-glasses, unless the hed is exposed to draughts of cold air, a supposition almost needless. Where a sweet hothed is not at hand for leaf propagation, it is advisable to insert them in pots. Choose for the purpose leaves half-grown, cut off the leaf with a sharp knife close to the stem; keep it shaded for a short while, but so that the cut end will dry before planting it. Prepare five-inch pots with half drainage, and the rest sandy peat with an inch of clean sand on the top. Insert the leaves close to the side of the pot, and if they fall over towards the centre, place a short stick there to support them. Water liberally, and place at once in a close moist heat. If the air is not moist, they must be covered with bell-glasses; they must be shaded from sun, and will soon form plants.

PELARGONIUMS must be stopped where the growth is irregular, and tied out to good shapes for blooming. Give more heat and more water as the days lengthen; plenty of light, and manure-water once a week. The syringe and the fumigator must both be kept in action to keep vermin in check. Scarce kinds of Pelargoniums may now be propagated from pieces of the roots put into small pots, leaving the top just visible; they must be in a moist heat, and shaded till they show shoots. Specimens now showing their trusses will need a little manure-water occasionally, and occasional syringing. Plants lately potted to be stopped as soon as their new growth admits of it, or they will soon become leggy.

AZALEAS out of bloom must be encouraged to grow by being kept rather close and moist. Young plants being pushed on for specimens should now be repotted, and the compost should be as firm as it is safe to use; that is to say, instead of light, poor, sandy peat alone, let them have a fair allowance of mellow silky loam, in order to get a short, stout growth, and a robust constitution.

ERICAS will in many cases need repotting, which attend to. Plenty of siliceous grit is essential to their well-doing. In selecting peat for these, always give the preference to that which is full of fibre, and which is tough in breaking. Powdery soil which goes to dust at a touch is of a starving nature, and will cause a stunted growth and a poverty of bloom. Be particularly careful about the drainage, and see that the ball of roots is quite moist before planting it in the new pot.

Stove and Orchid House.

ORCHID HOUSE.—Many of the subjects in this house will now be coming into growth, but must not for that reason be stimulated too suddenly by any undue rise of temperature. There are very few that will require more than a temperature of 65° as a maximum, and 55° minimum, and the amateur cultivator is advised to keep to this moderate range as much safer than higher temperature at this time of year; but as the month advances the midday temperature may be allowed to rise to 70°. Growing plants will want water, and this will be best administered by dipping, so as to thoroughly wet the roots, and without suffering a drop of water to lodge among the leaves or huls. Those that want a shift to have it as soon as they show signs of being really on the move. All that are suitable to grow on logs or in baskets should be so planted, as far preferable to pots. *Aerides*, *Vandas*, *Saccolabiums*, *Phalenopsis*, and *Zygopetalums* need now the warmest end of the house, as they are in free growth. Care must be taken not to wet their young shoots. *Cyrtopodiums*, *Barkerias*, *Cycnoches*, *Phajus albus*, and *Wallichiana* to be watered with very great care, and with due regard to their condition as to growth, as while they are quite at rest they must be kept rather dry. On bright days water the floor of the house freely. In neglected houses there is at this time of year much injury caused by rot and spot. In the case of the first, cut away the part affected, and fill up the wound with silver-sand or sulphur. Spot is the result of a sappy condition of the plants, and where there is much of it, the only safe course is to increase the temperature and encourage a vigorous growth as early as possible, and the plants will outgrow it; it is invariably the result of excessive moisture in winter, or of cold draughts, or of steam followed by a low temperature. The month of March is the best time for a general repotting of plants that require a shift and propagating by dividing the pseudo-bulbs. By a decisive cut with a sharp knife between the pseudo-hulbs, *Dendrobium* may be multiplied with the greatest certainty, in much the same way as taking offsets from *Auriculas*, the cuttings being preferable if they have each a few roots attached. These are to be potted and placed in a shady part of the house, and to have extra warmth and very little water till they begin to grow. Old flowering bulbs of *D. nobile*, *pulchellum*, &c., may be cut away without roots, and if laid on damp moss in a close part of the house will soon emit roots, and may then be potted. At the beginning of the month is the best time to repot *Anæctochili*; and as these have no fleshy hulbs, great care must be taken as to watering, or they may rot away at the collar. But beware of keeping *Anæctochili* too dry from this time to the end of September. Plants in a thriving condition will require plenty of water, and always a little air, as they are coming into active growth for the season. The soil for them should be chopped sphagnum two parts, and with one part of fibrous peat and silver-sand.—Orchids that may be in bloom in March: *Dendrobium nobile*, *pulchellum*, *maorophyllum*, *densiflorum*, *Farmeri*, *Pierardi latifolium*, *aggregatum majus*, *anosmum*, *Cambridgeanum*, *fimbriatum oculatum*, *litiflorum*, *nobile intermedium*, *nobile pendulum*; *Bletia patula*; *Brassavola glauca*; *Cattleya amethystoglossa*, *Mossii*, *Skinneri*; *Cœlogyno cristata*; *Cymbidium eburneum*; *Cypripedium*

hiflora, *caudatum*, *caudatum roseum*, *hirsutissimum*; *Epidendron aurantiacum*, *crassifolium*, *Hambarganum*; *Jycaste cruenta*, *Deppi*; *Oncidium sacodes*, *sessile*; *Phajus Wallichii*, *Phalenopsis amabilis*, *grandiflora*; *Saccolabium miniatum*; *Trichopilia suavis*.

BEDDING PLANTS to be shifted on as fast as possible. Soft-wooded plants required to grow quick, to be potted in compost consisting chiefly of leaf-mould and very rotten dung, and the stuff pressed into the pots rather lightly. Plants for specimens should always have a compost in which sound turfy loam predominates, and be potted firm.

BEGONIAS not yet potted must have attention at once. They delight in a fresh soil, without manure; and if a mixture has to be prepared, it should be equal parts turfy peat, loam, and leaf-mould. Give them a warm moist place after the shift, and be very careful to secure them against any drip of moisture on the leaves.

GLOXINIAS may be started in a good dung heat as easily as in the stove. Losses often occur at this season through careless ways of starting Gloxinias. The soil should be equal parts fibry peat, turfy loam, leaf-mould, and silver-sand. There are some loams and some peats that grow them to perfection without any admixture of other materials. When the pans are filled, the hulbs should be pressed down on the surface, and left uncovered and without water; there will be sufficient moisture in the soil to start them. Place them in a moist heat of 70°, and when they have made a little progress remove to a temperature of 60°, and give water in plenty as they advance in growth.

STOVE PLANTS.—Continue to shift and repot as required. Nearly every plant in the house will need some attention of the kind, either to give more root-room or to refresh with new compost. As the season is advancing, all arrears should be completed quickly. Plants with variegated leaves usually do best in fresh compost of a rather poor nature; stimulating substances, such as rotten dung, frequently drive out the variegation, and restore the plant to a normal condition. When variegated plants require extra nourishment, it is best accomplished by potting in turfy loam and good leaf-mould. *Rondeletias* to be cut in and started. Plants that have done blooming require attention, first to be cut down and set aside for three or four weeks, then to be repotted. When repotted, place over hottom-heat, and give little water at the root, with frequent light sprinklings overhead, until they make a start; then water liberally.

STOVE CLIMBERS ought to grow freely now, or it is impossible they can bloom well. Push on *Allamandas*, *Dipladenias*, *Clerodendrons*, *Stephanotis*, *Hoya*, &c., &c., but do not tie them in hard until they have made some progress, for tying checks growth, and hastens flowering. Bottom-heat will do wonders for all these things now.

Forcing Pit.

FORCING.—A temperature of 50° night, and 60° day, will bring on *Roses*, *Daphnes*, *Lilacs*, *Weigelias*, *Kalmias*, *Azaleas*, double *Plum*, *Almond*, and *Peach*, and other of the showy spring flowers, with very little trouble. Keep a moist air, and beware of crowding.

STRAWBERRIES under glass will require liquid manure, plenty of air, and to be kept near the glass. Thin the fruit and blossoms as soon as a moderate number are set on each plant.

CHERRIES in the forcing-house are looking brilliant this season, the trees being in good health and loaded with fruit. While north-east winds prevail, as they are likely to now for some time, be careful in giving air, so as not to expose them to killing draughts. But air they must have in plenty, and water too overhead and at the root, except when they are in bloom, when it is desirable to keep them rather dry.

MELONS are now being hedged out for the summer crop, and it is well to be thus early, so as to derive the fullest possible advantage from sun-heat. To do them well requires a constant heat, and if from fermenting materials all the better; in fact, there is nothing to equal dung beds for melons and cucumbers. This is not said to disparage hot water, for that is safe and certain; but where manure is plentiful, and there is sufficient skill and labour to manage dung beds well, cucumbers and melons are sure to be well grown. One of the first essentials in making up a bed is to have plenty of material; small quantities are of no use at all. A strong, steady, but quite sweet heat is needed, and this can only be obtained by working the manure sufficiently, and no more than sufficient, and making it up at least with a sufficient degree of moisture to maintain the fermentation. As for soil, a good strong maiden loam full of grass fibre is the best. Clay will grow melons well; light soils are of little use, and manure is not at all desirable.

PEACHES.—The principal work now consists of disbudbing, thinning, and training in; all these operations should be carried on in a systematic manner, and the trees should have daily attention. The cautious peach-grower will now open the border in one or two places to see how it is as to moisture; it may be very wet or very dry at a few inches below the surface. A medium state of moisture is essential to the growth of the crop, and all excess ought to pass away readily. The early house should range from 50° to 85°, these being the utmost extremes allowable; a good average is 55° night, 65° day. No harm at all in going down to 50° at night, even after bright days, and much better indeed for the trees than keeping them a few degrees too warm at night.

PINES swelling fruit must have abundance of moisture, and a day temperature of 75° to 85°; night, 60°. Young plants recently potted must be encouraged to make new roots; and if very bright sunshine, with east winds, give shade, and be cautious about ventilating.

VINES.—At this time of year some cultivators tie up the stems of vines in haybands, and keep the bandages damp with the syringe, in order to induce the formation of a mass of roots. This is bad practice; all aerial roots are objectionable, except in the case of plants which naturally live by such roots—as certain orchids, for instance. One consideration is alone sufficient to show the folly of inducing the formation of such roots; they are liable at any time to perish through being allowed to go dry, or through small changes in the arrangement of the house, &c., &c., and the sudden loss of their contributions may cripple a whole crop of grapes at the most critical period, when perhaps they are half swelled. Our advice is never encourage these roots on the stems; to prevent them is not always possible, especially when the stems pass near water. Vines not started must be pruned and dressed without further delay.

CUCUMBERS coming into bearing to have the fruit blossoms impregnated at midday, and the fruit to be constantly thinned. Stop and train regularly. Sprinkle warm water over the bed before shutting up, and shut up at 75° or 80°, which will cool to 60° by the morning.

THE WINTER AND THE ROSES.

In the number for February 9 of the GARDENER'S MAGAZINE, there is a very useful paper from a Yorkshire rosarian, recording the effects of the winter on certain varieties of roses in his locality, inasmuch as it illustrates the necessity of a wide field of induction before attempts are made to determine general principles or rules. There are so many circumstances and conditions to be taken into consideration before pronouncing any given varieties hardy or the reverse, that we ought not to take any single season, even though exceptional, as a test upon that important point, although there are some kinds that experience has proved capable of withstanding the rigour of any winter we are likely to have in this island. One of the circumstances, too often lost sight of, which determines the power of any plant to resist unusual severity in the weather is the state of growth in which it is when attacked by frost. Thus it will be found that many worked roses have been seriously injured or destroyed which would have passed through the winter unharmed had the wood been well ripened during the autumn, instead of which, even after Christmas, they were in a pushing state, the branches full of sap—hence their destruction.

The climate on the north-east side of London does not err on the side of mildness, and it is in an exposed district my observations have been made. Proceeding to join friendly issue with your Yorkshire correspondent, it will be necessary first to notice his opinion that "none of the perpetuals are safe under a zeroic frost." This my observation convinces me must not be laid down as an absolute law. I have now several bushes and standards which withstood the terrific winter of 1860, some of the varieties being among those which he classes among the tender kinds—Madame Knorr, Madame Rivers, Chabriland, Anna Alexieff, Comte de Nanteuil, Louise Peyronny. All of these, with many others named as half-hardy only, have received no injury to speak of here; yet my little plot on the side of London is in a very bleak position, and the north and north-east winds, in particular, career over it as a Derby crack sweeps over Epsom Downs—nor are there any high walls or fences to break their force. As to some of the branches of certain sorts being touched, this will always be the case: probably the kinds selected as the hardiest this season would exhibit the same appearance themselves another year. It is quite a new defect in Jacqueminot to exhibit tenderness. Admiral Nelson, Prince Camille de Rohan, Le Rbone, Senateur Vaisse, Francois Lacharme, again, are certainly as hardy as most roses known. Some other reason, therefore, than the natural constitution of varieties must be sought for to reconcile these discrepancies, and this will probably be found in the situation of Mr. Taylor's rosery, viz., in a valley, roses being much more likely to fall victims to atmospheric severities upon low grounds than high, even if not so much exposed.

As an illustration of the eccentricity with which roses will sometimes behave, I have a small plant of Monte Christo, on a 6-inch brier of diminutive thickness. This was one of the French stocks sent over during its season to Mr. J. Fraser; and after being cut up for propagating purposes, it came to me for experiment. This was planted by the ignoramus who moved my roses as deeply as a manetti, and consequently it ought to have died. Nevertheless it gave me several blooms last year, upon stems about the substance of a crow-quill, and it is now pushing vigorously, as if there had been no such thing as frost. How is this to be accounted for, setting aside as it does generally accepted principles?

A list is here appended of such as have proved themselves quite hardy here, for the sake of comparison, as among them will be found some which appear to have behaved very differently with your correspondent. Anna Alexieff, Baronne Prevost, Charles Lefebvre ("as hard as iron"), Caroline de Sansalles, Centifolia Rosea, Comtesse de Kergolay, Chabriland, Comte de Nanteuil, Duchesse de Morny, Duchesse d'Orleans, Duke of Wellington, Duc de Rohan (my plants were shaky), Duc de Cazes, F. Lacharme, General Jacqueminot, General Washington, Gloire de Santhey (it is quite unnecessary to grow this variety), Jules Margottin, Jacques Lafitte, Jean Bart, Jean Goujon, John Hopper (how English-like in its robustness!), La Brillante, La Tour de Crouy and Louise Peyronny (not quite in such good condition as the rest), Lord Raglan, Lafontaine, Le Rbone, Madame Bruni, Madame Boutin, Marschal Forey (not worth a place in any garden except for a stock to bud on), Clemence Joigneaux, Cambaceres, Domage, Madame Victor Verdier, (a companion to Lefebvre and John Hopper), Madame Knorr, Mrs. Rivers, Madame Freeman (mine doubtful), M. Montigny, Paul de la Meillereze, Pauline Lanzezeur, Pierre Notting, Pius IX., Princess of Wales, Terre Noir, Triomphe des Beaux Arts, Senateur Vaisse, Vicomte Vigier, Triomphe de Caen, Victor Verdier, William Griffiths. Bourbons, Catherine Guillot, Emotion (particularly hardy), H. Dombrain, Victor Emmanuel. All these are freely sprouting, as if there had never been any frost at all.

My experience of the Teas is so contrary to what I hear, that it cannot be taken as a criterion of anything more than to show how little protection will suffice to preserve them if upon their own roots; or upon the manetti. And here to digress a moment: a manetti properly planted is equivalent to a rose on its own roots, and quickly becomes transformed to such, so that at the season it may be taken up and sometimes part of the plant with a huge bunch of fibres removed (I have several plants procured in that manner), or the manetti stock itself may be cut away. Indeed I always provide for this possibility by placing a handful of soft fine soil round the work of manettis at the time of planting. The prevalence of suckers arises from the lower eyes not being properly removed at the last planting previous to budding. It must be confessed the frost caught me entirely unprepared—indeed as my collection is chiefly for experiment, newer kinds are usually left to themselves; there were a few favourite teas, however, which I did not wish to lose. Unfortunately, they were left unprotected till it was too late, and I gave them up for lost. However I went to look at them before the snow had disappeared, and found them all green enough about the collar. I got some old flower-pots, and broke them up—for no other protecting medium was at hand—placed a few of them over each of the plants, and I now find them starting into growth below the branches killed back, like the rest of their neighbours. They were—hear it with astonishment!—Madame Falcot, Souvenir d'un Ami, Melanie Willermoz, Devoniensis, Climbing Devoniensis, Napoleon, and Triomphe de Guillot Fils.

Of course the most interesting of tender roses at this time is the beautiful Marechal Niel. The reports that have yet reached me of its sufferings from the frost are melancholy in the extreme,—killed—dead—dying,—such appears the general verdict; plants and dormant buds are included in the same category. I have but two plants yet of this variety, a standard and a dwarf, on the manetti. Both are alive, without the least protection—cut

back, it is true, but still unslaughtered. Here, then, is a case opposed to general facts. I have no doubt others will be recorded; and it behoves us to ponder well over such contrarieties, and to ponder ere we lay down conclusions which further experience may explode as fallacies. The Marechal requires further trial. Narcisso is entirely killed; Gloire de Dijon has suffered more than is usually the case, which may be attributed to its constitutional habit of late growth, a feature of the variety; in mild climates, such as the south of France, it would probably continue to grow and bloom all the year round. I had a dozen or so of last year's novelties, all on the manetti. They were planted in December last, and of course were all budded the preceding summer; not one shows the slightest injury from the frost.

To utilize the considerations above laid down, I must perforce plagiarize from my esteemed friend our able Editor, to the effect that by early lifting, or semi-lifting, in mild autumns, we should check the growth and throw the plants into a state of rest. W. D. PRIOR, Clapton.

ORCHID GROWING—PHALANOPSIS SCHILLERIANA.

Through the kindness of Thomas Bewley, Esq., we were recently afforded an opportunity of seeing in flower a magnificent specimen of the glorious Phalanopsis Schilleriana. It is, we apprehend, not more than six years since this fine species—to our mind the most valuable of any of the lovely genus to which it belongs—first flowered in Europe in the famous collection of Consul Schiller at Hamburg, in honour of whom the specific name was given by his countryman, the distinguished orchidologist, Professor Reichenbach. Somewhere about the spring of 1862 it flowered for the first time in England in Mr. Warner's collection. A dozen or so was, we believe, about the greatest number of flowers borne at the time by either.

Rarely indeed is Mr. Bewley behind—nay, very often he is in advance of our neighbours in securing for his rare collection any novelty of merit. Almost simultaneously with the record of its first flowering with Mr. Warner in England, we had the pleasure of seeing a small specimen in flower at Rockville. The spike was only a few inches long, and the flowers not perhaps half-a-dozen. We were much impressed at the time with the beauty of the flowers, but the specimen afforded a weak idea indeed of the effect this magnificent orchid can produce when seen as we have seen it since, and more especially on the present occasion.

Notwithstanding the puny scapes and few flowers produced on the specimens in cultivation at that time, growers knew they had great things to expect when their plants should gain size and vigour, and their management be better understood; for they had heard of what collectors said of its beauty and glorious development in its native haunts, and were aware of at least one plant imported to England on which was a flower stem that had borne a hundred blossoms. Nor were these expectations falsified, and thanks to the skill of gardeners here and the other side of the Channel, so thoroughly has its cultivation been mastered that in first-class collections we now meet with specimens more than rivaling in luxuriance and beauty this or any met with in its home in the Philippine Islands.

The beautiful specimen now in flower at Rockville affords a remarkable instance of this. It would be more correct to say, perhaps, one of the beautiful specimens, for there are no less than nine in flower there just now; but one calls for especial notice. The beautiful blotched and marbled leaves are from fourteen to fifteen inches long, and between five and six broad. It has two flower-scapes, one of about four feet six inches in length, the other eighteen inches. The first of these midway divides into two branches, and these again divide into several ramuli, and carries no less than fifty of its charming flowers all fully expanded. Indeed, we believe it is a peculiarity of this species that all the flowers are open at the same time. The second and smaller scape was undivided, and bore fifteen flowers, nearly clothing its entire length with beauty—the total number of flowers thus numbering sixty-five! Altogether, it forms a charming object—just the one we would like to bring a friend whom we would wish to catch a little of the Orchidomania to see.

A second specimen, suspended near it, was little less imposing. It had only the one flower-stem, about three feet in length. It was not forked, as in the larger specimen, but at regular intervals it had four lateral branchlets, spread horizontally, and displaying its flowers, which were of a deeper colour than the former, to the greatest advantage. These splendid specimens reflected high credit on Mr. Sayers' successful management.

They are grown in very shallow galvanized wire baskets, suspended from the roof. The material Mr. Sayers grows them in is very fibrous peat and charcoal, surfaced with sphagnum. He has discontinued the use of sphagnum as the staple of his potting material for this and other orchids, for several valid reasons, which some day, perhaps, he will kindly put our readers in possession of.—Irish Farmers' Gazette.

CULTURE OF ANTIRRHINUMS.

The Antirrhinum, which has of late years been greatly improved by persevering florists, is now almost universally admired. A novel form of the *Antirrhinum majus*, called the "Tom Thumb Antirrhinum," recently introduced, will, I think, be a very great acquisition to our flower borders, as it grows only about six inches high. I have only seen one crimson-flowered variety worthy of the name, besides a pure white one, which I have reared myself, and which will be a good companion to the other. I hope, however, we shall soon get more shades of colour with a dwarf habit. Of late years it has been found difficult to keep the finer strains of antirrhinums from dying off very suddenly at times. Many growers, as well as myself, I doubt not, have experienced the same grievance. The plants, when beginning to fail, show symptoms of dissolution by their leaves drooping, and in a few days more they die, and I have sometimes experienced similar results with pansies.

I would not like to say decidedly what are the reasons of this sudden dying off, but I have frequently remarked and noticed that this plant, and many others which I could enumerate, when growing in a very poor soil, have their duration of life thus much more extended, although the same varieties fail under the unceasing care of the cultivator. There have been various reasons assigned for this, but I am convinced that very high feeding and cultivation has something to do with it. I once particularly watched the progress of an antirrhinum which had been self-sown in the lime seam of a south brick wall; it was a very nice crimson-scarlet, which flowered and stood the rigours of winter and the heat of summer for several years. I consider a great number of our flowers and other things are grown

by many with an ambition to have them look gigantic in habit and flower, without considering that such treatment is detrimental to their natural constitution, which should enable them to withstand vicissitudes or sudden transitions either of strong sunlight, heat, or cold; and the rich feeding practised by many is at the same time a great drawback to the maturation of the plant's functions, the rich feeding causing a greater flow of crude juices than the sun's rays can, through the foliage, elaborate perfectly.

Again, some, I am aware, will say that such and many other flowers have been overbred and cultivated. No doubt such treatment must naturally injure the constitutional properties, particularly as to duration of life.

The great mania for the one-shift system of growing pot plants will yet be in the remembrance of many; but it soon succumbed, for it was found that under such rich soil and rapid growth the plants were very short-lived. This I consider arose in a great degree from the too rapid growth and want of due time to mature the woody portion of the plants: a good proof to show that we may to a certain extent assist nature's laws, but if we overstep them, some such results will soon be visible.

The antirrhinum is worthy of more general cultivation than it has yet received. First, it is easily attained by seed; secondly, it will flourish in the poorest soil, and flower under many disadvantages; thirdly, it will produce flowers without intermission till the hard frost comes on. This past season the seedling antirrhinums in my borders were the admiration of many. No doubt the wet season greatly deteriorated the appearance of most other flowering plants, but the antirrhinums seemed to defy all inclemency of rain and want of sunshine better than any flowers I know. If the principal flower stems are cut off as soon as done flowering, the plants will continue to flower on, and when scarce a flower can be had to cut in the garden there will be plenty of blooms on the antirrhinums. Some will say it is not a pretty flower, but I consider a mixed collection of seedling antirrhinums will look very conspicuous, and remain longer gay than almost any other flowering plant. I must mention, however, that when the seed is not home-saved it should be bought warranted from a good collection, and that can easily be attained by giving a liberal price.

The antirrhinum is a very hardy plant when sown out of doors in any moderately light soil, say about the 20th or latter end of July, and if not too thick, the plants might remain where sown till spring; but if fine plants are desired, it is advantageous to prick them out into a rather poor than rich soil, and should any throw up flower-stems that season these should be pinched off.

The seedling antirrhinums flower more profusely than plants reared from cuttings, and their seeds may also be sown in the spring to flower late in the autumn. Their bloom will not, however, be so profuse as those sown the previous year; and the plants being young, and their woody portion not fully matured, they cannot be expected to withstand the rigours of winter so well. If it is desired to have them remain for some time in the same ground, dig in a good portion of old lime refuse and burned or charred earth.—WILLIAM MELVILLE, in "The Farmer."

THE BEAUTY OF THE GRASSES.

OUTLINE OF AN ADDRESS BY A VILLAGE PASTOR.

The grasses comprise all the plants which yield corn; most of those which constitute pasture, some of the best which yield sugar, and not a few of those which abound in useful secretions, grateful juices, and fragrant odours. Their thousands of species are distinguished from one another, not only by obvious hotanical characters, but also by their nutritive properties, their wonderful adaptations, their periods of flowering, their habits of hardiness and duration, their methods, and seasons of growth, and their love or dislike of particular soils and situations. Their flowers, though generally unheeded, or treated as something more than ordinarily mean by superficial observers, are remarkable for the perfection of their parts, the elegance of their structures, and the blending of only one set of differential marks with a great variety of generic and specific characters. When examined either by the texture of their organs, the number of their stamens, the relation of their sexes, or especially by their forms, appearances, number, and position, with the arrangement of their glumes, paleæ, and scales, they afford means of a far readier and surer discrimination than if they formed a part of the most gorgeous and complicated glories of the flower-garden.

The indigenous grasses which grow wild in Britain, are said to be about one hundred and twenty-five species, exclusive of varieties. These demand our most searching attention, on account of both their utility and beauty. They enter largely into the materials of that magnificent carpeting which forms the chief part of our grass lands, composing nearly all the natural herbage of our hills and valleys, our woodlands and open plains, and constitutes the principal portion of the sustenance of nearly all the flocks and herds of Britain. How interesting, too, it is to acquaint ourselves with that tribe of plants which give so much beauty to our island; which form so important a part in the gay and cheerful colouring in that permanently beautiful, though ever changing scenery, which makes the British islands the admiration of foreigners as they approach our shores. The olive groves of the sunny south, notwithstanding all the pleasing associations they conjure up, have yet a gray, sickly, melancholy hue; even in Valambrosa you can scarcely find a piece of green sward upon which to recline. The magnificent masses of foliage in a tropical clime, either entirely usurp the soil, or are broken into patches, leaving here and there stretches of arid sand, upon which the eye cannot rest with pleasure; while with us the surface, which is so generally open, presents a varied, yet uniform, object to the eye; which is kept in such a state of vivid green by frequent showers, as to make the British islands the first gems of the sea; their verdure contrasting so strikingly with the surrounding ocean, as to make them at times appear like emeralds set in silver. The sublime sentiments of the divinely inspired psalmist, will be appropriate to the pious soul looking upon these glorious works of our gracious Creator. "Thou visitest the earth, and waterest it; thou greatly enrichest it with the river of God, which is full of water; thou preparest them corn, when thou hast so provided for it; thou waterest the ridges thereof abundantly; thou settlest the furrows thereof, thou makest it soft with showers; thou bleesest the springing thereof; thou crownest the year with thy goodness, and thy paths drop fatness: they drop upon the pastures of the wilderness, and the little hills rejoice on every side. The pastures are clothed with flocks; the valleys are covered over with corn; they shout for joy; they also sing."

The grasses are not only beautiful and useful, and the study of them a delightful source of pleasure and amusement, but the Lord has made them both a means of instruction and of grace. They form, indeed, a very large part of the symbolic furniture of the Lord's larger temple; so that into

whatever part of it the thoughtless may ramble, either to waste precious time, or for more dishonourable and sinful purposes, there they are met by a teacher sent from God, and commissioned to admonish, reprove, and counsel them. To whatever part of it the pious may retire, either to meditate or to worship, there they are supplied with means whereby they can commune with God and the Saviour, and realize confidence, peace, and joy; so that the solitary tuft which rises in the wilderness, the oasis in the wide-spread desert, the extensive pasture lands of Britain, and the wider prairies of America, constitute a line of divine truth, sent through all the earth, and their words to the end of the world, saying, "All flesh is grass, and all the goodness thereof is as the flower of the field. The grass withereth, the flower fadeth, because the Spirit of the Lord bloweth upon it; surely the people is grass; the grass withereth, the flower fadeth; but the word of our God shall stand for ever." Should the rich man be tempted to trust in uncertain riches, and not in the living God; and having added field to field, till there was no place, that his mansion might stand alone in the midst of the earth; and believed that his house shall continue for ever, and his dwelling-place to all generations; the very grass upon which he treads will rise again to reprove him, and say, as when "the sun is risen with a burning heat, it withereth the grass, and the flower thereof fadeth, and the grace of the fashion of it perisheth, so also shall the rich man fade away in his days."

The poor disciple of the Lord is also taught, by this humble plant, a lesson of resignation to his plain, or, it may be, mean attire; for learning from the lips of wisdom that all outward adornings fall infinitely short of the beauty of grass, and that even "Solomon, in all his glory, was not arrayed like one of these," he becomes satisfied with his mean garb, and will seek rather than inward adorning, which is, in the estimation of God, of great value; and when he learns, from the same infallible teacher, that "if God so clothe the grass of the field, which to-day is, and to-morrow is cast into the oven," he will much more clothe those who may have only a little faith, he cheerfully submits to the will of God;

Is pleased with what his love provides,
And wean'd from all the world besides.

PEACH TREES INJURED BY WASHING.

A case has recently been brought under our notice which we regard as being of considerable interest to horticulturists. We therefore bring it thus prominently under the notice of our readers, with a view of eliciting the opinions of our scientific and practical friends on the subject. It is, as they are aware, almost a stereotyped practice in gardening, after pruning, to "dress" vines, peaches, &c., grown under glass with a solution or wash of some kind, with a view of destroying scale and other insects, or their ova. As is the case in medicine, the rationale of the practice is not always understood, still less the specific action of any particular ingredient, or the results of the combination of one or more of the many that go to add to the imposing appearance of the "prescription," but add nothing to its efficacy. All the good expected to be derived may, very probably, result from the specific action of one component; the addition of another may neutralize its effect, or their combination result in the production of a third agent that may be positively injurious. To proceed with our "case." In the garden of a most estimable resident nobleman in a western county there is a large peach-house which long continued, we believe, to afford excellent crops. The trees were pruned in November last, and "dressed" with a wash the formula for which was as follows:—

Sulphur	..	..	..	..	2 lb.
Lime	..	..	..	..	1½ lb.
Soft Soap	..	..	..	..	2 lb.
Common twist tobacco	..	..	..	..	½ lb.

the whole hoiled together for one hour in four gallons of water, and then strained. When cold, it was applied to the trees in the usual way.

Before proceeding further, it may be well here to remark that we are informed the trees lost their leaves early in September, and that when the wash was applied in November the wood "seemed hard and in good order." More than this, the gardener has been there for some time, and the wash, he says, in its components and their quantities is identical with that he used last and previous years, if not with advantage, at least with no ill effects. Not so on this occasion: the result of the application has been the destruction of the bearing wood, and, as a consequence, the loss of a crop for this year at least. In the absence of personal inspection, or of having seen any of the injured wood, we have no reason to doubt that the evil has been rightly attributed to the wash. The question then arises, Why did not the same result follow the previous and other years, the wash then used being in its composition and preparation in nowise different? The solution of this point that will most generally offer is that, notwithstanding what is stated to the contrary, the young wood was not thoroughly hard and ripe. Were the lights removed after the crop was off? Last season, we apprehend, was not specially favourable to the unaided ripening of the wood; or, again, that some deleterious ingredient may have inadvertently got mixed with the sulphur or other components. This last, of course, can only be ascertained by analysis; and we understand a portion of the wash has been placed in the hands of Dr. Cameron for the purpose. Now, we should be glad if any of our readers would do us and those immediately interested in this case the favour of their opinions and experience on the following points: First, as to the utility or otherwise of these complicated washes. In which of the ingredients is the efficacy supposed to be, or must it be the result of the combination of all? Are they supposed to act medicinally, or merely mechanically—that is, do they destroy insect life by their deleterious effects, or by merely forming a coating that destroys it, by shutting it out from the access of air? If any one or two of the ingredients have a specific action in the way first indicated, the others are superfluous. If the wash is intended to act in the second way, a wash very much more simple, and without deleterious ingredients, would effect the purpose, perhaps, better.

In the case of these peach trees it was suggested that after the injury they had received it would be better to discard them, and let young trees take their place. What do our practical friends say? Would they do this, or give them a further trial?—*Irish Farmer's Gazette.*

BEST 100, BEST 50, BEST 24, BEST 12, BEST 6. See GARDEN ORACLE for 1867 for Selections of Plants, Flowers, and Fruits, comprising the best in all the classes, an unerring guide for purchasers, cultivators, exhibitors, and all who are interested in practical horticulture.—[Advt.]

Literature.

The Miniature Fruit Garden. By THOMAS RIVERS. Longmans. 14th Edition.—This charmingly gossipy and seriously practical book needs no more than to be announced as having entered upon another stage of literary existence. Of course there are some additions: a restless, ever-inquiring, over-experimentalizing cultivator like Mr. Rivers could no doubt write a new chapter every week if he were to humour the *cacoethes scribendi*. Let it suffice for this notice to say that Mr. Rivers propounds a remedy or preventive of the bad habit of apricot trees in diabranching themselves, and the remedy consists in the adoption of single cordons. Now that the question of big *versus* little trees is being agitated, this book acquires new interest, and will doubtless be read again by many who have already perused it "hundreds of times."

Animal Sagacity. Edited by Mrs. S. C. HALL. S. W. Partridge.—This is a remarkably elegant book, ostensibly intended for young readers, but it will be strange if old readers do not dip into it and become fascinated with its contents, to the risk of depriving the youngsters of the boon intended for them. It contains about thirty stories of animals, all tending, by the display of their sagacity, affection, faithfulness, and even their humour, to promote in the minds of the young a taste for natural history studies and pursuits, and a kindly regard for animals. Mrs. S. C. Hall has displayed that good taste for which she is so well known and so deeply respected in the selection of the narrative and anecdotes; and some of the most eminent draughtsmen of the day have lent the aid of their pencils to illustrate them. Many of the pictures are worthy to rank high as works of art; as for example Mr. Harrison Weir's picture of Charlie the White Sergeant (a police-office dog); Danco, the linn; and the pair of horses at page 56. Dogs of course figure largely, and we will say bravely and brilliantly, in this book; and the hoy nr girl possessing it, and not prizing it, must be of a nature which it is impossible to please. We have been favoured with the loan of one of the cuts, as it happens to illustrate a subject proper to our pages; and as a fair sample of the contents, we give an extract on robins which will fit the picture:—

"ROBIN REDBREAST.

"Robin is always a favourite wherever he goes, and as in England, so in every other country he visits, he is called after some familiar name. In Denmark, he is known as Tommy Liden; in Norway, as Peter Ronsmad; and in Germany as Thomas Gierdet. Who can hear the words 'Robin Redbreast' spoken without recalling the old story of the pretty babes, deserted by their cruel uncle, who went wandering, hand in hand, up and down the wood, waiting for the man who never came back from the town, as he promised to do, and bring them bread?

Thus waudered these two pretty babes,
Till death did end their grief;
In one another's arms they died,
As babes wanting relief.

And thus they perished without one kind friend to drop a tear over them, and thus they lay exposed to the night dews and the winds,

Till Robin Redbreast piteously
Did cover them with leaves.

"Whether Robin ever did or did not shroud the bodies of the two babes in the wood with leaves, I will not pretend to assert, but I will say that Robin is a first-rate fellow, for he is not only kind to his wife and family, but he also displays strong attachments to mankind. Some say that because he flies into our houses, and perches up and down our rooms, that he is a bold, impudent bird. He certainly is very bold when either anake or hawk attempts to plunder his nest, but I think the reason he hops in at our doors and windows is that he trusts implicitly in our doing no harm to him.

"During this last summer a beautiful sight was witnessed by many persons in Peckham. In the fernery of Mrs. Cash, a pair of robins built their snug little nest. Whether the robins knew that Mrs. Cash and her daughters, being members of the Society of Friends, would be sure to treat them with kindness, I cannot tell. One thing is certain, the birds became so tame, that they would, even whilst seated on the nest, eat food handed to them by their admiring friends. By the kindness of Miss Newman, and the pencil of Mr. Weir, we are able to give our friends an engraving of the mother as seen when feeding her young ones.

"Perhaps more wonderful still is a story of a robin that quartered itself in the sitting-room of a shoemaker at Bishop's Cleeve. It took up its abode on the mantelpiece, and built its nest behind a tea-pot, on which, having laid its eggs, it used occasionally to sit, and was not the least put about by the presence of the family or strangers. It used to feed off the same dish with the shoemaker. Robins have taken up their abode even in stranger places than behind old tea-pots, and in watering-cans. They have built nests in saw-pits, on the beams of blacksmith's bellows, and in the rigging of ships, sailing with them when they went to sea.

"But the most astonishing thing I have to record of Master Bob is his affection for, and familiarity with, man. I have read of many persons who by whistling a call-note would gather robins around them, enticing them to perch on their shoulders, and feed from their hands. Mr. Burritt tells us that Mr. Fox, of Tregedna, near Falmouth, by persevering kindness, has so won the affections of the small birds, that they fly and hop about him when he calls; and Mr. Samuel Gurney, on visiting Mr. Fox, 'was perfectly astonished, on walking out into the garden, to see, on his sounding a whistle, the birds come fluttering round him. One robin was actually so tame, that it picked a piece of bread out of Mr. Fox's mouth.' I hope every one will read, who has not already done so, the verses which James Montgomery, 'the Christian poet,' wrote on a Robin Redbreast that came to his prison window every day when he was confined for truth's sake in York Castle, cheering the dreary hours by its presence and its song.

"I have said that Master Bob will defend his young brood against any enemy. One summer day, a hewer of granite, belonging to Dalbeattie, was plying his vocation at Craignaie quarry, when he was attracted to a certain spot by the cries of a bird in distress. Hurrying to the place, he saw that an adder, twenty inches long, was protruding its head over the edge of a robin's nest, built among the brushwood, and containing the poor bird's unfledged offspring. Bob was alternately coming down upon the spoiler, darting his beak into the adder's forehead, and then rising a yard or so into the air. The quarryman soon dispatched the enemy. Then Bob entered the nest, and having ascertained that his children were all safe, flew onto a neighbouring branch, and piped a song of triumph and gratitude.

"While this is being read, perhaps the snow lies deep upon the ground, and the flakes are drifting against the window panes; and suddenly a tap

comes to the window, and the book is laid down, and the children leave the bright, warm fireside, and looking forth, see poor Master Bob hopping shiveringly about. I am sure they will not begrudge him his crumbs, and from the depth of his grateful little heart he will sing his joyful song."

RATS AND MICE.

Those little animals are often most destructive pests upon our farms, and very little is either said or written about them. If more interest was excited, either by the pen, or otherwise, more care would be taken to keep these vermin under or rid the farm entirely of them. The rat-tribe is much more easily got rid of than the mouse colonies. Their habits are very peculiar. They occasionally come and go, no one knows how. I have experienced this upon my own farm. By care and perseverance they have been destroyed or banished altogether, and their runs and hurrows have been broken up and rendered desolate and unattractive. After the lapse of a few years, some two or three fresh comers have been noticed, and as these were only occasionally seen, they were not molested for a short time. Within a few months the premises have been overrun with them, and it has taken years to be wholly rid again. When once they succeed in gaining a footing under stacks, barn-floors, or permanent buildings, they are dislodged with great trouble and difficulty. The rat-catcher is the best remedy; poison is both dangerous and uncertain. To be constantly harassing and destroying them is the only sure way of a full riddance. Those not destroyed become disturbed and alarmed, and before long will take their departure to some more comfortable quarters. They should be constantly hunted by ferrets, their runs in the ground should be saturated with tar or lime-water, or be made otherwise uncomfortable; their runs about the buildings should be smeared with tar or other noxious ingredients. They are cleanly creatures and cannot abide such a persevering system of annoyance, and therefore quit their usurped homes. Everything should be done that good judgment dictates to make their return as miserable and uncomfortable as possible. My own barn has a deep coating of rubble, mixed with glass, around the foundation, which has for more than twenty years prevented any hurrowing there, and as soon as any of these audacious gentry make their appearance we take good care they shall not have much rest; believing this, that if left awhile in quiet they soon attract plenty of their fellows. With great care and persevering annoyance no farm need be pestered with rats. *Mice.*—These are such pretty little animals it seems a pity to destroy them so recklessly, but really they are so numerous and destructive that all pity for them has long died away, and few animals have fewer friends. Dogs, cats, poultry, birds, weasels, rats, &c., are all enemies to the poor little mouse, and far more destructive to them than the farmer's wife with her numerous traps. The increase of these little things is astonishing. If only a pair or two succeed in getting into a wheat stack built upon safety hovels, they will often do great injury by their extensive breeds and feeding; but in stacks built upon the ground, with free access, their numbers and destruction they make is often deplorable. I have seen stacks so thoroughly eaten through that the workmen at threshing day have sunk deep in amongst what should have been sheaves, but were all eaten to a kind of powder and chaff. They are far more injurious to corn stacks than rats, and no ferret hunting or ordinary means can be used to destroy them—hence the chief resort has been to poison. This mode of destroying mice has become a business; numbers of men travel the country with mice poison to dress stacks with it, or place it dexterously and subtly in poor mouse's way, so temptingly that his destruction is sure; strychnine, phosphorus, and arsenic being the chief ingredients. If the attack-dresser is clever at his business, it is marvellous what havoc his poison makes with the little creatures. Frequently upon threshing none are to be found alive, but vast numbers dead. Great care of the poultry is required for a short time after the stacks are dressed. Many mice either fall from the stacks dead or creep out to die. Poultry are very fond of them, and often eat them to their own destruction.—O. F., in "Agricultural Gazette."

Correspondence.

THE RECENT FROST—ROSES IN ESSEX.—In your issue for February 9th, you give a list of the minima temperature at various places during the recent frost, and as you invited in a previous number communications from your subscribers of their experiences of it, I am induced to offer you the results of my own, particularly as it shows that there was a great difference in the intensity of the cold at comparatively short distances. My residence is about sixteen miles east of London, on rather high land for this county (Essex), and whilst the thermometers at Chiswick have recorded 39° of frost, and at Slough 36°, we have here on the coldest night (that of the 4th of January) only reached 26°. This was taken from a Negretti and Zambra's glass, being five feet from the ground, on a wall at almost a due north aspect. I should think that the distance as the crow flies from here to Slough is little more than thirty miles, and to Chiswick say a little under twenty; and we have had 10° and 13° respectively less frost. I have a large bed of tea roses on their own roots in the open ground; I have been carefully over them, and I am gratified to find that I have not lost one plant. The sorts are principally Gloire de Dijon, Devoniensis, Madame Willermoz, Abrieot, Goubault, Madame Damaizin, Adam, Niphotos, and Madame Maurin. Many have had one-third of the wood from the top destroyed, but all are now shooting vigorously from the lower eyes; in fact, they are pushing much faster than I like to see them just yet, as it is a long time till spring. I must, however, say that these tea roses are certainly in a very sheltered garden, protected by high walls and a laurel hedge on the north, east, and west sides, and that the bed was covered four inches deep with cocoa fibre and stable dung early in the winter. On the wall facing the west of this garden I had a plant of *Solfaterre*, which flowered unusually late, and had multitudes of leaves on when the frost came; this plant I fear is dead, and I believe I may say is the only one I have lost through the frost. Of the perpetuals—which Mr. Taylor, in your issue for February 9, classes as "tender"—I have thirty-two varieties out of the seventy-eight he enumerates. These thirty-two, together with many of the kinds he mentions in the other two classes (in all a little under 200 plants) are growing in another garden a little way from the house, and in this they are in a position of fair average exposure, in no way unusually sheltered except from the east, and I believe I may safely say that there is not one of them, not only not killed, but not even seriously injured by the frost. In the winter of 1860 I lost a great many perpetuals by the frost, particularly the light-coloured varieties. I had then a great many plants, both

standards and dwarf standards, of Duchess of Orleans, and I lost every one; and I think that if there is one of the sorts I have which shows more signs of injury than another during the recent frost it is this one; perhaps the next to it is *Mdlle. Bonnaire*. I must confess to some loss of bedding plants, but when I tell you that they were in a cold pit you will probably say that I could have expected nothing else. I had a cold pit filled with geraniums, fuchsias, calceolarias, verbenas, and petunias, and when the frost came all I could do was to mat them down securely five inches thick, and protect the outside walls of the pit with long manure laid thick all round it. I can assure you I did not expect when the frost kept on day after day that I should save one of them, and I durst not open the mats to look at them whilst the frost lasted. Unfortunately, they were not as dry as they ought to have been when the frost came, or I believe I should have had but very little loss; but the lights had been all tilted off one fine morning just before the frost, to give plenty of air, and my man had gone away to collect some leaf-soil, and a sudden shower came on and drenched them thoroughly. As it is, however, I have saved about one-third of the geraniums, half of the fuchsias, all the verbenas and calceolarias, but the petunias are all gone. In the greenhouse I have not suffered at all, thanks to using mats to protect all the glass portions of it. The fire was left on the night previously referred to till about midnight, and would probably burn from two to three hours—not more. At the time of leaving, the thermometer inside stood at 47°, and in the morning at eight o'clock when I went in, I found that the lowest point it had reached was 34°, or two degrees above freezing-point. I would recommend your readers who have small greenhouses to be always provided with mats sufficient to cover the glass-work; they keep out a great deal of frost, and save much firing, which is very much better for the plants in mid-winter; and then the trouble of putting them on and taking off is really not great. A few brass hooks, small but strong, serve to hang them on the upright portions. The hooks are not unsightly, and the top can easily be covered with care, by using a small ladder. In conclusion, if I were asked to what I attributed my immunity from injury in case of my roses, I should say to *thorough drainage* (as even 26° of frost is trying to the teas and noisettes). I think this is a most important point. The protection I have before referred to for beds of tender roses on their own roots will also be found of immense service; the cocoa-fibre should be put round the stems to keep them from damp, and the stable dung (moderately decayed), spread equally over the bed.

AURICUS.

THE JUDGES AT THE INTERNATIONAL EXHIBITION OF 1866.—I see by your report of the discussion which took place the other day at the Royal Horticultural Society's annual meeting, that the committee of the International have a large surplus in hand which they do not know what to do with. Will you permit me to ask the managers of the late show, through your columns, the reason why the judges are not to be paid? I allude more particularly to those who came a long distance. I know many who came from Scotland and Ireland who could ill afford to pay all their expenses. It appears to me that it would only be just and right to make these gentlemen some allowance out of the surplus funds. In the letters sent to the judges it was stated that owing to the affair being somewhat of a speculative character, the committee could not arrange to pay for judges. But seeing that it has proved a monetary success, I think this a subject that ought to engage the attention of the committee. I don't suppose they will take any notice of this suggestion, but I know the feeling among the judges is very marked on this point, many of whom look upon the matter I have alluded to as a shabby piece of business.

A JUDGE AND SUBSCRIBER.

ATMOSPHERIC MOISTURE IN VINERIES.—Will you give me your opinion about moisture to vines at night. Should the floors of vinerias be kept moist at night—that is, when the vines are in leaf? Some of our best writers say "yes," while I know for a certainty that it is condemned by some of our best growers—Mr. Hill, of Keele Hall, for instance, who always gives air for half an hour after the afternoon syringing, to dry up every particle of water off the floors. But then it must be borne in mind that his borders are inside, and of course when the vines are in progress they are moist from watering, &c. My opinion is that it is in accordance with nature to keep them moist at night, by filling the troughs and throwing water on the paths, and allow them to get dry some part of the day. Please say if I am right or not.

W. D., *Edgbaston, Birmingham.*

[We are thoroughly of opinion that many practitioners overdose their vines with water both above and below ground, and that many ailments of vines are produced by excess of atmospheric moisture at night. No one has yet determined the precise degree of saturation of the atmosphere that is best for vines, but every experienced cultivator knows that if the atmosphere of a vinery is kept in so damp a state as would just suit for a cucumber frame, the vines can do no good in it. A dry atmosphere is not good for the vine, but on the other hand an excessive use of the syringe and the creation of a steaming atmosphere are far more injurious than extreme dryness. What do our grape-growing readers say to this question?—ED.]

Replies to Queries.

Centaurea candidissima.—S. W. B.—This generally puts up a number of suckers and small shoots from the bottom of the plant, which readily strike in sand under a bell glass; if your plant is not furnished with these, encourage it to make side-shoots by nipping the top out, and set in as warm a place as you can, and you will soon have a crop of cuttings that will make nice plants by bedding-out time. Plants from seed come true with very slight variation, but the normal type will be more uniformly preserved by means of cuttings.

Quinces.—H. Saunders.—You might try thorn and medlar stocks raised from seed; but we must confess that we have no experience in the working of the quince except as a stock, having always grown it on its own roots. This correspondent esteems the quince highly, but it does not thrive on its own roots in the part of Westmoreland from which he writes. He finds it do best on *Cydonia Japonica*. Can any of our readers suggest a suitable stock besides the *Cydonia* and the pear? We should be strongly inclined to give preference to the hawthorn for an experiment.

Cinerarias from Seed.—M. E. R.—Fill a seed-pan with a mixture consisting of equal parts fine loam from rotted turves, leaf-mould, and hotbed manure rotted to powder. The mixture need not be sifted, but must be well broken up, so that there are no lumps in it, and some of the finest portion must be spread on the top. Press it lightly to make an even surface, sprinkle the seed very thin, and cover it with a mere dusting of any fine earth. Lay a square of glass over the pan, and place it in a warm still corner of the greenhouse. As soon as the plants begin to peep through, take the glass off, and when they are large enough to handle pot them off separately. Any

light clean soil will serve for sowing *cineraria* seed, and it is best not to place it in a strong heat.

Peas.—R. B.—There is no better way than to open trenches two feet deep; put a good layer of manure at the bottom, and then fill up and sow. If peas were always treated this way, we should never hear of mildew as soon as hot dry weather sets in.

Bees.—R. W. P.—We have heard that Messrs. W. Cuthush and Son, of Highgate Nurseries, have made arrangements to supply swarms at 30s. each; this charge to include hive, hloek, and super. This is a very wise proceeding on the part of Messrs. Cuthush, and we wish them success in the undertaking, for the want intended to be supplied has been long felt. In fact there are thousands of persons who would keep bees if they did but know how to obtain swarms to begin with.

Purchase of Seeds, &c.—"Constant Subscriber" must be a very inconstant reader, not to know by this time that we never recommend traders for such things as *Primula*, *Calceolaria*, and *Cineraria* seed. Apply to any of the seedsmen who advertise in this work.

Names of Plants.—Amateur.—The white flower is *Spiraea prunifolia*; the silvery-leaved plant is not a *Centaurea*, but *Cineraria maritima*; the fern is the common Polypody, *Polypodium vulgare*. We cannot advise you on the subject of emigrating, not knowing enough of your objects, circumstances, &c.; but we would suggest that it would be well for you to make enquiries respecting Queensland.—T. B.—No. 1 is *Spiraea prunifolia*; No. 2, *Deutzia gracilis*; No. 3, not in flower, but looks like *Sedum denticulatum*.

Everlastings and Grasses.—G. Smith.—The following, six of each, will be found of great service for winter bouquets, and are, moreover, most beautiful plants for the garden. Everlastings: *Acroclonium roseum*, *Helichrysum bracteatum*, *Helichrysum compositum*, *Ammobium alatum*, *Rhodanthe maculata*, *Waitia acuminata*. Grasses: *Stipa pennata*, *Bryza maxima*, *Agrostis pulchella*, *Agrostis nebulosa*, *Milium multiflorum*, *Eragrostis elegans*. You may perhaps succeed in striking cuttings of *Lobelia*s now on a top shelf with a bell-glass over them, but it will be slow work at the best without heat in some way, and you must not expect an early bloom. It would be almost better to sow a pinch of seed, and cover the pan with a square of glass, and put the pan on the top shelf. If a pan of seeds and a pan of cuttings were both started on the same day at this time of year, without the aid of artificial heat, we should expect the seedling plants to quite outstrip the cuttings before June; certainly self-sown seedlings, which abound in every garden, flower freely by the beginning of July.

Furnishing a Flower Stand.—Brum.—You cannot do better for furnishing the lower part of the stand, where there is a defect of light, than provide a few of the most robust hardy or nearly hardy ferns. You do not say what conveniences you have for growing plants, and therefore we can only suggest common *Hartstongue*, common *Lastrea*, and *Polystichum aculeatum*. Many greenhouse ferns would also suit well if you can help them through the winter, such as *Asplenium huliferum*, and *Pteris flabellata*.

HOW TO FORECAST THE WEATHER.—The following were among the maxims of the Meteorological Department in determining their forecasts. They are selected and rearranged from the digest made by the committee and appended to their report. It is to be hoped that meteorologists will both amend and add to this imperfect list, on which the committee remark: "Some of these maxims rank among the long-established truths of meteorological science, while others are clearly open to considerable doubt." 1. Atmospheric or air currents. In the latitude of the British Isles, and of north-western Europe generally, there are two, and only two essentially different atmospheric currents—one S.W., running from the equator towards the pole, and the other N.E.; running from the pole to the equator. The characteristics of the S.W. current lie not only in its general direction, but in its quality; for it is light, warm, and moist. In other words, its presence is shown by a low barometer, by a high thermometer, and by a small difference between the wet and dry bulb thermometers. The characteristics of the N.E. current, in a similar way, lie not only in its general direction, but also in its quality, for it is heavy, cold, and dry. In other words, its presence is shown by a high barometer, by a low thermometer, and by a large difference between the wet and dry bulb thermometers. The weather in this country depends almost wholly on the conflict, combination, alternate preponderance, or alternate succession, of portions of these opposite currents. Not only is the actual presence of either current shown by its corresponding instrumental tests, but an approaching change from one current to the other is foretold by the instruments beginning to change their indications. (Hence, as changes of weather must necessarily commence at some places earlier than at others, there is great advantage in receiving by telegraph information of the state of the weather, and of the instruments at many stations.) When S.W. and N.E. currents alternately prevail, the wind blowing over any station has a strong tendency to "veer," and not to "back." That is to say, the general order of the changes is N.E.S.W.N., and not N.W.S.E.N. 2. Weather changes. Gradual changes of the weather are shown by a gradual rise or fall of the barometer; for instance, at the rate of one hundredth of an inch in an hour. Great differences of temperature at the same, or adjacent places, are followed by changes of weather. Rapid changes of all kinds commonly presage violent atmospheric commotion. The result of all rapid changes in the weather, or in any of the instrumental indications, is brief in duration; whilst that of a gradual change is more durable. 3. Direction and force of wind. The wind usually blows from a region where the barometer is high to one where the barometer is low. The force of the wind is usually proportionate to the differences of barometric pressure at adjacent places. In other words, the greater the barometric tension the stronger the wind. Strong winds are far more steady in duration than light or moderate winds. 4. Gales or storms. Great storms are frequently preceded by excessive meteorological disturbance, as by heavy falls of rain or snow, by much lightning, by unusual cold, or excessive heat. Sea disturbance often precedes gales. Great storms are usually shown by a fall of the barometer exceeding one inch in twenty-four hours, or by a fall of nearly one-tenth of an inch in an hour. The barometer frequently continues high during a N.E. storm, but there is a fall of the thermometer. Most of our violent storms travel bodily in a N.E. direction. 5. Calms. Calms may be due to either of three different states of weather—1, the appulse of winds coming together from opposite quarters; 2, the divergence of winds going towards opposite quarters; 3, the centre of cyclonic storms. The barometer rises in 1, and sinks in 2. It is extremely low in 3. When the S.W. and N.E. currents intermingle, water is precipitated in the form of cloud, rain, or snow.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.			M. sup. avg. of 43 yrs. Growth	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D	
			rises.	sets.	rises.	sets.	rises.	sets.	B.	T.	R.						
1867			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.				
10	S	1st Sunday in Lent	6 28	5 53	8 28	a. m.	11 1	p. m.	30-29	30-28	44	30	37-0	-00	40-5	Bletia patula, o Jamaica	1867
11	M	Imposition of income Tax, 1842	6 20	5 55	8 4	"	"	"	30-29	30-15	45	36	40-5	-00	40-6	Lycaste cruenta, M Guatemala	10
12	W	Queen Anne touched for the Evil, 1712	6 23	5 57	9 47	"	"	0 12	29-97	29-53	49	28	38-5	-00	41-0	Cattleya amethystoglossa, M Brazil	12
13	T	Liverpool (St George's Hall) Hyemnth Show	6 21	5 54	10 36	"	"	1 21	29-52	29-51	46	15	30-5	-00	41-3	C. Mossii, M La Guay.	13
14	Th	Victor Emmanuel born, 1820	6 18	6 0	11 34	"	"	2 21	29-51	29-42	45	18	31-5	-00	41-5	C. M. aurantiaca, M Brazil	14
15	F	Length of day, 11h. 4m.	6 16	6 2	"	"	"	3 14	29-53	29-21	52	34	43-0	-01	41-7	C. M. superba, M "	15
16	S	Prince Imperial born, 1856	6 13	6 4	1 49	p. m.	3 59	"	29-46	29-13	54	36	45 0	-20	41-8	Chylis aurea, I Venezuela	16

The Gardener's Magazine.

SATURDAY, MARCH 9, 1867.

HORTICULTURE WILL HAVE A FULLER ILLUSTRATION AT THE FRENCH EXHIBITION than it has ever received in connection with any great international gathering. The building itself, enormous and highly convenient as it is, if not striking or beautiful externally, would have afforded interest enough to attract "all the world" to *la ville de Paris*; but the French, with a taste very much superior to our own, have surrounded the building with a beautiful garden and park, dotted with minor buildings representing the dwelling-houses or some characteristic buildings of every country, and tastefully planted in almost every part. The whole of the vast space surrounding the building will be a garden to some extent, while a large portion of the grounds will be so in quite a special degree. In the centre of the building there will be a geometrical garden; all the rest will be laid out in the English or natural style, at which the French have of late years become no mean proficient. The ground will be very extensively planted in all directions with choice shrubs, brought at great expense from many parts of the country; and when the summer arrives an immense number of those fine sub-tropical plants in the culture of which the Parisian gardeners are so famous will be planted, so that every visitor to the Exhibition will have the advantage of seeing this phase of gardening fully represented. Everywhere the grass has room to spread itself out; it will be kept as green as a British meadow on May-day, and in the keeping of grass, even in the heart of Paris, nothing seen elsewhere can approach the result attained by the French gardeners. Thus the visitor to the Exhibition can step from the crowds and bustle, and, we may add, weariness, of the great mart to the cooling and refreshing influences of a delightful garden.

This garden, while beautiful as a whole, and which, even in a half prepared state, has left a good impression upon all visitors, will have an especial interest for horticulturists. It will be to a large extent an outdoor exhibition of gardening, a phase of exhibition work which, while it cannot present to us beauty and perfect flush of health, as we see in our one-day displays, will yet be highly interesting to all real horticulturists. In it, among many other objects of interest, will be arrayed specimens of the various modes of fruit-tree culture pursued in France; and many of our readers know how highly the French excel not only in the beautiful training of a tree, but also as fruit producers. Some of the handsomest specimens of both young and old trees have been transferred bodily to the grounds of the Exhibition, and there trained against the surrounding wall of the park; while the small standard and other forms, which some people in England take credit for "originating," but which have been seen for generations in humble French gardens, are represented in full. Thus, with a full display of "sub-tropical gardening" and fruit-tree culture, there can hardly be any lack of interest, especially when it is remembered that M. Barillet, the chief of the gardens of *la ville de Paris*, is the manager also of all the gardening round the Exhibition. But there will be many other objects of interest in the open air in this way—shrubs, trees, and in fact most branches of outdoor gardening will be represented; so that if no one grand and beautiful effect, like that seen at South Kensington last May, be produced, the exhibition will quite make up for the want by the great variety of interest displayed. But what it will prove as regards immediate floral display can only be learnt during April and May. There is a large number of beautiful curvilinear conservatories being finished in the grounds, which will not only serve as receptacles for the tender-plant collections, from tall palms to orchids, but also to illustrate the most advanced and approved modes of heating, ventilating, and constructing hothouses. In fact, in this way alone the exhibition will prove unique, and in nearly all the houses there are peculiarities of structure and fitting which are new, if not instructive, to the British horticulturist. There are to be ponds for aquatic plants, and winding rivulets and wide-spreading pieces of water near the cascades, or rather near the elevation for the enormous marine and fresh-water aquaria. These are so arranged that they can be viewed on all sides by the visitor, *i. e.*, he can go below into a large and tortuous stalactite cavern, and there looking up see the "water snakes," "and as they rear, the elfish light fall No. 97, NEW SERIES.—VOL. X.

off in hoary flakes." Perhaps, for there is no fish in either yet; but when there is, the curious in such can satisfy themselves thoroughly by walking round an elevated walk, and looking in on the fish; by descending where wide side openings reveal all their movements in that way; and by descending deeper into the stalactite cavern the inhabitants of the deep are seen gliding overhead; while the smaller inhabitants of the deep, and the very useful inhabitants of the river, will also be fully and ingeniously represented, as will the loved *huitre*. All these objects of interest are placed in the centre of the special horticultural department, and when completed they will certainly lend it much interest.

But we must not anticipate. Doubtless numbers of our readers will see the Exhibition, and in any case it will suffice to describe it when completed and opened; but it is not too soon to ask ourselves, Have we anything to learn from this display? Even our intelligent British gardener too frequently thinks

"There aint no light in natur' when he winks;"

and we may venture to predict that much of this insular vanity—and we might say insular ignorance—will vanish after a visit to the French Exhibition, and that even a glance at the way the public gardens, avenues, parks, &c., are kept and planted in summer would remove a great deal of it. It is quite a common thing to hear English gardeners disparaging their French contemporaries; but we would ask such, Are you not deeply indebted to them? Did not sub-tropical gardening, which is likely to have such a good influence on British horticulture, by forcing the importance of verdure and grace on flower-gardeners, if in no other way, originate with French gardeners? Undoubtedly it did, and it is carried on to such an immense extent there, that such plants as the finest kinds of *Cannas*, *Aralia papyrifera*, with hundreds and hundreds of species of fine-leaved plants, are planted out by the thousand, and propagated and preserved at less cost than the bedding plants in a British garden, as may be seen in the magnificent propagating establishment or nursery, where all those sub-tropical plants are raised and preserved over winter, in the Avenue d'Eylau at Passy. This establishment we should particularly advise any readers who go over to have a peep at, as from it nearly three million plants are annually supplied to the various gardens, squares, avenues, &c. about Paris, at a cost of less than a farthing a-piece; and among the "bedding plants" are included in the calculation many species of the rarest exotics and finest palms. And observe; all the gardens that belong to the state—such as those of the Luxembourg, the Jardin des Plantes, the Tuileries, and others—are not supplied from this establishment, but propagate and furnish their own stock. And the spring gardening bedding system, so extensively developed at Cliveden and other places of late years, doubtless many of our readers think of British origination; but not so; like most of our plays, it is merely adapted from the French, its chief practitioner in this country having first seen it in Parisian gardens. And so of the dwarf fruit-tree system, upon which Englishmen have written as if they had invented it, and which most gardeners think a new thing, whereas it has, as we have before remarked, been practised for generations in humble French gardens. It is true they do not grow such perfect specimens of azaleas and geraniums as are seen at our shows, although there is very good plant-growing in France; but then, on the other hand, they are far before us in tasteful disposition and arrangement of summer plants. They make a great stride towards true interest in gardens by having different arrangements and combinations, and even, if possible, different plants, in every square, &c. The way they introduce healthy perfect trees, and an abundance of them, into the heart of Paris, and plant them along every new street and boulevard, is most creditable; every young tree having a wide circular grating at its base to prevent the soil from being hardened, and to allow of water being given when required; so that in a few years' time Paris will be more beautified by vegetation than any city in Europe.

The Billancourt section of the Exhibition, or in other words the island of Billancourt on the Seine, where the various operations of agriculture, and the various modes of cropping will be exhibited, will of course be of interest to horticulturists, and should be seen by all such who have the opportunity. This island can be reached in twenty-five minutes from the Exhibition, by road or rail, or by the river steamers. It comprises about fifty acres of medium soil, which area will be divided into several districts, and in these will be arranged specimens of many modes of husbandry and cropping.

One division will be devoted to the best descriptions of agricultural machinery, and arranged under sheds, with models especially of improved agricultural buildings of all kinds; and not only agricultural buildings, but others, such as poultry-houses, and other matters that are usually associated with the farmyard and the country-house. The various modes of manufacturing substances derived from roots, the produce of the farm (such as sugar and starch), will also be illustrated, while whisky, &c., will not be omitted, in case a highly polished and civilized community should forget the art of making it; dairy produce, bee-feeding and rearing, and improved beehives; seed-crushing, wine-making, &c.—these will be all represented. Here also will be shown many of the smaller operations in connection with husbandry, such as wheelwrighting, coopering, the blacksmith's shop, the charcoal burner; brick, drain, and tile making, &c.; the preparation of bones, crushing of coprolites, manufacture of manures, preparation of artificial manures, and the disinfection of animal matters intended for manure. Another district will be devoted to machinery at work in the culture of the soil—ploughs, harrows, &c., *ad lib.*; while the farming operations of each month are intended to be represented as closely as possible on a small scale. Another district will exhibit the different kinds of pasture, with samples of the best varieties of native and exotic grasses; water meadows, irrigation, liquid manuring, draining; while full provision is made for the trial of machinery, from hay-making to clod-crushing. Lastly, a division will be apportioned to the culture of root crops, from beets to potatoes—to the exhibition of market-garden produce, fruit, flower, and kitchen gardens, nursery grounds and shrubberies; strawberry beds, roseries, cress beds, &c. A most interesting island indeed, if all that is proposed be carried out. With such attractions, let us hope that prices will not be so high in Paris as to exclude all but the wealthy; for, however desirable it may be to see those things, we would rather advise our readers to stay at home than to go, if prices reach the exorbitant rates it is supposed they will in Paris during the great season of 1867. And to those who cannot go if such be the case, and also to those to whom it is not very necessary to see this great meeting for professional or other purposes, we say wait for another year, and then you can see Paris, and anything that is done in it, without being crowded and jammed in every public building you desire to see, and get everything you want at a reasonable rate.

MR. HULLETT HAS CREATED A SENSATION by his offer of seeds of the Sugar-cane Grass, which he described as "perfectly hardy, and bearing from six to eight times the quantity [of grain] per acre that wheat does; but the bread made from it is more nourishing," and "the leaves and shoots are invaluable as food for cattle." Some of the recipients of the seeds are anxious to see in their "mind's eye" the plant about which such startling tales are told. Now we confess we do not know it, for there is no such species in the books or herbaria as *Sorghum tartaricum*, which is the name under which the seeds are offered. But, if guessing may be allowed to those who profess to know something about plants, we should guess the plant to be *Sorghum saccharatum*, which was introduced to cultivation as a fodder plant about ten years since, and which proved a failure, and is now scarcely known except as an ornamental grass, which is occasionally grown in gardens, and is considerably less ornamental than the common maize. That it is not new is proved by the fact that it was described and figured in the *Floral World* in 1858; that it is not likely to be of much use may be conjectured from the fact that the species of *Sorghum* have never been known to ripen seed in England.

Mr. Hullett may of course be in possession of a cereal that no one else has seen or heard of. Should this prove to be the case, we shall, at the first opportunity that occurs for becoming acquainted with the facts, invite our readers to pay to that gentleman all the honour that is his due, especially if before uttering any laudation we can but taste a loaf of bread made from English grown grain of *Sorghum tartaricum*. There are several other interesting subjects that Mr. Hullett professes to be in possession of that we are anxious to know more about. He has, by private letters, offered to some of our friends plants that must be truly wonderful, if they at all bear out the descriptions he furnishes of them. One, for example, a passion-flower, produces fruits superior to pine-apples. Another produces fruits of so gigantic a size that within them are found many seeds "as big as a child's head;" and, to avoid making a catalogue of the Hullettian museum, there is another passion flower the fruits of which are black, delicious, and when boiled taste like green peas! We have not met with any one who has seen these wonders; we have not been able to discover in any works of authority figures or descriptions of them, and we therefore draw upon our imaginations respecting their wonderful qualities, and wait for the day when they shall be fully revealed. Some of our friends have done more; they have drawn upon their bankers, and purchased these plants at one and two guineas each; so, if we have a little patience, we may see the fruits of them, or we may not, for everything in the future is uncertain.

We can call to mind that some time since Mr. Hullett was contributing papers on tropical fruits to a contemporary. He then generously offered publicly to give to microscopists samples of the pollen of *Monstera deliciosa*; and those who accepted the pollen were favoured with private offers of these passion-flowers and big-as-a-child's-head-seed-producing-fruits. In making the offer of the Chinese grass, Mr. Hullett underrated the demands that would result, and there has been a great outcry from correspondents who had to wait for seeds. But Mr. Hullett appears to have satisfied all claimants at last; and, amongst the many persons who have defended him, one testifies to having received the pollen of *Monstera deliciosa*,—a proof that Mr. Hullett really did possess the plant, and was generous in respect of the pollen. The name of this gentleman is Walker.

OZONE IS A MYSTERY; the best that at present is known of it is that it is a form of oxygen; a sort of oxydized oxygen, and possessed of potent powers in the reduction of putrefactive substances, and in promoting the vigour of animal life. The principal defect of the atmosphere of a great town as compared with the country is deficiency of ozone. Where this mysterious gas abounds, and quickly stains the test-papers used to detect its presence, human life is not only possible but agreeable; for ozone makes the cheek ruddy, the appetite brisk, and nerve and muscle alike healthy in tone and tension. Professor Daubeny contributes a trifle of some importance to our at present scanty knowledge of ozone. He has conducted a series of experiments, the result of which is the discovery that as plants decompose the carbonic acid of the atmosphere, and appropriate the carbon in building up their tissues, they set free ozone. This operation takes place in connection with the action of actinic light on chlorophyll, and is therefore the normal result of the normal effect of sunlight upon plants. Here, then, is a new argument in favour of beautifying all our towns and cities with trees and other forms of vegetation suited to the few open spaces that exist in urban districts; and it is rendered additionally probable that the reduction of the average term of human life in towns, as compared with the average term of the country, is to be attributed to the absence of vegetation, which not only liberates oxygen, the life-giver, but ozone, the poison destroyer.

WONDERS WILL NEVER CEASE.—A contemporary informs us that M. Bossin is quite convinced that there is a great advantage in planting early potatoes as contrasted with late ones. Many besides M. Bossin are equally convinced, and have been convinced a considerable time. For example, in the "Garden Oracle" since 1859 the public have been annually assured that potatoes ripening off before August are rarely or never touched by disease; that the disease does not occur until heavy rains, accompanied with a low temperature, occur; and that the difference between early and late potatoes in a year of disease will sometimes be a whole crop of fine tubers as compared with a field of rottenness. We congratulate M. Bossin on his conversion. Better late than never.

BROCCOLI CULTURE.

The esteem in which the broccoli is held does not seem to ensure it so extensive a cultivation as might be expected. In market gardens and gentlemen's places it is well done, and grown in quantity, but a great many amateurs who have small gardens, and a great many gardeners in single-handed places, fight shy of broccoli, as if it wanted some sort of magic, which it don't, for it is easy enough to grow plenty to make a better dish for the table than any other of the ordinary greens that are in use in autumn and winter. As far back as I can remember—and my knowledge goes a long way now—we used to grow broccoli as well as in the present day, and I am half inclined to believe we had as good sorts, though I hear from London now and then of great things in that way. I suppose fashion governs the seed trade as much as it governs our shoes and stockings and hair-cutting; and we don't always know when we are under the spell of fashion, but think we are governed by necessity. I remember when I first thought about getting on in the gardening way—if I only go back as far as 1811—that we used to fasten our shoes and breeches with great buckles that were no use at all, yet they appeared to be quite necessary. It was the height of the fashion then to appear in a tight fit, and terrible high top-boots; and if a real dandy had let all the false teeth fall out of his mouth, he could not have stooped to pick them up again, without —; but no matter. I remember, too, the extreme gentility of pantaloons and spatter-dashes, which were a sort of short ankle leggings. There were no trousers, or Wellington or Blucher boots then, and perhaps you will say there was no comfort, and really I think you will speak the truth in that. The most amusing of my past remembrances of this sort is that which occurs when I see nicely-dressed boys and girls of the present day, who, whatever harm fashion may be doing to them, are at least so clothed that they have the use of their limbs; and I see a far better race growing up than fashion allowed in my early days. Then "the breeching" (as it was called) of a growing lad was an awful business. He was thrust into top-boots and tights with kneec buckles and buttons, and a cloak over all that made him look like Don Juan; and I am sure he was in great part encouraged to play the part of that objectionable character by the example set him, and even by the clothes he wore. I remember these things with perhaps the greater force because the growing of broccoli for Covent Garden Market was one of the earliest bits of practice I had; and the London fashions, both in dress and in vegetables, burst upon my simple mind simultaneously. I learnt at the same time how kind and free and accommodating is nature, for we used to work up for market even to a day; and also how harsh, and tyrannous, and crushing is fashion. Yes, I soon learnt that to grow a plant we must humour its constitution; but to clothe man, that was not necessary; indeed it seemed quite a necessary thing to destroy the constitution, and make him a cripple if possible. When I came to London, the doings at the market gardens were the chief objects of my curiosity. I had been saving a little money (and it was but little indeed) to enable me to have something in my pocket on first entering the wonderful town. About 2 a.m. on a severe frosty morning in February, I picked up my traps and started. By Jove, how it did blow and snow before midday! But on I went, full of heart and hope, ready to weather any storm, and with my mind bent

on market gardening. Crossing Wimbledon Common was like being the sole actor in an incantation scene. It was wild, and bleak, and dangerous; and there stood an old gibbet and chains and irons clanking in the howling wind. Glad was I when I reached Chelsea Common (it would puzzle you to find it now), which was a trifle less dreary; and at last finished my day by getting a job at a recently made market garden. Here then I was in luck at last, and I began to study the system which was then thought to be perfection, not knowing at all how much I had to learn, and how I should have to go on learning to the very end of my days. I began at ten shillings a week, and left off at thirty shillings, which was a large sum then for garden wages, and I went through the whole of the work from that of labourer till I became entire manager. At that time there were market gardens, nurseries, and florists' gardens right and left all the way from Pimlico to Putney Bridge; I got acquainted with most of them, and with Covent Garden too, where I saw better things than I had been used to even in good private places in the country, as is the case at the present day. My master died after I had served him five years, and I found a berth in a larger garden, and I began to look out very sharp for new ideas, and for all the nice points in market practice. Early in life I learnt that the wise man is his own schoolmaster, and this motto I leave to the thousands of young gardeners who read the magazine: if they want to learn and rise, they must be always at school, whether in the potting shed, or on the potato ground, or banking up the furnace fires, and be their own schoolmasters all the while. After twelve years of hard work, and for a good part of the time having the entire management of extensive market gardens where forcing and every other department of market practice was carried on in a most spirited manner, I began to think I had had enough of it, and longed to make a change. In due time I succeeded in this, and I have not been at much loss to know how to grow good fruits, vegetables, and salads all my life since; and this remark brings me back to the broccoli, from which I have strayed a bit, and hope my rambling reminiscences may not be dull, as at my time of life, and after so much activity in horticulture, I count upon a sort of privilege to gossip a bit, especially if I can say a word that may be useful to the young men.

The sorts of broccoli in use in my early days were an *Early White*, a *Late White*; an *Early Purple*, a *Late Purple*; a large growing *Brimstone* variety, and a good *Purple Sprouting*, as nearly as possible the same sort as is grown now; indeed I can see no difference between a good sample of *Purple Sprouting* of the present day and that which was grown in 1811, so the new varieties of this class of the past fifty years are not of much consequence, except to the vendors of them who get a larger price by selling an old variety under a new name. I used to see the sorts named above in all the market gardens about London. They were grown on deeply trenched and well-manured land. There was a large market gardener of those days who kept a fruit shop in Covent Garden, and another in Piccadilly—a man who was master of everything he touched, whether fruits, vegetables, or salads. His name was Grange, and in every seed catalogue of the present day you find *Grange's Broccoli*, a capital early white sort, which he used to grow well, and which he bred from the common market white, and improved by rendering it handsomer and earlier. I say you see this in the catalogues now, but I believe it run out years ago, and was actually lost, but strains more or less like it bear the name, and some of them perhaps are as good as the original. It is an argument in favour of the new sorts that the old ones tend to degenerate, so that the races require now and then a new spurt to give distinctness of character and keep up high quality. The best successor to Grange's *Early White*, of late years, is Snow's *Early White*, which for many years was a most useful autumn and winter broccoli. This, like Grange's, has degenerated, and after taking every pains to get it true, I have had it come all sorts of shapes, sizes, and colours—frothy, dirty, and cankered, so that I have given it up altogether. The *Malta White* is still a good one for early spring; the true sort presses its leaves close in upon the flower, protecting it completely. This, however, sometimes disappoints, owing to spurious seed being sent out under its name. *Osborn's Dwarf* is a neat little delicate thing with me, but throwing its heart so much open that if not looked after pretty sharp, every slight morning frost discolours and disfigures it. Of all the really useful white varieties I am acquainted with, the *Cornish* is, when true, the masterpiece both in quality of flower and in accommodating habit of growth, for by making three little sowings from the first week in April till the first week in June, there may be secured from Christmas to the May following a succession of close handsome heads, white as a curd, and equal every way to cauliflowers. This variety, too, has plenty of heart leaves to protect it from bad weather, and is so very hardy that ordinary frosts neither injure nor discolour it. It is a common fault of broccolis that are required to stand the winter, that frost and wet completely spoil them, and therefore such sorts should not be grown. They might

do very well in the south of Europe, but are no use in this fitful clime. In fact, with true seed of the *Cornish Broccoli*, and one good variety of *Cauliflower*, a master of his business is set up for supplies of handsome heads the whole year round, and the man who is not master of his business will not be assisted by selecting a great many sorts, for the more sorts the more perplexity. It strikes me that some of the people who grow the *Cornish* kind in Cornwall, and who keep it true, would do well to send it out direct with some sort of guarantee; for if people send to their seedsmen for it, they are never sure of obtaining it in true character. The *Early Purple Cape* is a most useful kind, and one which I strongly recommend to the cultivator who can enjoy its mild, delicate, buttery flavour without being shocked at its colour. Since I have been in great places, I have been obliged to give it up through the prejudices of the cooks, who will only send to table the whitest of broccolis, and who think more of appearance than the flavour and wholesomeness of their dishes. So with the old hardy *Purple Sprouting*; it is very productive and hardy, and first-rate for large consumers, but I do not grow it; the cooks beat me, and I give in: the head gardener should never be seen fighting with the cook. If we could only cook the cooks, or just mould them to a reasonable shape in their tastes and fancies, we should be happy; but it is amongst the most notable of the many imperfections of the present state of society, that the cooks do not study how to do justice to the skill of the gardener, but the gardener is compelled to humour the whim of the cooks. Ah! I know of many a prime dish that a lord would leap at, but which dare not be mentioned, because the cooks would proceed to extremities, and some of us would be hanged on the nearest Judas tree, or stamped down in our muck-pits by the delicate pressure of feminine fifteen stone. If you should ever be in want of a subject—which I suppose impossible—I hope you will defend the gardeners against the cooks, or could you not by a stroke of the pen abolish the cooks altogether?—that would be the threshold of the millennium.

As to growing broccoli, it is easy enough. But I will tell you a point that the experience of years has taught me, and that is to *have it in good ground from the very first*. Some gardeners think any starved bit of ground good enough for a seed-bed, and the consequence is that the plants are in a poor state all through their infancy, and they never thoroughly recover, no matter how rich the soil into which they are transplanted. I have noticed that plants put out from a poor and neglected seed-bed into deeply trenched and abundantly manured soil, gave very good heads, but those from a mellow, nourishing, and cleanly kept seed-bed were far in advance of them, showing that broccolis, like children, should be well treated from the first, and that no good training in after-years will make amends for neglect in youth. Farmers are beginning to discover this, for the men who make money on fat cattle are those who feed liberally from the first, not those who buy lean cattle that have never known a land of plenty. These last never improve as they ought by good living; they swallow oilcake and corn and good hay, but make flesh so slowly that half the food is wasted on them. Oh, here is a lesson for all who are interested in the development of organic forms, whether animals or plants, and the end of it is that if we aim at perfection, we must teach, train, and feed well from the day of birth. Treat broccolis in this way, and you shall see that my advice is not at guess-work; I guess at nothing, and shall consider all this prosy talk as useful if in any one garden the cultivator succeeds in doubling the gross weight of his broccoli crop through the little hints I can offer him. I say, then, prepare a nice seed-bed, dig in plenty of thoroughly rotten dung, break the clods, and make the surface rather fine. Do not be in a hurry to sow the seed, because if it has to struggle for its life against east winds and morning frosts there will be loss instead of gain by early sowing; and, lastly, keep the plot well weeded, and at every opportunity prick out on to another well-prepared piece of ground the forwardest plants from every batch you sow.

As to soil, the broccoli is not at all particular, but it must have plenty of food. If you can't manure well, don't grow broccoli at all: it's a mockery of kitchen gardening. The private grower wants a succession, not a glut, therefore he should be always planting out a few from the beginning of June till the end of August, in ground deeply dug and heavily manured. It is a crop that comes in well as peas, spinach, beans, early potatoes, &c., &c., are taken off the ground, but I don't like to plant broccoli or cauliflower immediately after any kind of cabbage; it is bad practice. Some writers talk about giving broccoli liquid manure. Now I am not fastidious, but I protest against anything nasty being brought into such close relationship with the dinner-table. Confound it! let the broccoli have good ground, well manured, and there is no need of liquid manure. Those people who are for liquid manuring know nothing about the business at all. Why, to liquid manure broccolis in a proper manner would make every head cost half-a-crown near a town, perhaps five shillings in the country. Bah!

give liquid manure to pot plants, and to asparagus and seakale after the season's cutting is over, if you can afford it; but do not attempt to grow a crop of any kind up to the hour of cutting for table by such means: it is a sham crop, and the talking about it merely belongs to the class of fid-fads.

Sow the first broccolis in pans, in a frame or warm house in February, if early supplies are required. If not, begin to sow in the middle of March, and wait till the end of May to sow the main crop. A warm border out of doors is the proper place for the seed-bed after the 1st of March, and those sown earlier in frames must be pricked out on such a border when sufficiently advanced, preparatory to their final planting out. Sow a pinch of Walcheren at the end of May, and another pinch at the end of June, and you will see how these two sowings will serve you usefully. Never allow the seedlings to remain crowding one another, but prick them out to strengthen before final planting; this is far better than transferring them from the seed-bed to the places where they are to fruit. The two moves are better than one. When planting, handle them with care. Do not bruise the leaves or roots, and if any clubs are on the roots nick them off with the thumb-nail, and dust the roots with lime. As for the rest, any one who can grow a cabbage will see what to do, and it is no use my spinning out this paper; so I close by wishing success to all who read this for information, especially young gardeners.

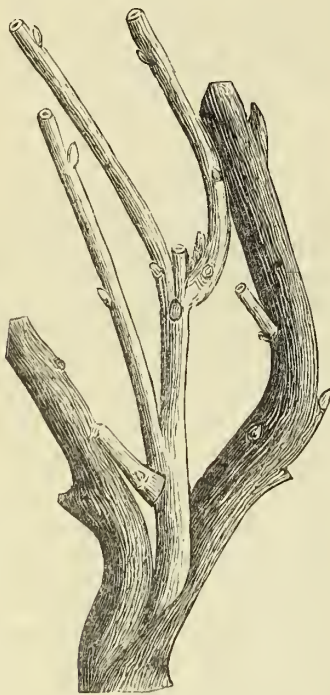
JAMES BARNES.

Bicton.

NEW MODE OF GRAFTING THE VINE.

The uncertainty and inconvenience of the customary mode of cleft-grafting the grape vine are known to all who have practised it, and the only course of practice that has been discovered tending to increased certainty is that which consists in cutting the stock close over to the ground, and covering the work with earth.

M. Auguste Boisselot, arboriculteur of Nantes, has sought a



Grefte Boisselot.

remedy for these inconveniences, and after many years of experiment has attained complete success.

Here is the method. He cleaves the stock between two bifurcations. It is no matter at what height of the stock this is done. Into the cleft he introduces the graft, cut as for ordinary cleft-grafting. It is then bound up with a strong ligature and grafting wax. He next binds the two branches of the bifurcation at two or three eyes above the cleft; and in the spring, as the sap rises, he pinches back the young shoots, causing thereby a flow of sap into the graft. He does not cut off the two stumps of the stock until the autumn following the insertion, by which time the graft is well developed.

The experiences of M. Boisselot have sufficiently demonstrated that this mode of grafting is nearly infallible. It offers the utmost advantages to the cultivator, especially as a graft can be inserted wherever there is a bifurcation, hence affording the power to place a number of grafts on the same stock. The sudden suppression by means of the knife of the whole of the vine above ground is always prejudicial to the root-action, and the "Grefte Boisselot" is free from this objection. Another important advantage attending it is that if the graft does not prosper, nothing is lost, for the branches of the bifurcation will produce their fruit the same, and

the stock will not suffer more than from the check to which it is subjected by the ordinary process of cutting down.

The horticultural journals of France have given publicity to this invention, and rendered justice to its inventor. The Imperial and Central Society of Horticulture of France has been occupied at several of its meetings in the consideration of the subject, and M. Duchartre, the secretary general, testified, at one of its recent meetings, that he had practised this new mode of grafting with success.

The "Grefte Boisselot" may be practised at every season of the year, but its inventor recommends—and with reason—that the autumn should be preferred, the best time of all being when the leaves of the vine begin to turn yellow.

We consider this invention as an immense service rendered to the culture of the vine. A diagram explanatory of the process is subjoined. It represents a graft made on the 6th of October 1864, and which commenced to grow in June, 1865.

Rue St. Maurice, Monplaisir, Lyons.

JEAN SISLEY.

A BED OF STOCKS.

The growing of Stocks is usually made a very mysterious matter by small pretenders in horticultural literature, as if it required familiarity with some cabala to become expert in the treatment of them. I can call to mind papers that I have read in my early days that I then thought masterpieces of logic and description, but which I now look upon as being vanities. Thus, I remember five-and-twenty years ago, an infallible rule for distinguishing between double and single stocks in the seed-leaf was made public. Of course it profited nobody; perhaps it befooled many; and certainly ensured for its author some degree of deserved contempt. No human being possesses discernment sufficient for distinguishing, while in the seed-leaf, the plants which are to produce single from those that are to produce double flowers, though the faculty would be worth hundreds of pounds annually to market growers, many of whom make a leading feature of stocks, for the simple reason that they sell well. Everywhere amongst writers there is a tendency to make much more of a subject of this sort than there is any need for, and the endeavour to make much leads them to propose complicated modes of procedure; and the unhappy followers of leaders of this sort constitute a large aggregate of people who can't do it. Stocks, asters, balsams, and indeed showy annual and biennial flowers generally, are rising in popular esteem; they are emerging from behind the cloud, or the cloud, rather, is clearing away,—the cloud that has for some years past obscured them; the cloud compounded of illusions respecting geraniums, verbenas, and calceolarias as the be-all and end-all of human hopes and labours in the flower garden. Consequently it is time once more to put people in the right track for growing these things; and as they are old friends of mine, and I can handle them as well as I have ever seen them handled, I shall first touch upon them to such an extent as the state of the case appears to render necessary, premising that, if these subjects are to be treated practically and truthfully, there is really very little to be said about them.

Now, for a bed of stocks, we want in the first place a piece of ground good enough for cauliflowers. It ought to be deeply dug and well manured, and if prepared before winter and left rough, will do far better than if made ready only just before the time of planting. This is not everywhere possible, especially in small gardens; so, if there is no ridged up piece ready now, go to work at once, lay out the bed for stocks, dig deep and manure liberally, and leave the surface rough. There is no mystery about this part of the business, and for practical gardeners it may be summed up thus—*plant in good ground.*

Stocks may be sown at any time during March and April, and again they may be sown in August to stand the winter. But there is some virtue in particular days, and my day to sow seed for a bed of spring-sown stocks is March 20th, and if the 20th happened to be a Sunday, I should sow on the 19th, and not one day earlier. As to quantities and sorts, every one must judge for himself: I shall say presently a word on the sorts I prefer. The sowing should be in pots or pans, in light rich soil. I use quite one half of melon-bed manure rotted to powder. Put the seed-pans in a cold frame and shnt up. Never start the seed in heat, and always give air, but with caution, from the moment the plants appear in the seed-pans. Give more and more air as the plants acquire strength; water moderately, and always in the early part of the day; and take care they do not get a touch of frost or have to endure a deluge of rain. In all this there is nothing more required than ordinary, and it may be summed up thus—*sow in cold frame on or about the 20th of March.*

The planting out is of course a very simple affair, and if you make it otherwise, you fail more or less. If you find in any book directions for pricking out to strengthen, and a series of transplantings to make the plants stubby, burn the book and follow me. First make the bed ready by spreading over it about three inches of

rotten manure (you remember that the bed has been already prepared by manuring and deep digging), and dig it all over half a spade deep or so; the object now being to make a nice mellow nourishing top crust, the importance of which you will see in a moment. The second week in April is soon enough to do this, and when done you may begin planting as weather and time will allow; and *ceteris paribus*, the earlier you plant the better. Draw drills on the surface of the bed just as in sowing any kind of small seeds, let the drills be rather deeper than usual, and plant in these drills rather thick, say two inches apart. Success turns upon the time at which this planting is done; and the golden rule should be to plant as soon as the plants are large enough to handle, and never to transplant afterwards. Let them crowd and starve in the seed-pans, or give them a series of transplantings, and the flowers will be trash, that is, as compared with such bouncing spikes as you will obtain by following these instructions. As to the operation, it may be useful to beginners to say that a bit of stick should be used to lift the plants out of the pans, and to pierce holes in the drills for them, and press the soil down when inserted. A quick workman would lift them out in little patches, and lay them towards the left hand. He would take a few in his left hand, and presenting one between finger and thumb, would at the same moment make a hole with the right hand, thrust the plant into it with the left hand, and close up with the right. The knack may soon be learnt, and this perhaps is enough said about it. The end of it all for the practical man is, *plant them out as small as possible, rather thick, and in drills a little below the general level.*

Management must depend on weather. In case of dreadful weather, such as is possible in this horrid clime, even so late as the middle of May, protect them from frost by some clean extemporaneous method. Twice I have lost plantations of stocks by sharp frosts occurring a few days after they were planted out. There is not much risk, but loss is possible. I know of nothing better than peasticks or prunings of evergreens laid over the bed, or stuck about it in a sloping manner. To sprinkle litter is very effectual, but messy. In case of hot dry weather, give water frequently. In case of nice warm showery weather, let them alone. Keep the ground clear of weeds, and occasionally have a turn at thinning, taking out weak-looking plants. Continue to thin as fast as they begin to crowd each other, and make it a rule to pull out all that show flower first, for the worst of them are the most precocious. In due time there will be a show of flower all over the bed, and the last thinning must be done. Now thin them to such distances as will assure a rich effect without undue crowding, and sort over the thinnings and pot a lot of the best, or plant them in the borders, or give them away. Having finished the thinning at the moment when there is a general glimmer of colour all over the bed, give a good soaking of liquid manure, and leave the rest to nature. This part of the story may be summed up thus—*keep the plantation clean, and promote a free growth, and thin out from time to time, destroying all those that first show flower.*

Now as to the sorts. I could scarcely wish for finer stocks than I had last year from a sample labelled "Scarlet ten-week," sent me by Messrs. E. G. Henderson. They were treated exactly according to the foregoing routine with one slight exception, and they flowered magnificently. They were planted a foot apart in the first instance, and all were allowed to flower; and there was about one in ten single, and the rest were double. I imagine this was English-saved seed; at all events, I should always prefer English seed of the *Scarlet ten-week*, and also of the *Scarlet, White, and Purple Intermediate*, and the noble old *Brompton*, which might be taken in hand for the sake of its bold appearance all the winter, now that winter furnishing of flower-beds is a subject that attracts a little attention. The *German dwarf Bouquet* and the *German large-flowering pyramidal* are fine, but no one needs so many colours as are offered, and I should be content with what are described as *flesh-colour, scarlet, blood-red, rose, and canary*. As for the blues, they too often produce a complaint bearing that name in the mind of the cultivator, for in any dozen of them we may find two nice purples and ten muddy mixtures of bad red, indigo, and brown. Some of the yellows are fine: the one I prefer is the *canary colour*; but the *wallflower-leaved sulphur* is beautiful both in its shiny leaves and its thumping, spiky, fragrant flowers. There are very few places in the world, or at least in England, where a fine display of first-rate stocks may be seen. But I know of one where, for several years past, the annual exhibition of stocks has been something surprising. Any of our friends who would like to see the result of masterly treatment of the stock, are advised to pay a visit at the proper time to the nursery of Mr. John Fraser, Lea-Bridge Road. It is a strange thing that the real country nurseries are frequented by amateurs during autumn and winter, when there is nothing to be seen, and buying is all that can be done; but in the height of summer, when the collections are in full splendour, visitors are few and far between. It is so here; and Mr. John Fraser grows these stocks therefore for his sole enjoyment only. The flower-shows are no doubt the principal cause of the

neglect by amateurs of nursery displays; but this particular display is so peculiar and so praiseworthy, that I hope many of our friends will make a note of it, and at the proper time break in upon Mr. Fraser's quiet and share a little of his joy. S. H.

HARDY WINTER GREENS.

As the Fearnought Cabbage and hybrid varieties of Brussels Sprouts sent out by us are likely to be more appreciated in future than they have yet been, owing to their extreme hardness, having stood the late severe frosts without the slightest injury, while many of the other Brassicas have been utterly destroyed, we would venture to throw out a hint which may prove advantageous to such of your readers as may wish to grow them. In many cases new vegetables are grown at great disadvantage, particularly the first year of their introduction, owing to the cultivator not being acquainted with the treatment they require, and are often discarded as being useless and unworthy of a place in the garden without further trial.

The Fearnought Cabbage if not sown early will produce heads as open as Coleworts, but if sown in the first or second week of March, and planted out in due time, it will have nice firm heads before the winter sets in, and will keep longer without bursting than any other of the Brassica tribe, remaining perfectly sound till the early summer cabbage comes in. Although when growing its appearance is coarse, the flavour is much superior to that of the early dwarf cabbages.

The Dalmeny Sprouts should also be sown as early as possible, or as soon as the ground will admit; if delayed too long, they will not form the cabbage heads on the top. The same treatment is also requisite for the successful cultivation of the Albert Sprouts and New Dwarf Sprouting Ulm Savoy.—STUART AND MEIN, Kelso, N.B.

[It is impossible to overrate the value of the *Dalmeny Sprouts, Albert Sprouts, and Fearnought Cabbage*. During the severe weather in January last they were less injured by the frost than any other winter greens, on a piece of ground where there were at least five-and-twenty sorts standing side by side. But here is an example of the influence of climate. Messrs. S. and M., of Kelso, advise early sowing. At Stoke Newington, near London, last year none of these were sown till quite the second week in April, and they hearted so early in the autumn that a considerable number lost their heads when we should have preferred to keep them. It is impossible to lay down rules generally applicable for seed-sowing; nevertheless Messrs. S. and M. are right in the main, for the best winter greens of all kinds are those from early sowings—that is to say, early for the district. We think that south of Nottingham the first week in April is early enough to sow them, but further north the date must be earlier in proportion to increase of latitude.—Ed.]

WELLINGTONIAS AT HOME.—The following, from a Californian paper, is worth quoting as a sample of the curiosities of the subject:—Dr. C. T. Jackson not long since visited the Mammoth Tree Grove, and estimated the height of the principal trees. Dr. Jackson also seems to have usurped the liberty of bestowing names upon these monarchs of the forest, after having ascertained their altitude. The following is an extract from his note-book, which was recently read before the California Academy of Natural Sciences:—

Names of the Trees.	Height in feet.	Circumference 6 feet above the roots.
T. Starr King	366	50
General Scott	327	45
General Jackson	320	42
Two Sentinels	315	..
Salem Witch	310	..
Trinity	308	48
Mother of the Forest	305	63
Wm. C. Bryant	305	40
Henry W. Beecher	291	45
Granite State	286	50
General Washington	284	52
Abraham Lincoln	281	44
Bay State	280	48
Old Kentucky	277	45
Empire State	275	50
Andrew Johnson	273	32
Daniel Webster	270	49
Mother and Son	269	64
Edward Everett	265	40
Pride of the Forest	260	50
Vermont	259	41
John Torrey	259	35
Arbor-vite Queen	258	31
Beauty of the Forest	258	..
Henry Clay	241	44
Asa Gray, nearly as high as the John Torrey.		

Cool, very cool! Years after the discovery of a great natural curiosity, a pensioned peripatetic visits this wonder of nature and bestows names right and left to suit his own notions of propriety. Himself a fanatic, he endeavours to transmit to posterity, by a durable memorial, the names of some of his fellow-fanatics. And this he attempts at the expense, not only of the truth, but the decency of history. The loftiest of these children of the woods he names T. Starr King. Whatever may have been the virtues of this distinguished deceased, the great majority of the American people have not yet been "educated up" to the belief that he was a greater man than George Washington; yet Dr. Jackson tilts him up to the head of the heap, and tries to fasten his name upon a tree 366 feet high, while he lets Mr. Washington down to only 284 feet in altitude. Now we think Washington was a better and a greater man than T. Starr King. There are many other men in America, and elsewhere, who think likewise. The former was a patriot in our opinion—the latter was a sectionalist, a fanatic, and nothing else. Our wonder is, that *Mister Jackson* did not degrade General Scott and General Jackson to a lower level in his expressed opinion, than that of Wm. C. Bryant and Henry Ward Beecher.

Calendar.

WORK FOR WEEK COMMENCING MARCH 9.

Kitchen Garden and Frame Ground.

SPINACH that has stood through the winter will now begin to grow, and will be useful. It will be well to take the first supplies by thinning the plants, so as to allow those that remain plenty of room to make large leaves. On good land they ought to be left at least a foot apart, and at this distance they will meet with the first impulse of growing weather. Sow a few rows of round-seeded spinach at once.

RHUBARB will be greatly benefited by heavy waterings with liquid manure during dry weather. Like all other docks, it likes moisture and good living. If new plantations are wanted for next season, now is the time to make them. Choose deep rich soil, trench and manure, and plant stout pieces of good varieties, with one plump eye to each; rub off any small side-eyes, and in dividing do as little damage to the roots as possible. If not gathered from at all this season, these plants will be very strong next spring; but if gathered from too soon they will never be strong.

ASPARAGUS beds to be lightly pointed over, and dressed with salt at the rate of a pound and a half to every square yard. Sow seed for new beds. On cold clays the soil may be greatly improved for asparagus by burning and returning the burnt clay in the proportion of one-fourth of the whole bulk. But if sand can be had in plenty at a cheap rate, it is best to use it liberally, and instead of digging the sand in on the piece marked out, set a labourer to draw off from various parts of the ground the surface soil to about an inch or so deep; this will be finely pulverised, and will break up with the sand and dung much better than the stubborn staple.

CELERY sown early will now require to be pricked out into boxes on a slight hotbed. The plan we have followed many years with the first crop is to pot them separately in sixty-sized pots, which they completely fill with roots by the time the weather will allow of their being planted out, and then they suffer no check. Sow now for the main crop.

PEAS AND BEANS to be earthed up as usual. If slugs abound, strew wood-ashes or soot along the rows. Sow again, if required, for succession. Knight's Dwarf Marrow and Taylor's Longpod beans are good sorts for a late supply.

POTATOES may be planted for main crops. The sets should be hard, dark-green; the sprouts short and purple; the soil in a dry state, and quite pulverulent; the sets trenched in—the dibber is a destroyer. Cover only three or four inches, so that the hoeing between and earthing-up will add to their depth, and cover them in the end with about seven inches of soil. In spite of the disease, potatoes are grown more extensively than ever, both as a farm and garden crop.

CABBAGE crops of all kinds to be cleared off the ground as soon as possible, to make room for spring produce. Brussels sprouts, savoys, Scotch kale, &c., will now begin to cumber the ground. If there is any fear of the supply running short till round spinach and other early vegetables come in, plant the best of the old stumps in a quarter by themselves, and they will furnish a few good gatherings. Otherwise consign them to the muck-pit, to rot into manure. See recent notes on this subject. Sow at once Rosette Colewort, Early York, and Sbilling's Queen, also Grange's White and Purple Broccoli, and London Market Broccoli.

WINTER GREENS.—A small sowing may be made this week of Brussels sprouts, Scotch kale, Chou de Milan, and savoy, for early winter supply.

HOTBEDS.—Among the necessary operations, the first is to get the material, and plenty of it; less than a two-horse load is of little use, and the more the better. Another important condition is to get it in time—not less than a fortnight before it is intended to make the bed or beds. If a large quantity is obtained, have it a month before making into beds; the reason of this is that fresh stable dung heats violently for a time, but soon cools if not turned over. It is of the first importance that the dung should be turned over with a fork once every four or five days for a fortnight at least. Where it presents any appearance of dryness, let it be wetted gently, not drenched with pails of water thrown on it, which would wash out much of its most useful property. The result of this preparation is, the material acquires a shortness and consistency adaptable to the maintenance of a steady, lasting heat, which would not be obtained without it. In forming hotbeds, it should be borne in mind that, for the culture of cucumbers, melons, and for any such purposes, nothing can surpass solid beds made in the true orthodox fashion; that is, measure the length and breadth of the frame, mark out the ground for the bed, allowing a foot each way beyond the measurement of the frame, to ensure the frame resting upon it, then drive a stake firmly into the ground at each corner; these will serve as a guide. Then proceed to build the bed, shaking the dung well out as it is laid, beating it down with the fork; and remember that this process should not be hurried over; if it takes longer to do a thing well than it does to do it anyhow, that time will be found to be well spent in the long-run; do the work carefully, if you would avoid the risk of failure at first starting. Having built up the bed (which, if done before April, should be about four feet high), it is not advisable to put on the frame the same day, as any sudden weight causes a sudden rise in the temperature; but in case of heavy rains, which would cool the bed considerably, it should be covered by some means, either with straw-litter, mats, or a tarpaulin. The second or third day the frame may be put on, the fourth day a bushel or so of soil may be put in a hill under the centre of each light, and the fifth or sixth day the seeds may be sown or the plants put in. If all has been managed as described, everything will go on satisfactorily.

Flower Garden.

VERBENA VENOSA is a very easy subject to manage, for it is only needful to keep the roots safe from frost from the time of taking up till now to secure any amount of stock of it. Put the roots into shallow boxes, and place them in a propagating heat at once.

TULIPS must now be looked over with a sharp eye, as their faults and failings will be to a great extent apparent. Canker must be removed by means of a sharp knife; water lodging in the hearts of the plants can be drawn out with a syringe on which is fixed a "nose" instead of a "rose," or by means of a pointed stick with a sponge on it. Weeds are beginning to show on the beds, and must be eradicated; and the whole surface must be loosened an inch and a half deep when the ground is dry and the sun shining.

HERBACEOUS LOBELIAS of the fulgens section are not thought much of

in the present day, and hence we only occasionally see them in borders, and then usually in tufts a foot high with short spikes of middling flowers. Even then they are beautiful, but mere weeds compared with the specimens the herbaceous growers of the old school used to produce, the stools measuring eighteen inches to two feet through, and the spikes, rising six feet high, like wands, adorned their whole length with loops of crimson silk or satin. We cannot in a calendar say much about specialities of cultivation, but allusions to any are perhaps quite fair. Those who have herbaceous Lobelias in store pots may now divide them, and pot them separately; they ought to fill their new pots with roots before being planted out.

ROCKERY.—This a good time to purchase ferns, alpines, &c., for rockeries, and generally speaking to make, mend, and improve rockeries. Plants inserted now will have time to get established in their positions before the heat of summer, which is generally very trying to plants in these structures, owing to the insufficiency of earth. There can be no difficulty about the kinds of plants suitable, as lists have been so frequently given in these pages; for the present it will be advisable to name the following as eminently serviceable: *Alyssum saxatile*, *Arabis albidia*, *Aubrieta purpurea*, *Corydalis lutea*, *Isolemonium cœruleum*, *Draba aizoides*, *Phlox setacea*, *subulata*, and *procumbens*; *Saponaria ocymoides* (snails are intensely fond of this pretty thing), *Campanula garganica* and *rotundifolia*, *Saxifragas* of sorts, the most important being *cymbalaria*, *crassifolia*, *hypnoides*, and *geraniifolia*; also, *Sedums* of sorts, the best being *acris*, *populifolium*, *glaucum*, *fabarum*, *aizoon*, and *deltoides*; also hardy *Staticeæ*, a few species of *Thymus*, the pretty *Dielytra eximia*, all the species and varieties of *Funkia*, and *Sempervivum*. The majority of these require a good body of soil to root into, or they will perish during the heat of the summer; and in every rockery there ought to be a body of soil, for there are not many plants that, like the houseleek, can live without it.

PANSIES in beds and borders to be spread out, and their long stems covered to within two inches of the point of each. These will all root and bloom finely. Sow seed in shallow pans filled with light rich compost.

AURICULAS to have plenty of water and air, but during driving rains it is best to keep them sheltered. Remove all secondary trusses, and thin the tips of the trusses left for blooming.

BOX EDGINGS made now will do far better than in autumn. If the weather is dry after planting, keep newly planted box well watered, as if a few plants die, the unightly gaps are not easily mended in the height of summer.

CARNATIONS AND PICOTEES.—The best time to repot them is in March. The compost should comprise two-thirds loam from rotted turfs, and one-third decomposed cow manure, with a little sand, if the loam does not partake of it. This should be prepared in November, and be frequently turned over during the winter, and be kept from heavy rains. The size of pot best to bloom them in is 12-inch. There should be plenty of drainage, viz., about two inches of broken crocks, over which spread a thin layer of coarse-riddled dry soil, and then fill the pots about two-thirds with the compost. The next thing is to turn out the plants carefully from the pots they were wintered in. Keep the hall entire, and remove at least an inch of the top soil from each. Aphides may be frequently found in concealment there, and the removal of the top soil clears them away. If the small fibres of the roots round the ball are matted very much, and injured by the frost, pare some of them lightly off with a sharp knife, being careful not to cut or disturb the strong roots or loosen the ball of the earth. Next place them erect in the centre, if for one plant; but if they are potted two or three in a pot, place them symmetrically as far from each other as from the side of the pot, leaving the plants about the same depth in the soil as they were during the winter. If they are largish in the leg or stem, an inch deeper will not be amiss; give them a shake by a lift and a gentle hit upon the ground or potting-bench, to settle the soil regularly in the pots, and to prevent its sinking much afterwards. Water them lightly, but enough to reach the bottom of the pots, and continue to do so regularly as they need it, early in the morning, till the end of May, and after that date water them in the evening and morning, if required. Having finished the potting, remove them to a sheltered situation, if you have it, where the wind cannot visit them too roughly, as violent winds do more injury to them than anything else they have to contend with. Those plants that require it may be secured to a small hazel twig, but as they increase in height, they should have sticks about four feet long, pointed at the end, to which the flowering shoots should be tied.

Fruit Garden and Orchard House.

GRAFTING is generally performed too soon. There is plenty of time yet for all who have delayed the operation, but the acions should have been taken some time since and heeled in. If scions are wanted, secure them at once, and give the preference to young hard shoots that have not yet started. The operation of grafting may be variously performed with the best prospect of success from the present time till the end of May. We suppose the reader to be acquainted with the principles of grafting, though perhaps not familiar with the practice. One important principle in grafting must always be borne in mind, and that is, that the graft and the stock must be nearly allied. If a graft of an apple be put on the roots of a beech, it will not grow: the beech and the apple are not related. A graft of a medlar put on the roots of a hawthorn will grow: the medlar and the thorn are related as members of the same family. It will suffice to say that there must be a botanical affinity between graft and stock: a pear may be grafted on a pear, a quince, or a thorn; an apple on an apple, a peach on a plum, &c., &c. As a rule, we choose for the stock a variety which makes roots freely, and for the graft a variety which produces a valuable fruit. It is essential that, as we cannot very well hasten the growth of the stock, we must retard the growth of the scion, because the stock should be in advance of the scion when the latter is put on. If the acion is in advance of the stock—that is, in a more forward state of growth—it is pretty sure to periah, because it will require sap to nourish its expanding leaves, and cannot have sap till a junction is effected; whereas if it is in arrear of the growth of the stock, it is likely to succeed if properly grafted, because the sap of the stock will bring about a junction before the graft requires nourishment, and by that time the stock will be able to supply it. The junction between graft and stock takes place on the outside, and therefore it is necessary that when the graft is put on it should fit the stock bark to bark—on both sides if possible, but on one side certainly. The more neatly the scion is fitted on the better, and the greater the extent of externally united surfaces the better, consistently with fitting on the scion so that it will remain firm in

its place with very little support. Therefore it is that whip, tongue, and saddle grafting are so largely practised; these are, in fact, the best methods for ordinary purposes, because the scion is so cut as to sit firmly in its place with the least risk of being shifted, and also because there is a great extent of corresponding portions of the inner bark of both scion and stock brought into contact. *Whip Grafting.*—Supposing apple grafts to be put on clean young stocks, cut the stocks as in fig. 1, and the scions as in fig. 2. That is to say, take one of the stocks and cut off its head to within six inches of the ground, leaving the top at a clean slant at an angle of about 50°, thus: Now remove from one side a slice, by a firm cut upwards, at least an inch and a half long, by which cut very little of the wood must be cut away, and the surface of the wound must be smooth and clean. The stock is now ready, and resembles fig. 1, where the dotted lines show a portion of the head which has been



Fig. 1.

removed. Now take the scion in the left hand, cut it square across at the lower end, and cut the end to a deep notch, short on one side and as long on the other as the side slice taken from the stock, and it will resemble fig. 2, where, as before, the dotted lines show the part that has been cut away. We have here nine buds beside the top bud. Five of these will be plenty, so cut off the top close over the bud at A, and it is ready. Fit it on in a clean and neat manner, as in fig. 3. Next take some broad strands of bast, and working from the centre of a length of bast, and using both hands to pass the two ends right and left, tie it firmly, but not tight enough to squeeze the bark, and either paint the tie with mastic or cover it with grafting clay, so as to form a small ball to hide the bast altogether, for the



Fig. 2.



Fig. 3.

exclusion of the atmosphere. Another method is to remove two inches or so of earth from the stem, and cut the stem over as close down to the roots as will leave sufficient of it above ground for convenience of making the proper incisions. Proceed as before, fit on the graft, tie with bast, and return the earth, and then heap up more earth in a cone over the tie, so as to leave the top of the graft peeping out of the hillock. This obviates the use of grafting clay; but as it is not so convenient to work close to the ground, the proper style of cutting should be acquired by cutting higher up. *Tongue Grafting.*—This mode is adapted for thicker stocks than any small graft will fit. Instead of the short side or shoulder on which the graft rests in fig. 3, there is a notch made with the chisel, and smoothed with the knife, in the top of the stock. To fit this we cut a graft as in fig. 4, where there is not only a similar deep notch, as in the former case, but a side slice has been taken off at A; this when turned round allows of a contact of the edges of the corresponding barks, as at A in fig. 5, where the graft is put on, and is ready to be tied. Sometimes, however, there is no need to take the slice from the scion as at A in fig. 4, but it may be cut as in the first example, and as shown in fig. 6, which has a very long tongue, and if well put on will take quickly and prove a strong junction. *Shoulder Grafting* is a variation of the tongue as in fig. 7.

GRAFTING MASTICS.—In order to protect the parts of a graft from the action of the atmosphere, and other things likely to injure them, various mastics are used; one kind, known as *Saint Fiacre's Ointment*, is chiefly composed of clay. Take strong adhesive loam or clay, and knead it to



Fig. 4.

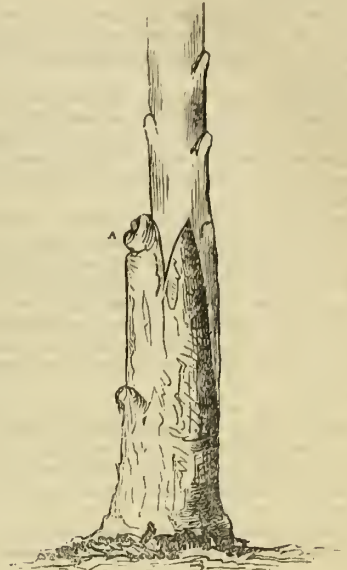


Fig. 5.

the consistency of soft-soap. Take also some horse droppings, and rub them well through a riddle of half-inch mesh. Mix the two ingredients with fresh cow-dung, all in equal parts, and knead till of a uniform consistency. When grafting, the operator should have at hand a vessel full of finely-riddled ashes, and after the clay is bound round the scion, the hands should be dipped in the ashes; this will enable the operator to give the whole a neat finish. This clay mastic has the inconvenience of being liable to be washed away by heavy showers, and of cracking when very dry, by which means it ceases to be a sufficient protection to the tender graft. When used upon apple trees it is likely to harbour insects, which of course prove hurtful to the graft, and endanger its success. Grafting wax possesses none of these inconveniences. There are several sorts, some of which are used cold and some hot. Most of the cold mastics are in the form of a soft paste, and have the unpleasant inconvenience of sticking to the fingers of the operator. Those which are used hot are therefore generally preferred, notwithstanding the extra trouble of heating them. They should be used just warm enough to be liquid, but care should be taken that the mixture is not hot enough to injure the tissues of the tree. A small brush or a spatula may be used to spread it with. The mastic of



Fig. 6.

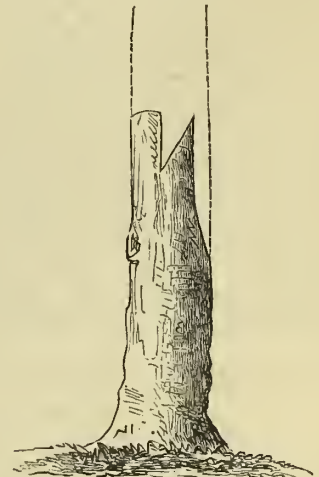


Fig. 7.

which the following is the composition is always used hot. For 100 parts by weight—

Black pitch	28	parts
Burgundy pitch	28	"
Beeswax	16	"
Grease	14	"
Yellow ochre	14	"

100

Another: Take 4 ounces of pitch, 4 ounces of resin, 2 ounces of hog's-lard, and 2 ounces of beeswax; put them altogether into a pipkin, and dissolve them over a slow fire, and it will form an excellent grafting wax. By spreading some of this mixture on paper it makes the grafting paper. The French make very good grafting wax by mixing together equal quantities of beeswax and resin, and adding as much tallow as will cause it to dissolve at a low temperature.

Greenhouse and Conservatory.

TENDER ANNUALS ought to be growing freely now in a genial atmosphere, and very near the glass. If they are running up with long legs,

prick them out and plant them in the fresh soil deep enough to cure their legginess. Too much heat and insufficient light will cause them to be drawn, and if they are much drawn, they will never flower well.

FUCHSIAS are growing finely now, and plenty of cuttings may be got without distressing the old plants; in fact, the stoppings of shoots will do, for it matters not how short and soft the cuttings are; they always root instantly if put into sand in a nice heat. It is no use to grow Fuchsias slowly; let them have the warmest berth possible, with plenty of syringe and only a little air.

CAMELLIAS out of bloom to have a higher temperature and a moist atmosphere, to promote the new growth. Any that seriously want a shift may have it now; but the general shifting is best delayed till the wood is ripe or ripening.

CINERARIAS are now coming to their full splendour, and must have constant attention. Neglect of watering will cause the lower leaves to shrivel, and too much water will cause the colours of the blooms to run. Use manure-water twice a week. Tie out specimens in good time. Those only just showing their trusses may have a shift, so as to form fine plants late in the season.

PELARGONIUMS for exhibition require constant attention to keep the foliage in perfect health, and to tie out and train as needful. Give plenty of air to strong plants, and manure-water, rather weak, every five or six days. Shift young plants. Never stop and shift at the same time.

CHRYSANTHEMUMS to be propagated now in quantity. Those who neglected to strike cuttings in November for specimen plants have now not a moment to lose. But some gain may be made by pushing them on in a warm house, and stopping as soon as it is safe to do so, to get a good set of side-breaks.

BEDDING PLANTS.—Cuttings put in now will bear more heat than those put in a month ago, as vegetation is more active with the advance of the season. There is plenty of time now to raise stock of Verbenas, Petunias, Fuchsias, and Lobelias, and they will bear a moist temperature of 75° to advantage. Pot off into thumb-pots newly-struck cuttings as soon as they begin to make new growth at the points. Young plants that want a shift to larger pots, and which are to be stopped to make them bushy, should be stopped first, and the repotting delayed till the side-shoots begin to break.

SUCCULENTS are usually kept dry all winter, and have supplies of water in very small quantities as they commence their seasonal growth. Though easily kept in windows and ordinary greenhouses, they rarely flower unless they have some special care at this time of year. If any of them want larger pots, they should now be shifted, and the soil used should be a mixture of lime rubbish, broken bricks, turfy loam, and a little cow-dung, with plenty of drainage crocks in the bottoms of the pots. As a rule, large pots are not favourable to their prosperity, so they should never be shifted unless the old soil is worn out and the plants have grown to a size out of proportion to the pots they are in. All the Cacti and Mesembryanthemums, &c., now stored on greenhouse shelves, should be dressed on the surface with rotten dung, and be placed over a moderate bottom-heat, with small supplies of water to set them growing. Plenty of light, plenty of water, when in free growth, and a generous temperature, are requisite to produce a good bloom.

Forcing Pit.

FRUIT HOUSE.—Plums and peaches must be carefully managed while the fruits are stoning. Any excess of fire-heat or water, or cold draughts, will cause the fruit to fall at that critical period. As they commence swelling after the stoning period, the heat may be slightly raised, and the trees to have frequent showers from the syringe. Peaches in the early house to have a temperature by day of 75° to 80°; by night, 55°. On dull days the day temperature not to rise above 65°.

FRENCH BEANS in the forcing-house must be kept very near the light, and have a brisk temperature. Give air early on fine mornings while the plants are moderately dry, to promote the setting of the fruit. Crops that have been cut from to have the help of soot-water, or a solution of sulphate of ammonia, half a ounce to the gallon, to promote a luxuriant growth.

CUCUMBERS.—It will be more difficult now to keep the heat of bearing beds up to the mark than it has been all the winter, for the east winds will cool them more rapidly than the mild rains we have had so much of. Linings will now be of great value, and as the weather is bright, a brisker heat may be kept up with great benefit to the plants, especially if the pit is kept constantly moist. In giving air, guard against the entrance of parching cold wind; a mat hung over will allow of an exchange of atmosphere through it without permitting the entrance of a killing draught.

FIGS in the house are now swelling their fruit nicely, and require plenty of water. If allowed to root through their pots into rotten leaves and other such plunge material, liquid manure will perhaps not be needed. If in pots, and not plunged, they must have liquid manure. It is certainly better to confine the roots of figs than to give them free scope in a border; but the pot system is often overdone to the extent of starving the trees, so that they never give the returns or present the appearance they ought to. Perhaps the most satisfactory way is to plant out in brick pits, so as to have the roots under command, and at the same time give them food enough.

VINES to be thinned of their superfluous bunches as soon as the berries are fairly set, and the thinning to be done with a bold hand; for any larger crop than the vines can bring to perfection without severely taxing their strength will entail weakness of constitution. Thin the shoots, always ensuring the natural shade of leaves for the bunches. Inside borders to be kept warm, and be liberally watered. As vines set their fruit syringe them briskly to wash away the remains of the flowers, after which do not use the syringe, but supply atmospheric moisture by means of pans of water on the flues, and watering the floor of the house. In all vineries there should be water-troughs over the pipes for this purpose.

MELONS to be grown in frames to be ridged out at once, so as to have the full benefit of sun-heat when the temperature of the beds is declining, and to ensure a perfect ripening of the fruit. Ridge them out on a good depth of strong loam, without manure.

PINES to have the help of manure-water while swelling their fruit, to be discontinued when the fruit begins to change colour. Succession plants to have a shift, and no manure-water till they have made plenty of good roots. Atmospheric moisture will greatly help them if the temperature is kept at 70°.

SPRING FLOWERS: EFFECTS OF THE FROST IN EDINBURGH.

At a recent meeting of the Botanical Society of Edinburgh, Mr. M'Nab presented a report on the state of open-air vegetation in the Royal Botanic Garden. He said: My last report to the Botanical Society was on the 16th of January, 1867. The ground at the time, and for nearly two weeks afterwards, was covered with snow, and a succession of frosts of different degrees of intensity prevailed, but on no occasion did the thermometer fall so low as on the night of the 4th of January, when it indicated 11°, being 21° below the freezing point. The lowest thermometer markings since the 16th of January are as follow: On the 17th, 20th, 21st, 22d, and 23d of January falling respectively to 24°, 23°, 20°, 15°, and 25°; the lowest since the beginning of February being on the 11th, when the morning temperature marked 32°. The highest morning temperatures since the January meeting were on the 24th, 25th, 28th, and 29th, indicating respectively 37°, 36°, 43°, and 41°; while the highest since February commenced were on the 1st, 2d, 3d, 4th, 9th, and 13th, marking 39°, 37°, 36°, 47°, 37°, and 47°. As much discussion has recently taken place about the time the thermometer was at its lowest during the month of January, the following readings of the thermometer in the Edinburgh Botanic Garden may be worthy of notice, and tend in some districts to settle this point. During the early part of the night of the 4th of January the thermometer was observed to be gradually falling, and had every appearance of reaching a very low point. It fell to 11° at 9.30, and remained the same till 11.30; at 12 o'clock it rose to 14°, at 3 a.m. to 20°, and at 7 a.m. to 27°. Readings on register thermometers are generally taken at daylight during the winter months, as the lowest points are generally about that time. If it had not been for a constant watch over the thermometer during the above night, we would not have known the time it was at the lowest point, and marked it as if on the morning of the 5th. During the time the second snowstorm came on, the ground was hard with frost, which greatly retarded the progress of our spring herbaceous vegetation. The first snowdrop seen in bloom was on the 31st day of January, and that only on a south exposed grass bank, where the frost got speedily out; but in all other situations throughout the garden it was the 5th day of February before they began to show flowers profusely. The first flower of *Eranthis hyemalis* and *Hepatica triloba* appeared on the 2d of February; *Sisyrinchium grandiflorum* on the 4th of February; *Leucojum vernum* and *Galanthus plicatus* on the 5th of February; *Helleborus purpurascens* and *Arabis alba* on the 6th of February; and *Crocus susianus* on the 11th of February. It appears that the temperature of the 4th of January was much lower in many parts of England than what we experienced, even below what was observed on the morning of the 24th of December, 1860, when —6° was the lowest point indicated. In some parts of England the thermometer during the January frost fell from 4° to 10° below zero, and the damage to vegetation as notified in the leading horticultural journals, has been very considerable. The extent of mischief done by frost does not show to its fullest extent for days, and often weeks, after, the injury depending much on the state of the weather. If followed by a few warm sunny days, the mischief done will show itself at once; but if dull, cloudy, and cold weather should follow, weeks often pass before the full extent of the losses can be ascertained.

As far as we can yet judge of the amount of damage done at Edinburgh, it may be considered as trifling. Amongst herbaceous or suffruticose plants, stocks and wallflowers which stood above the level of the snow have suffered severely. The various species of *Tritomas* have been much cut up. *Veronica Andersonii*, *lobelioides*, and *salicifolia* are also much injured, as well as pentstemons and perennial lupines.

Amongst shrubby plants, none of the conifers show any symptoms of injury. The leaves of the common laurustinus in some localities are more or less blackened, as well as the leaves of some of the delicate hybrid rhododendrons. The young and tender leaves of variegated hollies are likewise much browned. The plants which as yet show the greatest amount of injury are the cork-trees and evergreen oaks; the leaves appear very white and much twisted, particularly the leaves of those trees partially injured but not cut down after the frost of 1860. The cut down specimens soon became covered on the surface of the ground with a dense growth of healthy vigorous shoots; none of these in the meantime show signs of injury. The *Garrya elliptica*, which was in full flower on the 4th of January, looks very bad in some places, all the flowers destroyed, and the leaves on many of the plants look very sickly. Some of the soft growths on roses are a little injured, but the ordinary spring pruning will soon put them right again.

ON THE ROBIN REDBREAST.

The red-brestid robbing is a burd muchly doted onto by seminary girls and poets.

Gentlemen farmers also encurridge the robbing becoss he swallereth insecx when he canit get sno or anything els tu eat.

Bnt practikle farmers and fruit-growers begin to don't see it.

I was onest a gentleman farmist.

I am not so gentil as I wuz.

I go for rele farming, making my pile of manoor and raisin things to eat.

I used to listen for the robbing's matting lay and his evening carol, but I've found out that he singed only to seduce femal robbings, and that where he ct five insecx he ct quarts of cherries, strawberries, currants, raspberries, and ceter, and then pitch inter the mellerest bartlett pairs.

I found that my fruit crop agreed to wewl with Mr. Robbing's crop.

His wobbling to his femal friends at evening didn't pay for his gobbling choice fruit all day.

And so, my friends, when the sweto redbrest gets fat on the eggpensive products of northern gardens, and flocks southward to fill unsentimentil pot pies, I bid him adoo without regret.—*Hornsey Hornet*.

An officer who was on intimate terms with the Prince of Orange, one day asked him the purpose of an extraordinary march they were making. "Will you keep the secret?" asked the Prince. The officer hastened to assure his master that he was incapable of abusing his confidence. "I believe you," replied the Prince; "but if you possess the gift of keeping a secret, the same blessing has also been conferred on me."

At a parish school examination, when the question was asked, "Why did the children of Israel make a golden calf?" a sharp little fellow replied, "Because they hadn't gold enough to mnke a bull."

HINTS FOR AMATEURS.

Large Onions—When the beds are formed, tramp them heavily, and roll them firmly. On this compact surface sow the seed, and cover it the usual depth with a rich compost. The bulbs, instead of sinking, will spread superficially to a good size.

Liquid Manure, for growing vegetable crops, may be given twice each week, and for developing flowers, as soon as the calyx or flower-cup begins to burst, it should be applied but once a week. A cloudy atmosphere is the best condition for giving water, and early in the evening the best period in summer months. The liquid which soaks from common farm and poultry yards, with some soot added, is the cheapest; but where such is not procurable add 1 lb. guano to 30 gallons of water, and about a spadeful of soot, the latter tied up in a coarse cloth or bag to prevent it from swimming on the surface of the water. This mixture will make a liquid manure fit for all the ornamental grass-feeding plants, as polargoniums, salvias, fuchsias, calceolarias, achimenes, clerodendrons, &c., &c. To prevent drawing off, or using the water in a turbid state, drain it off as clear as possible. The soot is an essential ingredient as a manure, and as an antidote to insects.

Manures, or fertilizing ingredients, should be kept in a usable condition, as near as component parts admit.

Soft Water.—Where rain or soft water is not procurable for watering plants, it should be known that caustic lime is a useful element in reducing its hardness. The proportions are, one of lime-water to five of common water, which reduces the hardness of water to the same degree as that of water after having been boiled; or 1 lb. of chalk calcined will produce 9 ozs. of caustic lime, which will make 40 gallons of the lime water, and be sufficient to mix with 560 gallons of ordinary London pipe-water.

When Watering, particularly newly planted crops, in dry weather give a good soaking of water at the roots, and in all mild weather sprinkle over the whole plant at the same time, to prevent excessive evaporation.

Surface Mulching, with manure or enriched soil, is of great advantage, and essential for ensuring good crops on poor soils.

Moss on Fruit Trees.—Sprinkle each tree freely with water in the months of February and March, and in this state scatter a thick coating of quicklime as equally as possible over the branches. By this application the moss is effectually eradicated. Lime of the most caustic quality will be the most powerful.

Cleanliness from all weeds and rubbish should be considered as essential amongst growing vegetable crops in the kitchen garden, as amongst the more fragile productions of the flower garden. In both cases, every green leaf of a weed or intruding plant is abstracting the "life blood" of the soil, both from the present and following crop.

Rest.—Directly the crops are off, trench and ridge the ground well up. Turn over all spare ground to the action of the air, &c.

Surface Hoeing amongst all crops should, for its benefits, be uniformly attended to, in admitting the free action of the atmospherical agencies of light, heat, &c., upon vegetation, and without which, in a proportionate degree, plants will not grow, flowers will not expand, nor fruits ripen.

To Kill Weeds on Gravel Walks.—Dissolve one pound of powdered arsenic in three gallons of cold water, boil and keep stirring it, then add seven additional gallons of cold water, and two pounds of crushed soda; stir the whole well in the boiler, and apply it to the walks in dry weather from March until May, by a watering pot with a proportioned rose. The above quantity will suffice for 25 square yards or more. This mixture has been very successfully applied in one of the most extensive gardens in Yorkshire, where it required one man a fortnight to go over the whole. For wide carriage drives the liquid was conveyed by one of Fleming's garden engines, with a tap behind, care being taken to keep the hot water from the box edging or grass margins, by laying an inclined board, with supports behind, as a shield or cover to the grass, &c., and moving progressively for a given distance in front as required.

To Kill Plantains on Grass.—Apply a drop of sulphuric acid from the end of a plant label or slender stick to the heart or crown of each plant in dry weather, and in five minutes the leaves turn yellow, then black, and in two days the weed disappears.

Economical Plant or Skrub Labels.—Take common bricklayers' laths of the double size or thickness, and cut into required lengths of 10 to 12 or 14 inches: smooth the sides with as little waste as possible, and shave off smoothly about 6 or 8 inches of the best front face with a sharp knife, finishing the lower end by cutting the sides to a short, sharp, wedge-like point, and then bevel it off reversely, by cutting it from the front and back face, which is better than leaving it with a sharp, wedge-like point. Procure a few pounds of pitch or tar, and form a brisk fire between loose piled bricks, upon which boil the tar, and dip the lower ends of the labels in the tar, whilst boiling, to the depth required of the labels to enter into the ground (6 or 8 inches). Allow the pitch to dry, and then surface the smooth face of each with a thin coat of well-mixed paint, and lay them by till required. When used, the smooth surface requires a second coat of paint, which should be written upon within a quarter or half an hour after being applied, otherwise it is difficult to make the writing legible. When the second coat of paint is allowed to dry, it is impracticable to impress writing, and in such instances the labels must be refaced. The best round carpenters' or joiners' pencils should be used for prominent plain figures or letters.

Honeydew.—This is produced by the soot fungus (*Torula fumago*), a terrible pest. For its eradication try dusting the parts affected with flour of sulphur, or newly-slaked lime, or washing with fresh made lime-water. It soon ruins plants if not immediately checked.

Importance of Drainage to Flowers and Plants.—Defective drainage deprives the roots of proper nourishment, subjects them to a chilling temperature, and forces them to absorb a vitiated fluid.

Making Charcoal and Wood Ashes.—Lumps of wood (for charcoal), and refuse branches, sticks, &c., (for wood ashes), should be packed close in the form of a mound or cone, and thus set on fire, kept closely covered with good tough grass-cloths about 3 inches thick. The heap should be watched day and night during combustion, adding an additional clod if requisite to prevent the escape of flame. When the charcoal is made, the heap should be opened and cooled with water.

EPITAPH FOR A CHILD.—The gardener was one day walking among his flower beds; suddenly he stopped and cried, "Who has done this?—who has plucked my choicest flower?" He was answered, "The Master gathered it." The gardener held his peace.

CULTIVATION OF PASSIFLORA QUADRANGULARIS.

Passiflora Quadrangularis is the species with which I have had greatest experience, and it is of it I now particularly speak. While I was foreman at Floors Castle, we had one planted in the corner of one of the pine stoves, which alone subsisted upon what it could procure amongst the tanner's bark used for plugging the pine pots, and from the atmosphere and moisture of the house; and I venture to say that under no other treatment whatever could greater success be expected. The bark requiring to be removed at least once a year, necessitated the roots being entirely bared, and a change of materials offered to it; but although I have seen this done when a crop of fruit was hanging—and sometimes the roots lay exposed for a couple of days—yet I never saw it suffer in the least from such ill usage: the flow of sap seemed as regular, the leaves retaining their wonted healthy appearance, and the fruit as plump as though nothing had occurred. Besides this, the pines were regularly overhauled four times a year, which necessitated a little fresh tan being added every time, and of course new holes had to be made for the pots, the making of which often brought us into contact with its roots, which were often twisted and broken; yet all this had no effect either upon the fruitfulness or the vigour of the plant—in fact, I often thought that it proved good for it. As I have already stated, it was planted in the corner of this bed, from whence it was trained upon a stake till it reached wires made for its reception under the west light of the house. The first year I saw it, it was trained to these wires after the ordinary manner—that is to say, it had five or six shoots trained right to the top of the light, and spurred after the same fashion as a grape vine; in this way it yielded a light crop of excellent fruit. When pruning time came, I was instructed by Mr. Rose to treat it upon quite a different principle, and upon this principle of pruning, I am convinced, hangs the great secret of its after productiveness. He instructed me to remove all the permanent canes except one, and this one I was to train horizontally along the bottom wire the desired length—which was five feet, the width of the light. I did so, and when it began to make shoots, all were removed save six, which were placed equidistant, and led to the top of the sash, about twelve feet; here they were pinched, and in a few days every bud of this young shoot sent forth a lateral with a flower-bud in each of the first four or five joints. The first one was always selected for impregnation, and the shoot pinched at the next joint, and we were always particular to select the time when we could procure the greatest abundance of flowers, within a week or so, for this operation, as we observed that, generally speaking, few fruit could be set after about a dozen of the first impregnated ones had reached the size of pigeons' eggs. No other care was bestowed upon it after this, except to go over it once a week or so and pinch all the laterals back to the nearest bud beyond the fruit from whence it had sprung. This first crop was generally all removed by the middle of July, and all that was necessary was to prune back these laterals to one bud, which again immediately sent forth shoots, with flower-buds, which just required the same treatment as their predecessors.

As before stated, the plant only occupied one light, which was 5 feet wide, and upon this it was trained about 12 feet, so that the surface it covered was about 60 square feet, and the produce from the two crops was seldom less than 200 fruit every season. I remember Mr. Eyles, of South Kensington, seeing it in 1863, when ninety-seven fruit were hanging upon it nearly ripe, and he was utterly astonished, and remarked that it was the most extraordinary crop he had ever seen, yet at this time there could not be less than twenty fruit removed from it. After the second crop of fruit had been all removed, and the tree was ready for pruning, we entirely removed the six main shoots which filled the light, cutting them right back to within one eye of the horizontal stem upon the lowest wire, much in the same fashion as when pruning a vine. The tree rested very little, so that in a few weeks the young shoots were again starting from the stem, and a few weeks more saw them reach to the top of the light, once more to odorate and beautify the house, only to give place to another abundant crop of this handsome and excellent fruit, which one day or other will command a more prominent position upon the dessert-table than it does at the present time. Now, whether the same success would have attended it had it been planted in any of the various compositions usually used I cannot say, yet I think it will be interesting to many to know it succeeded so well under this; and this much I will say, that if I were to have a house expressly for them, I should use no other materials than tanner's bark. I may also remark that this plant seldom got any water at the roots—in fact, sometimes not for months. It was, however, regularly syringed every day along with the pines. We also fruited *P. edulis* very well in the plant stove. This was treated after the ordinary fashion, and in a composition of peat, loam, charcoal, and old mushroom dung. It is, however, much easier managed than the former, and not nearly so shy of fruiting under ordinary circumstances.—James M. Millan, *Erskine, in Farmer.*

FOOD VALUE OF THE POTATO.

There is, probably, no other vegetable food, except wheaten bread, of which so much can be fairly said in its favour. Its merits, however, vary much with the kind of seed, the period of maturity, and the soil in which they are grown. That kind should be preferred which becomes mealy on boiling, and which, when well cooked, can be thoroughly crushed with the finger. The potato which is known as "waxy," and those which remain somewhat hard when boiled, do not digest so readily as the mealy kind, but for that very reason they are said to be more satisfying. It is not material in reference to nourishment whether the potato be boiled or roasted, since in both methods it should be well cooked. In point of economy and convenience, however, it has been found better to boil than to roast them; for whilst the loss in boiling upon 1 lb. of potatoes scarcely exceeds half an ounce, that in the most careful roasting is 2 oz. to 3 oz. It is also more economical to cook them in their skins, and to peel them immediately before they are eaten; but this is not convenient in many families, and the colour of the potato is not quite so agreeable as that of those which have been boiled after peeling. When they are peeled before boiling, and particularly when they are small, and the operation is performed carelessly, from one-third to one-fourth of the whole weight of the potato is lost, and if there be no pig to eat the peelings the whole is wasted; whilst the weight of the peel which is removed after boiling would not amount to more than 1 oz. in the pound. When potatoes have been roasted, the loss in weight from the skin and drying is more than one-fourth of the weight before cooking. An average sample of potato, after it has been

peeled, contains 11 per cent. of carbon and 0.35 per cent. of nitrogen; and hence in each pound there are 770 grains of carbon and 24 of nitrogen, and it is greatly inferior to bread. The economy of its use depends upon its cost, so that in times when potatoes are sold at $\frac{3}{4}$ d. and 1d. per pound, they are a very dear food as compared with household flour, while they are a very cheap food when produced by the labourer at the cost of the "seed" and the rent of the land. Thus, at $\frac{3}{4}$ d. per lb., only 1,024 grains of carbon and 32 grains of nitrogen will be obtained for 1d.; when the cost is 1d. per pound, the quantities will be reduced to 770 grains and 24 grains. When the labourer, however, can obtain 50 bushels of potatoes from a quarter of an acre of land, at a cost of about 30s. for seed and rent, he will have more than 7 lb. of potatoes for 1d., and the quantity of carbon and nitrogen thus obtained for that sum would be 5,770 grains and 200 grains. If, however, he were to sell a large part of his crop at the market price, he could procure with the money thus obtained far more nutriment in the form of flour than would have been derived from that portion of his potatoes. The weight of potatoes which alone would supply the daily nutriment required by a man would be about 6 lb. in reference to the carbon and 8 lb. in reference to the nitrogen; but when a labourer in the west of Ireland lives upon this he is allowed 10 $\frac{1}{2}$ d. daily, besides a large supply of buttermilk, and as both of these kinds of food are cheap in that locality, the proceeding is even then an economical one.—*Dr. E. Smith's Practical Dietary.*

Literature.

The Intellectual Observer, Review of Natural History, Microscopic Research, and Recreative Science. Vol. X. Groombridge and Sons.—This superbly illustrated and ably edited work maintains its high place, and never in the least flags in interest. The tenth volume is as rich as any of its predecessors in both literary and pictorial attractions; and as representing the progress of discovery and research during the past half year, it is characterized by singular ability and tasteful discretion. Many indeed have been the attempts to "popularize" science, and they have for the most part failed. In the *Intellectual Observer*, popularising has never been aimed at, but a much higher purpose has been served by combining elegance with full and unreserved statements of scientific truths. The result is that the work finds acceptance wherever a better class of reading than the average of periodical works is in request, and in every polished circle or intellectual household this entertaining and thoughtful monthly is held in high favour. In the volume before us there are admirable papers on Ancient Jewelry by Mr. Duthie; on Fungi by the Rev. M. J. Berkeley; on the Kaffirs and Animal Life in South Africa by Dr. Mann and Mr. Chichester; on Prismatic Spectra by A. S. Herschel; on the Growth of Shells by Dr. Woodward; on Infusorial Life by Mr. H. J. Slack and Dr. Jabez Hogg; on the Bell Birds of America by Dr. P. L. Sclater, secretary to the Zoological Society; on the November Meteors by the Hon. Mrs. Ward, A. S. Herschel, and Mr. H. J. Slack; on Planetary Phenomena by the Rev. T. W. Webb and Mr. R. A. Proctor; on the Pheasants of Burmah by Captain Beavan; on the Genus Ficus, and on Parasitical Plants, by Mr. J. R. Jackson, of Kew; on the Chameleon by Mr. Jonathan Couch; on the Genus *Cypripedium* by Mr. Hibberd. Besides these leading subjects, there are numerous delightful records of discovery and travel, notices of inventions, reports of the proceedings of scientific bodies, reviews of books, and gatherings from all the leading scientific journals published in every part of the world. There are twelve coloured plates, in addition to numerous beautiful engravings on wood; particularly worth notice for their beauty are the figures of *Cypripedium Veitchianum*, the American Bell Bird, and the Chameleon. The following extract may interest our readers:—

THE GENUS FICUS.

By J. R. JACKSON, Curator of the Kew Museum.

"Amongst the finest trees of purely tropical scenery, of course still excepting the palms, the members of the genus *Ficus* hold a prominent place. This genus belongs to the natural order *Moraceæ*, and is that also to which our common fig belongs, besides *Morus* itself, which includes the mulberry, *Broussonetia*, the paper mulberry, *Dorstenia*, and others. Though the order is small, it is a most important one, both in an economic point of view, and also in botanical interest. The genus *Ficus* is especially rich in many varied forms of useful products, for beside the fig itself, we have caoutchouc, lac, &c. Whether any of the species are European is a question upon which our best botanical authorities have differed. Lindley says that none of the *Morads* are European, and that the mulberry and common fig have both been brought from the East; other writers consider the fig to belong originally to Asia Minor, Persia, South-Eastern Europe, and North Africa. We can only say that, if not truly indigenous, the plant has become thoroughly naturalized in all the countries mentioned above. The way in which many of the species adapt themselves to circumstances in their mode of growth is peculiar, and very striking to an observer. In many cases we find them twining, and almost enveloping, colossal palm trunks, though they are capable of forming very thick trunks of their own, which frequently bear an immense spreading crown. The magnificent wild fig trees of the East, indeed, are always regarded as the true friends of the sun-scorched traveller, affording as they do such a cool retreat, and such a complete shelter from the sun. Lindley says the genus *Ficus* is one of those which travellers describe as most conducing to the peculiarities of a tropical scene; and, quoting from the 'Annals of Natural History,' he says, 'Mr. Hinds points out the complex appearance of the main stem of many species; their immense horizontal branches, their proportionate lowness, and the vast number of smaller stems in every stage of development—some just protruding from the horizontal limbs, others hanging midway between the leafy canopy and the earth, displaying on each thick rounded extremity an enormous spongiolæ, while many reach the soil, and, having attained strength and size, act as columns to sustain the whole structure.' The best example of this very peculiar provision for supporting so wide-spread a canopy is to be found in the banyan tree. This tree is certainly one of the most famous and interesting of all the East Indian forms of vegetation, and is the best type of the peculiar adaptability of the genus in forming irregular trunks, and that in a manner quite contrary to the usual mode of proceeding in the vegetable world. We all know that one of the laws of plant life is to send its root downwards and its stem upwards, so that the former may take in from the earth the nutriment there stored, while the latter, developing itself by its natural appendages,

performs the important functions of respiration. This, of course, in its infancy, is the case with the banyan; but after it has grown, and formed its crown of foliage by throwing out its branches, and while yet a young tree, these branches perform a double duty; for besides being the support of the leaves, they throw out again downward branches, which reach and strike root in the ground, and then go on growing as true stems, thus forming a support for the spreading mass above. These trees are common all over the East Indies; and to such a size do they grow, that one tree forms a miniature forest in itself. The largest banyan tree is said to be on the banks of the Nerbuddah river, where, for aught we know, it is still growing. Forbes, in his 'Oriental Memoirs,' says the circumference of the tree at the time of writing the account, was nearly 2,000 feet, and the overhanging branches which had not thrown down their props or supports stretched over a much larger area. The tree had as many as 320 main trunks, and over 3,000 smaller ones, and was capable of giving shelter to 7,000 men. These dimensions appear almost fabulous; there is, however, another fine tree at Mhow, which has sixty-eight stout stems, and can give shade, even under a vertical sun, to an immense number of men; indeed, we are constantly told that a regiment of cavalry can conveniently take refuge beneath one. For large assemblies or meetings they form perfect natural tents. It is very certain that these immense trees must be of great age; and we should naturally expect to find a full description of so remarkable an object in the works of the old classic authors. Strabo's description is both minute and accurate, as is also that of Pliny. The banyan has been the theme of poets in more recent times, as well as of travellers and naturalists. Milton beautifully describes it in the following passage—

Branching so broad and long, that in the ground
The bending twigs take root; and daughters grow
About the mother tree; a pillared shade,
High over-arched, with echoing walks between.
There oft the Indian herdsman, shunning heat,
Shelters in cool; and tends his pasturing herds
At loop-holes cut through thicket shade.

And Southey, in his "Curse of Kehama," says—

'Twas a fair scene wherein they stood,
A green and sunny glade amid the wood,
And in the midst an aged banyan grew.
It was a godly sight to see
That venerable tree;
For o'er the lawn, irregularly spread,
Fifty straight columns propped its lofty head!
And many a long depending shoot,
Seeking to strike its root,
Straight, like a plummet, grew towards the ground:
Some on the lower boughs, which crossed their way,
Fixing their bearded fibres round and round,
With many a ring and wild contortion wound;
Some to the passing wind, at times, with sway
Of gentle motion swung;
Others of younger growth, unmoved were hung
Like stone-drops from the cavern's fretted height.
Beneath was smooth and fair to sight;
No weeds nor briars deformed the natural floor;
And through the leafy cope which howered it o'er,
Came gleams of chequered light.
So like a temple did it seem, that there
A pious heart's first impulse would be prayer.

"Though habit has taught us to look upon the root of a plant as that part alone which is buried in the earth, we see there are such things as roots being given off from totally different parts. This occurs mostly, if not entirely, in tropical climates, and is effected greatly by the influence of moisture and shade, considering, of course, that the plants have a natural predilection for forming these aerial, adventitious, or secondary roots. The banyan is a good example of a plant producing aerial roots.

"The structure of a true root, when fully developed, is very similar in all respects to a true stem. The epidermis, however, is without stomate, and the bark is always very thick, owing to the moisture it absorbs from the earth. Thus we find that stems of many plants are capable of forming roots, as is instanced by the growth of plants from cuttings, or by pegging a bent branch down to the ground. In the case of the banyan, so long as the roots are pendent, they derive their nourishment from the parent trunk, but as soon as they reach the ground, the spongiolæ or absorbent parts of their roots become more developed, and strike into the earth, and then begin the necessary functions for increasing their diameter, and supporting the weight of the new foliage above. It is not at all uncommon to see the trunk of the talipot palm (*Corypha umbraculifera*), or the palmyra (*Borassus flabelliformis*), completely encircled by one of these figs. This is caused by the seeds, which are very small, dropping into the axils of the leaves of the palm, where they vegetate, and send their roots downwards, embracing the trunk in their descent. In very old specimens where these aerial roots have extended to a goodly diameter, the palm is seen emerging from the thickness of the fig, as if it was actually one and the same plant. These combinations are considered sacred by the Hindoos, who call them holy marriages. A white, glutinous juice exudes from the stem, which is considered a remedy in toothache; birdlime is also manufactured from it, and an infusion of the bark is said to be a powerful tonic.

"A small but very good specimen of the banyan tree may be seen in the palm house of the Royal Gardens, Kew, and a trunk of the talipot palm, encircled as described, is in the museum of the same establishment.

"The Popul (*Ficus religiosa*, L.) is also a native of the East Indies, and is remarkable for the long tapering points of its leaves, as well as the closely reticulated and strong vascular fibre. The Chinese make very pretty and effective ornaments of these leaves, by removing the cellular tissue or green pulpy matter, and covering the skeleton with a coat of varnish or gelatine, and then painting figures of birds, flowers, &c., on the surface. The ease with which the cellular tissue is removed by macerating, recommends the leaves of this species for the purpose of dissecting or skeletonising for leaf bouquets. Amongst the Hindoos, the poplar-tree is greatly venerated, their belief being that among the branches the goddess Vishnu first saw the light. The plants are, in consequence, frequently to be met with near houses, pagodas, &c., and the natives are very unwilling to cut them down. Birds devour the fruit with avidity; and in their flight, instances have been known of the seeds having fallen into the cracks of buildings, where they have germinated, and caused much damage. They are used in medicine by the native practitioners, as is also the bark. The leaves of the different species vary much in form, those of the poplar being heart-shaped, with the long slender point before spoken of, and seated upon long

and slender petioles; they have a trembling motion in the air, very similar to that of the common aspen. They are a favourite food for silkworms.

"Peculiar as the two species here enumerated are, the most important of the Indian species, in an economic point of view, is *F. elastica*, Roxb. It is a tree growing some thirty or forty feet high, with large oval or oblong leaves, very thick and glossy, and is now well known as a common conservatory and parlour plant. The fruits are arranged in axillary pairs, sessile, or without stalks, not larger than an olive. From this species most, if not all, the caoutchouc or India rubber brought from the East Indies is obtained. We all know how abundantly a white milk flows from the least fracture occasioned to any part of this plant; the prick of a pin upon its stem or thick green leaf will cause it to ooze out, and by exposure to the air become thick and elastic. When collected in its native country for commercial purposes, deep incisions are cut through the bark nearly down to the wood, in a transverse direction, and about a foot apart. The juice flows from these wounds in large quantities, and on coming in contact with the air, forms itself spontaneously into a solid elastic substance, from which a kind of whey or foetid fluid separates. After such a tapping as this, the tree is said to require but a fortnight's rest before it is ready for a similar operation. The presence of caoutchouc or milky juices in plants is a character of many natural orders. Some yield a pure milky fluid which never hardens. The vessels that contain this fluid are called laticiferous tissue, or cinenchyma. They are very minute, the average diameter of one of them not exceeding $\frac{1}{1000}$ of an inch. One of the chief distinctions of these vessels is that they lie in no regular or definite position to the other tissue, and consist of long branching tubes. In their young state they are very thin and hair-like, but as they get older they become large, their sides thicken, and contract in some places and swell in others. This has given rise to an opinion amongst some botanists that they are merely a series of cells, placed end to end, in which the partitions have become absorbed, as there are no divisions through their entire length. The contents of these tubes, called the latex, is not in all plants milky, but sometimes coloured, and at other times quite transparent and colourless. It is always of a granular nature, but its chemical composition varies in different plants; for while some give a perfectly harmless, and even a nutritious milk, others are acrid and narcotic. The cells which contain caoutchouc, and similar juices, must therefore not be confounded with the cells or vessels through which the ordinary nutritive functions of the plant are carried on, nor must the fluid itself be confounded with the sap.

"The common fig (*Ficus carica*, L.) is perhaps the best known of all the species, owing to its valuable fruit. As we have before said, its native country is doubted. The plant is, however, now cultivated to a very large extent in Turkey, and on the shores of the Mediterranean. It is a tree growing in favourable situations to a height of twenty or thirty feet. The plant is so well known in our gardens and greenhouses, that it would be needless to describe it. We may, perhaps, however, be allowed to say a few words about the fruit, as it is a peculiar though a common one. We hear people speak of the 'seeds' of the fig, meaning those little granular sago-like things so numerous inside a fig. These are not seed, which we should soon discover were we to examine them in a green fig. They are each of them a small individual fruit, which in this form is called an achene. The *Ficus carica* is not cultivated for the sake of its flowers, for though it does flower, and that profusely, we venture to doubt if there are many of us who have actually seen the flower. It is not showy, nor is it exposed, as most flowers are, to the air and light. In most of our common fruit-producing plants, we first behold the bud, then the expanded flower, which in time drops away, leaving the fruit to develop itself to the size limited by nature; but in the fig, what we call the fruit is not the produce of one flower, but of many. The fleshy part which we eat is in botanical language called a receptacle. There are, however, various forms of receptacles, and even in the same family to which the fig belongs; thus, for instance, in *Dorstenia*, we have an open, somewhat irregular square receptacle, slightly turned up at the edges like a tray. In this genus the flowers are exposed, but are still numerous as in the fig. Another common example of an open receptacle is to be found in the sunflower, and we have only to bring up the sides, and nearly unite them at the top, and we shall have the same form of receptacle as the fig, namely, a hollow one, with the inflorescence inside instead of out. This inflorescence is of both sexes, else fertilization could not take place; and it is worth noticing the provision of nature in placing the male flowers near the orifice, at the apex of the fruit, while the females are seated in the concave part below; by this arrangement, the pollen from the male flowers, in dropping, is more sure to fall on the stigmas of the females, as the figs themselves, in their earlier stages of formation, and when the flowers are fully expanded, are nearly always more or less upright upon the stalks which bear them, seldom drooping until after fertilization has taken place, and the receptacle has become swollen. It frequently occurs, however, that the stamens are imperfect and no pollen formed. A practice called caprification has been resorted to in the East to provide for this natural deficiency. A number of wild figs, which are often infested with a species of cynips, are strung on threads and hung above the cultivated ones. When the insects escape from the former, they enter the latter by the orifice at the apex, and so, by carrying the pollen grains upon their wings or otherwise, fertilize the female flowers. This system, however, is not so generally adopted as formerly, as it is now considered to injure the quality of the figs. It appears to have been clearly understood and practised by the ancients, as it is fully described by Theophrastus and Pliny. The introduction of the fig into this country is by some writers attributed to the Romans, and by others not till the early part of the sixteenth century, on the return of Cardinal Pole from Italy. The very trees which he brought, and which were planted in the garden of Lambeth Palace, are said to have flourished for 300 years. There is, or at least was until very recently, several fine examples of very old fig trees in the kingdom, some of them of very great diameter, proving that even in our climate the fig is capable of thriving, though a severe frost is liable to do it great injury. The south coast of England, however, appears to agree with it, and standard trees have been known to produce fruit in tolerable abundance.

"There is yet another species of this interesting genus which we must just notice before taking leave of it, and this is the sycamore or sycamore fig (*F. Sycamorus*, L.) This is supposed by some to be identical with the tree into which Zachus climbed. If this is so, and the tree is to be identified with that mentioned in many passages of Scripture, it must have been of great importance among the Jews, though the fruit is small, and hardly worth eating compared with that of the common fig. The light

wood of this plant is said to be almost imperishable, and served to make the cases of the Egyptian mummies. The genus includes about 200 species, but the few we have described are the most important in an economic point of view, the most peculiar, and the types of the genus generally."

Correspondence.

THE RECENT FROST AT PENCAITLAND, EAST LoTHIAN.—Meteorology for January, 1867, 284 feet above sea level. Thermometer: max. 50°; min. 2°; range, 52°; mean, 29°. Barometer: high, 29.85; low, 28.38; range, 1.47 inches; very unsteady. Rain-fall: 3.65 in 1866; 2.73 in 1865; 1.50 in 1864; 0.60 in 1863; 3.63 in 1862; 2.07 in 1861; 1.20 inches less rain falls in the East Lothian than in any other part of Scotland. Days when the temperature was below 20° during the month: 1st, -2°, 31° of frost; 2nd, 0, zero. 32° of frost; 3rd, 5°; 4th, 4°; 5th, 6°; 14th, 18°; 15th, 11°; 18th, 16°; 21st, 13°; 22nd, 6°. Snow about 15 inches deep on the level surface; stubbles and long straw of grass quite covered; a greater quantity of snow than has fallen at one time for upwards of fifteen years—that is, since my residence in this locality. Shrubs killed at Tynholm (some of them will spring again from the root).—Common laurel, *laurustinus roseum*, *acubas*, common whin. Roses, all varieties; a few escaped. Brassica tribe, all perished. Shrubs, &c., injured.—Portugal laurel, cotoneasters trained on walls, common holly, American arbor vitæ, &c. Lowest temperature in 1861—January 4th, 7°; 5th, 5°; 8th, 3°. Lowest temperature in 1860—December 24th, -7°, 39° of frost; 25th, 2°; 26th, -5°, 37° of frost; 28th, 8°, 29th, 8°. The destruction of shrubs and plants was unprecedented in Scotland, including all that have been killed and injured this winter, and a large number of others, among which were the *Aranearias*. The only locality that I heard of where they escaped was at Preston Grange, St. George Salties, near Prestonpans, 6 miles from here, contiguous to the sea beach, and only a few feet above it.—*Garrya elliptica*, cedar of Lebanon, bays, all varieties. Hollies and laurels of very ancient growth at Winton Castle, and all along the east coast. Broom, privet, &c., *laburnum*, walnut, box, and yew, slightly injured. Even the common ivy and large trees of different kinds were killed. At an elevation above the sea of 350 feet and upwards, evergreens quite uninjured, as they are this year also. Lowest temperature in 1855—February 16th, 5°; 17th, 3°, 29° of frost. Common laurel injured, and the whin killed, which it has been three times during the last fifteen years.

ARTHUR TREVELYAN, J.P.

SEED CATALOGUES AND THEIR USES.—Nothing is of so much importance to a gardener as that of being certain in his purchases to ensure sound seed and correct to name, thus in every way according with the descriptions given of them in the seed catalogues that are issued annually. Anything the reverse of this is a serious disappointment to him, and more especially as regards the cultivation of vegetables, for in some degree his crops may be considered his character. The seed catalogues put forth in the present day have appended to them a vast amount of practical information, and are very minute in describing the properties of the popular varieties of vegetables and flowers in their several classes; and I am convinced that if my brother gardeners would give some attention to the advice therein given for promoting the germination of some of the kinds of seed which by ordinary methods often prove difficult to vegetate, they would be much benefited, and the seedsman would not be, as he often is, blamed for disposing of bad seed. It is surprising to me how few consider their recommendations worthy of adoption. I will endeavour to illustrate my observation by referring to the rearing of *Primulas* from seed—and here I can say, without exaggeration, that on many occasions have gardeners said to me, "I cannot get it to grow," and followed this remark by a hint that the seed must have been bad. Now, it has happened in more than one instance that I myself have obtained seed in the same year from the firms which supplied those who complained that they could not make it grow—firms considered famous for their strain of this particular flower. But by my adhering to the directions published in the catalogues, I have accomplished all I desired, and there was no reason for me to complain. Invariably my reply has been to such complaints, "Did you read the practical remarks that are appended to the seed list?" The answer has been generally, "No." Now who is to be blamed in this matter? Certainly not the seedsman, for both at expense and trouble he has obtained from a thoroughly practical source instructions for our guidance. We will now proceed to say something respecting the vegetable portion; and let me ask my friends if they have read carefully during the past year in this magazine the result of our worthy Editor's trial of the various kinds of peas. If so, in giving their various orders for their usual quantities this season, they may, both now and in the future, save themselves a deal of labour and trouble by selecting the more suitable varieties for their purpose from the Editor's trial list. A word of advice to young gardeners (and old too, if they like), and that is, Do not purchase seeds solely on account of their cheapness, because good seed costs much labour that the stock may be sound and its character preserved. Again, I do not think it advisable (I write from experience) to purchase the collections as advertised—say, "No. 1, supply for small," or "No. 2, for large garden." Not that they do not contain good seeds, but they either contain less or else an excess of what is actually required for the demands of the family, for it must be borne in mind that the consumption of a particular vegetable is greater with some than with others. Then, I say, select your sorts and quantities from the general list; and if your garden is of limited extent, do not confuse yourself with too many varieties of any particular species; but, aside from novelty, have regard to those that are the most profitable cropping combined with flavour, only introducing those sorts with whose merits you are not conversant with caution. But, on the other hand, if you have sufficient extent of ground at your command, then variety will be the more acceptable.

JOHN F. M'ELROY.

THE ODOURS OF FLOWERS AND OF THE TEMPLE.—There is infinite economy but no waste in the administration of nature; and in the vast and complicated relationships which prevail amongst the objects of creation, each one has innumerable duties to perform. Fragrance is poured forth upon the earth only during those months in which its presence is needed, and while it charms the sense, conserves the life on which the sense depends. In these respects it resembles the incense which God commanded the Jewish priest to burn on the altar, which was placed "before the veil of the tabernacle that was by the ark of the testimony, before the mercy-seat that was over the testimony," where He promised to "meet with him." But when was the incense commanded to be burned, and for what purposes

were the sweet odours to be diffused? Not continuously or at capricious intervals, during prayer, praise, or sacrifice. Not when the high priest moved from one spot to another, or made his entrances and exits before the people. Nor was it for useless purposes of unmeaning pomp and pride, like those to which it is put in the modern churches of Rome. Aaron was to "burn sweet incense every morning when he dressed the lamps;" and again Aaron was to burn incense when he lighted the lamps at even. Such were the times: when the lamps were dressed, and an offensive odour proceeded from them; and again, when the lamps were lighted, and partial ignition produced similarly disagreeable effects. In the sultry deserts of Arabia, where these ordinances were first promulgated, oils and fatty matters are with difficulty kept from putrescence. The burning of incense at the times of trimming and lighting the lamps was, therefore, a sanitary regulation of much importance; for thereby the smells of rancid oils were agreeably dissipated in the perfumes of "stacti," "onyca," "galbanum," and "frankincense," "tempered together, pure and holy," just as in the tabernacle of nature similar important offices, and many others of a beneficent character, are discharged by sweetly-scented flowers.

ALICE.

A RULE IN JOB-GARDENING.—Amateur submits a case as follows: "Will you tell me whether it is usual for nurserymen to instruct their men to refuse, when they are told to put in seed not purchased of their master? A man hired of a nurseryman was working for me a few days since, who, when I gave him seeds to sow, told me that his master would not allow him to do so unless they had come from him. Thinking this must be a mistake, I went over and saw the nurseryman, who corroborated his man's statement, having his refusal upon a trade-rule, which, from his showing, appeared to be a well recognised one in his trade. If you would favour me with the advantage of your extensive experience in the matter, you would oblige."

[Nurserymen who send out workmen and make a system of job-gardening, do commonly observe such a rule as is set forth in the foregoing letter. The rule, however, is not followed with any degree of severity; some are more obliging than others, and the question is not raised in every case of the workman being required to handle either plants or seeds purchased elsewhere than of the contracting nurseryman. We may say of it that it is a rule generally but not implicitly followed. This reply is, however, insufficient. Amateur is evidently desirous of an opinion as to the justice of the rule, and on that head we offer a few remarks. We venture, then, to pronounce the rule highly objectionable, because if the owner of a garden takes any real interest, he will be constantly desiring to make purchases on his own account of seeds and plants, and he ought to be free to do as he pleases. Nurserymen who job largely do the work well, and supply seeds and plants of good quality, yet their customers are not in agreeable circumstances; they are as it were under the thumb of the master gardener, and may very properly complain if they take a whim of purchasing for themselves. But, on the other hand, the nurseryman has ready an argument which, according to the existing premises, is unanswerable. He says, "The work is not worth my doing unless I can supply all seeds and plants that are wanted." This is true. Everybody knows that to let out mere labour is an unprofitable business. What is the price usually charged per day for such work? It is 3s. 6d. to 4s. It is impossible for the master to make a profit if he pays his men wages that they can live upon, and gives the customer credit, and keeps his books correctly, and takes his share of losses on his trade throughout. He may indeed protest that he would not send out men at all, except it were as a means of promoting the sale of plants and seeds, from which he can derive some profit; and if he allows one customer to buy a few seeds, he must allow another; and if occasional small purchases be winked at in the spirit of accommodation, he may lose his selling trade altogether, and find himself a loser by letting out labour only. For those who are dissatisfied with such a state of things, the only course is to alter the premises. The contract must be entered into upon different conditions, and there must be a clear understanding as to the purchase of plants and seeds and other garden necessaries. In conclusion, we take this opportunity of remarking that the rate per day commonly charged for skilled workmen sent on to job-work, is too low to afford the master a fair profit on the business, and the men a fair wage for a fair day's work. Jobbing is beset with vexations to all parties, and the rate per day is doubtless the root of the evil. Some masters pay only half-a-crown a day, and employ any men they can get, even if they have never before handled a spade in their lives; and they aver that, owing to the low figure at which they do the work, and the long credit they are obliged to give, this is the only safe method of procedure. As for the customers, they get bad work, and sometimes something worse; but the price paid for labour is at the bottom of it all.]

Replies to Queries.

Planting Vinery.—J. S. L.—For your forcing-house 10 feet long, with about 9 feet length of rafter, one permanent vine would be sufficient; and this should be planted in a border in front of the house, and brought through the centre of the front wall. Train up three canes; one up the centre, and one at two feet from each end. A Black Hamburgh will best stand your smoky atmosphere (Liverpool). Until the permanent vine is established, introduce pot vines if you like into your heated bed; indeed, it might be worth considering whether these would not answer your purpose better than a permanent vine. In that case, you might, in addition to Black Hamburgh, introduce White Frontignan. In either case, you must rest your vines in winter,—the one by removal from the house to cooler quarters, leaving your forcing-house available for other uses; the other by shutting off heat and opening the ventilators. Excavate 2½ feet deep for your border, by 12 feet wide; throw in six inches of brickbats, and place a drain along the front, if any danger of water lodging. Upon these place sods or stable litter, to prevent the soil of the border mixing with the drainage; upon that place three feet in depth of soil, which may be composed as follows: If the present surface soil is good, take one part, and two parts of fresh surface soil from a pasture, the other part to consist of half a part of old lumpy mortar and brick rubbish, and half a part of good old stable or cowhouse dung well rotted; to this add 2cwt. of ½-inch bones. Cover your border in autumn and winter with tiles or shutters, to throw off rain.

Primula Seed.—Eusinge.—Place the selected plants in a light airy house, keep them fairly but not abundantly supplied with water, take the seed from a few of the first and best flowers only, and nip out all the flower-buds that follow. Seed from the best strains is often rendered of inferior quality through allowing the plants to produce too much. There is no occasion for artificial impregnation unless a cross is desired.

Aucuba Seed.—Amicus had best remove the seeds from the berries, and sow them at once two inches deep in mellow loam, in a shady place in the open ground. If this is not convenient, they may be sown in boxes; but the boxes should be placed in a shady spot out of doors, as preferable to housing them. The plants will probably appear about June, and at the end of September it would be advisable to pot them, and put them in frames or pits for the winter.

Roses in Windows.—Inquirer.—Roses are not good window plants. But they may be placed in windows while blooming, and should be removed to the open air when the bloom is past, except in the case of the little fairy roses, which make very pretty window plants for all seasons. A south window is indispensable; and to prevent them becoming sickly and drawn, every opportunity should be taken to put them out in mild showers, and indeed at every convenient time. But care should be taken not to expose them to frost, cutting winds, or a burning sun. We have seen Lawrencian roses kept in health and beauty for years as window plants, by constantly helping them in the way indicated, and avoiding all extremes. Weak guano-water will benefit pot-roses when the pots are full of roots, but is not wanted when they have been newly potted.

Weeping Birch.—J. W. T.—The weeping and other varieties of fir are multiplied by grafting or inarching. Where there is only one tree, and it is desired to multiply it, young trees of common birch should be planted round it as stocks, and the variety may then be inarched very conveniently. If this course of procedure is not convenient, grafting must be resorted to; this being the best season for the operation.

Araucaria.—J. G.—Your handsome tree must have been badly used in the process of transplanting. The plan you propose to follow will not improve it; probably the admixture of a large proportion of rotted dung would be very injurious. Make a mixture of good mellow loam and tough lumps of turfy peat; have it carefully lifted, and plant it without raising it above the level. Let the stuff be carefully thrust in amongst the roots with the hand, not stamped in with the heel of a boot, as is the way with men accustomed only to bedding and ditching, and by all means avoid making perforations in the tree; do not mutilate it at all. What was said last year about stopping araucarias was intended for scientific arboriculturists, who are deeply interested in such matters, not for those who are as beginners or mere lookers-on in such matters. If you lift and replant your tree at once, it will have a good chance of making a fair growth this season. Send the ivy-leaves as you propose; one of each sort

Constant Reader is advised to apply to Messrs. Jas. Carter and Co.

Chrysanthemums.—J. J.—Cuttings are made from January to April, and for some purposes as late as June or July. Those made in February and March usually produce the finest plants, and of necessity they are then struck in heat, which must be moderate, and the cuttings must be in full daylight. In stopping, the point of the shoot is pinched out with the fingers; but if a shoot takes the lead and goes ahead of all the rest, it may be cut back two or three or more joints, and made a cutting of.

Stephanotis floribunda.—T. R.—A plant intended for exhibition in August next, should now be growing freely in a good bottom-heat, as advised in the calendar of operations.

Zonale Geranium Seed.—South Molton.—To flower next year, sow the seed in June or July next. They may be flowered in great part this year, if sown alone and put in a stove and kept there till the beginning of May, getting them potted single as soon as they have two or three leaves beyond the seed-leaves. The soil for the seed-pans should be loam and leaf-mould in a not too fine condition; there should in fact be plenty of lumps in it as large as beans, the finest part of course on the top. A good compost to pot the young plants in is one composed of equal parts loam, peat, and dung rotted to powder with a half part of silver sand. Shift them from size to size as fast as they fill their pots with roots, and keep them always near the glass in the sunniest house you have. Sow the seed of Tiger Lily in a pan filled with a mixture of loam and leaf-mould or peat, and place it in a pit or frame. Keep it moist and shaded till the plants appear.

Verbenas.—Sbropshire asks too large a question to be disposed of in Replies, and therefore her letter has been handed down to a contributor who can deal with it in *extenso* and in the most practical manner.

Strawberry Forcing.—Sibley.—You appear to have spotted your crop by the fear of feeding the plants well. We have frequently advised, both in "Operations" and otherwise, the plunging of the pots in leaves or dung and the abundant use of the water-pot. We have never seen potted strawberries fruit so finely as when they were allowed to root through the pots into some highly nutritious material, such, for example, as a bed of good manure. But plunging in leaves is better than nothing, because of the constantly moist condition of the roots. Plenty of air and full exposure to light are essential to success; no strawberry fit to eat was ever grown in the dark, or even in a much shaded position.

Grafting.—C. C.—You will find all you need in the way of reply to your queries in this week's "Operations." Many readers do not appear to pay sufficient attention to this department, in which to a great extent their wants are anticipated.

EFFECTS OF THE FROST.

A curious illustration of the severity of the late frost has, among others, been brought under our notice by an eminent physician, who is a great admirer of plants. In a greenhouse, together with Sikkims and other plants, was a small specimen of, to our mind, the most beautiful and interesting of its kind yet introduced—*Rhododendron Javanicum*. As our readers are aware, this charming species combines tenderness with beauty, and will not stand a very low temperature. On looking over the plants, this was found to be completely done for. The outer bark was disrupted, and on removing it a singular appearance met the eye. The stem was found encased, as if in a closely fitting tube, by a film of ice, formed doubtless by the extravasated fluids of the plant!!

He further informed us that the frost afforded him an opportunity of testing remarkably the advantages of double-glazing. In the early part of last year, by a simple and ingenious process to which we may allude at some other time, he had a small span-roof house double-glazed. In a neighbouring plant-house, provided with four rows of pipes, all that could be done was just to keep it less than 6° above the temperature of his double-glazed but unheated structure.—*Irish Farmers' Gazette*.

WHAT IS THE difference between celery and salary?—The one you must bank before you can get it; the other you must get before you can bank it.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.			M. Imp. avg. of 43 yrs. Gravh	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D	
			rises.	Sun sets.	Moon rises.	Moon sets.	Barometer.	Thermometer.		Rain							
1867		[17, 18, 19															
17	S	2nd Sunday in Lent. Malines Exhibition,	h. m.	h. m.	h. m.	h. m.										1867	
18	M	Princess Louisa born, 1845	6 11	6 6	3 9 p.m.	4 38 a.m.	29.22	29.11	53 30	41.5		41.8				Cycnoloch pentadactylon, 1 ... Brazil	17
19	T	R. H. S. Spring Show	6 9	6 8	4 13	5 10	29.29	29.25	52 34	43.0	0.4	41.8				Phalimopsis amabilis, 1 ... Manilla	18
20	W	Eclipse of Moon beginning at 7h. 16m. a.m.	6 7	6 10	5 24	5 39	29.45	29.09	49 32	40.5	0.6	41.0				P. grandiflora, 1 ... Java	19
21	T	Sun on the Equator at 1h. 46m. a.m.	6 5	6 11	6 34	6 8	29.41	29.82	44 30	37.0	0.2	41.0				Cymbidium eburneum, 1 ... India	20
22	F	Length of night 11h. 47m.	6 3	6 12	7 44	7 0	29.65	29.49	44 25	34.5	0.7	41.0				Cypripedium billora, 1 ... Peru	21
23	S	R. B. S. Spring Show	6 1	6 14	8 51	7 0	29.86	29.72	47 29	38.0	0.3	43.0				C. caudatum, 1 ... Peru	22
			5 59	6 15	9 55	7 26	29.82	29.30	48 31	41.0	0.40	42.1					23

The Gardener's Magazine.

SATURDAY, MARCH 16, 1867.

DISA GRANDIFLORA IS STILL COMPARATIVELY UNKNOWN, though it was years ago described as "one of the most unusual and most glorious examples of the diversity of the floral world," and has been occasionally exhibited in the full perfection of its peerless beauty. Ask any fifty cultivators who take an interest in choice plants what it is like; and if you obtain any answer at all, it is most likely to be that "Disa grandiflora is like a gladiolus." To be entitled to such a comparison is no disgrace to any plant, but whoever knows the Disa, or has access to a good figure of it, will be inclined to quote Hamlet's figure of "Hyperion to a satyr," though in doing so the gladiolus is visited with dishonour. It is certainly a plant of rare and noble beauty, and to appreciate it does not need any such training of the eye and knowledge of its history as is the case with some plants that give immense delight to connoisseurs, and are held in light esteem by all the rest of mankind. Disa grandiflora not only deserves to be better known and generally admired, but is eminently adapted to become a popular plant, to become in fact a weed in England, and actually make a figure in our sylvan scenery. We have there already some precious gems belonging to the family of orchids; why should we not add to their number this splendid exotic orchid, which is as hardy as an *Ixia* or *Tigridia*, and would probably grow and flower luxuriantly, and increase rapidly in just such half-shaded and half-marshy habitats as *Iris fœtidissima* delights in, or would form a companion to the stately *Butomus umbellatus* on the margin of the clear winding stream and deep still lake? To be made available for the open ground, it no doubt would have to be potted up in autumn, and kept in a frame till spring; but it is probable that it would survive any of our ordinary mild winters, though it doubtless would succumb in such a winter as the last. There is one thing certain, that after years of experiment and failure in the cultivation of this splendid plant, we learn that failure is the result of attempting too much—that in fact the cultivator has unintentionally aimed at killing it, and has succeeded; but to have succeeded in keeping it, scarcely anything more was required than to leave it to take care of itself.

The Disas are terrestrial orchids, natives of the Cape of Good Hope. At various times during the present century, examples of the genus have been introduced to England, so that about fifteen species have places in the books; but none of them are known except to a few botanists, with the exception of grandiflora, and that chiefly because it stubbornly resisted all attempts to cultivate it until quite recently, when it was at last discovered that it required very little cultivation at all. In the "Hortus Kewensis" of 1813, we find two species entered—namely, *D. cornuta* and *D. spathulata*—as introduced in 1805 by George Hibbert, Esq. In Sweet's "Hortus" of 1830, we find thirteen species, headed by *D. grandiflora*, which is described as a "frame bulb, herbaceous, perennial, dying down in the winter, and shooting up afresh the following spring;" a description which is nearly, but not quite correct. It was first figured in the "Sertum Orchidaceum" from a foreign specimen, and is there recorded as having only once flowered in England. This was in 1825, when Mr. William Griffin, a collector and cultivator of bulbous plants, flowered it in his garden at South Lambeth. Again, in 1843, it flowered at Kew, and furnished the subject of a very good figure in the "Botanical Register" (t. 926), which, however, like many other good figures, rather suggested what the plant might be than represented truthfully its glorious colours and majestic form. It is customary to say that pictures of plants are exaggerations; but if we may be allowed to make a remark in passing, we will say that we have never seen the beauty of a really fine flower equalled by the happiest stroke of the most able artist. The fact is, it is impossible. The plate in the "Botanical Register" was accompanied with remarks on the treatment required by this plant, and to those remarks we are inclined to attribute the almost general failure which has attended its cultivation; for it was then proposed to treat the plant as one impatient of moisture, whereas, as an inhabitant of bogs, pools, and streams, an abundance of water is the one thing needful to its existence.

Charles Leach, Esq., of Clapham Park, is entitled to the honour—and in this case it is no questionable honour—of rescuing this No. 98, NEW SERIES.—VOL. X.

plant from the killing system by which it was attempted to cultivate it, and the oblivion to which it appeared to be destined by its apparent intractability. Great was the surprise and delight of orchidologists when in July, 1854, Mr. Leach presented to the notice of the Horticultural Society at Chiswick a fine plant, and accompanied it with some remarks on the course of treatment followed by him to ensure its flowering. Again, on the 5th of June, 1861, it was exhibited in fine condition by Mr. Leach at South Kensington, and attracted more attention than in 1854; indeed, since this last-named appearance of the plant it has been shown frequently, and we can call to mind a very fine example which was presented by Mr. Bull at the concluding show of the season last year at the Regent's Park Botanic Gardens.

The cultivation of this Disa is, as above remarked, a matter of the utmost simplicity. It will not surprise any of our readers to be told that the conditions in which it is found growing wild are to be imitated as nearly as possible, and that the cultivation consists solely in such imitation. Yet the cultivators who killed it were not altogether without information as to its habit and climatic necessities; and we must ascribe their failures to the persistent idea—an idea now a little loosened at the root—that an exotic orchid must of necessity be boiled or roasted. Sir John Herschel has reported, in connection with his astronomical studies at the Cape, that *Disa grandiflora* is an abundant inhabitant of the margins of pools of standing water on Table Mountain, that its roots are almost always immersed in water, and sometimes its leaves are bathed in dense mists that continue during the heat of the summer for one or two weeks uninterruptedly. Here it is exposed to a temperature of 96° in the summer, and of 31° in winter, giving promise as it grows at home of adaptability to the English climate. The course which Mr. Leach has found most successful is that which consists in treating it as a cool greenhouse or frame plant, needing at all times to be kept moist, and during the summer requiring to be treated as an aquatic. After flowering, the plants are set out and fully exposed to sun and air, but are protected with hand-lights, in case of frost or rain, until the end of October, when they are shifted into larger pots, the soil being rough fibrous peat, with a good proportion of silver sand; they are then placed in a cool greenhouse or frame, close to the glass, and are syringed over twice a day. They grow all the winter, the leaves lengthening and offsets coming up, and to dry them off and compel them to rest is to incur the risk of killing them. As to temperature, it is advisable to protect them from frost when grown in pots, but heat in winter is not desirable beyond that. At the end of February a little increase of heat may be allowed, and the syringing may be increased to three times a day. Such treatment with free ventilation will bring up the flower stems in May and June, and the cultivator will in due time be well rewarded. The plant dies down in winter in its native soil, but even then its roots are always moist, and it soon begins to grow again. But hitherto it has been found safest to allow no rest at all, but to keep the plant slowly growing all the winter. It has a different summer at home to ours, and that is quite enough to account for its different behaviour.

The hardness of this Disa is a matter of great importance. Long ago Mr. Smith, a gardener living at Cape Town, reported that he had seen it live unhurt through a frost that destroyed potatoes in the same garden. Our much valued, because practical, correspondent, Mr. William Chitty, who has been a successful cultivator of *Cypripedium spectabile* and *C. calceolus* in the open border, informs us that he has found the Disa to be as hardy as any British or North American orchids, and needing only to be planted at the margin of a pool or under the splash of a fountain, in a spongy peat soil, to become one of the most magnificent embellishments of the garden it is possible to plant in it. May we not hope, then, to see this stately and brilliant plant in every well furnished garden in the land in the course of a few years, especially as, when properly treated, it increases in an extraordinary manner, producing swarms of offsets, which quickly attain to a flowering condition? For the choice garden, *par excellence*, *Disa grandiflora* is indispensable, and should be found in every cool greenhouse and conservatory where variety and beauty and interest are in any degree of request. Many of our readers will understand how it is that it has occurred to us to make remarks on this plant at the present time. It has been reported that Major Trevor Clarke had proved its hardness by leaving out a plant during the past winter which was now found to be unhurt. There is just a mistake in

this report to the extent that it does not relate to any *Disa*, but to *Dyckia rariflora*, a Brazilian Bromeliad, which Major Clarke has, to his surprise, found capable of enduring the rigour of a British winter. But nevertheless the mistake (in which the GARDENER'S MAGAZINE had no share) may fairly put us in mind of the fact that this lovely *Disa* is about as hardy as *Phormium tenax*, and needs nearly the same kind of treatment, and may be regarded as a valuable acquisition both for the cool conservatory and to plant out in moist half-shady borders, or in fact to take a place in the *Gladiolus* bed to outshine them far with its splendid flowers.

THE DIRECTORY OF THE DUBLIN EXHIBITION PALACE have instituted weekly meetings, to be held on Wednesdays, for the exhibition of horticultural produce, more especially novelties, examples of cultural skill, and objects of interest, such as scarcely meet with attention at ordinary flower-shows. There are no special classes, exhibitors may send what they please, and certificates will be awarded according to merit. At the close of the season awards will be made of three prizes of £10 each, three of £5 each, and three of £3 each; but no prizes will be given to any exhibitor who shall not have obtained at least twelve certificates, and exhibited on at least six occasions. We are indebted for this information to our able contemporary the *Irish Farmer's Gazette*, in the last issue of which there is a report of the first meeting, which was held on the 6th.

THE ANNUAL MEETING OF THE UNITED HORTICULTURAL SOCIETY took place on Monday last, the President, William Marshall, Esq., in the chair. Letters from Messrs. Crute, Hibberd, and Smith, three out of four of the vice-presidents, were read, each of the writers tendering a resignation of the office. The resignations were accepted, and votes of thanks were passed in acknowledgment of the services of Mr. Crute and Mr. Hibberd. The report was remarkably brief: it stated that the society was in a prosperous state, but the committee had to regret that some differences of opinion had led to the withdrawal of two gentlemen who had contributed in an eminent degree to the society's welfare. The balance-sheet showed that a sum of £186 had been brought forward from last year, that £300 had been received from the Albert Orphan Asylum on account of the Guildhall exhibition, and that the subscriptions during the past year had amounted to £61. On the other side, the principal payments were £181 to the Benevolent Fund; advertising, £11; rent of rooms, £7 13s.; secretary's salary, £25; balance in hand, £281. Of this balance about £230 will be paid over to the Benevolent Fund. The report and balance-sheet having been adopted, the meeting proceeded to the election of officers. Mr. Harvey Brand, Mr. A. Short, and Mr. John Fraser were elected vice-presidents. The committee, with a few exceptions, were re-elected. Votes of thanks were tendered to the President, the Secretary, and the Committee. In acknowledging the compliment paid to himself, the President touched slightly upon recent events, with a view to justify the part he took in promoting the amalgamation with the Albert Orphan Asylum on the occasion of the last exhibition at Guildhall, and expressing an opinion that the recent differences ought not to have led to the withdrawal of those gentlemen who had retired from the management.

EXHIBITIONS ANNOUNCED.—The following announcements have been made subsequent to the publication of the list at page 86: *Crystal Palace*, Great Flower Show, May 25; Rose Show, June 29. *Royal Horticultural of Ireland*, Autumn Show, August 23. *York Floral Fête*, June 19th and 20th.

SPARROWS FOR AMERICA.—The *Northern Whig* states that a few days ago there left Belfast, by the Liverpool steamer, en route for New York, a rather novel consignment, namely, several hundred sparrows. Sparrows in the United States are held in high repute by the farmers, as they eat up the grubs and small snails which infest the soil.

CALLUNA ATLANTICA, the Newfoundland heath, is regarded by Professor Asa Gray as in no important respect differing from *C. vulgaris* of Britain, "so that, as yet, a second species can hardly be said to be established."

AN INTERNATIONAL BOTANICAL CONGRESS will be held by the Botanical Society of France during the time of the Great Exhibition, to which botanists of all countries will be invited. The Congress will open on the 26th of July, and will last for a month.

A tabular view of the world-distribution of British Ferns, by J. G. Baker, Esq., is the most important contribution to the March Number of the *Journal of Botany*, and we direct attention to it in this place as likely to prove of great interest to such of our readers as are at all concerned about the geographical distribution of plants.

THE "NEW FOOD."—Mr. Bateman having hit Mr. Hullett rather hard in some remarks at one of the recent fortnightly meetings of the Royal Horticultural Society, Mr. Hullett has written to say that he thought it cruel of Mr. Bateman to say what he had done at the last meeting respecting this food, leading people to imagine that the seed he sent out was only that of *Holeus saccharatus*. He sent the black seed to no one except to show the difference between it and the true thing (*Sorghum tartaricum*), which has white seed, and this he sent to over 10,000 applicants; the residue had a variety with brown seed, which is even harder than the white: both were grown by him at Waterloo last year, and both were perfectly hardy, which the other (with black seed) is not. "So much for Mr. Hullett's statement," said Mr. Bateman at the meeting on the 5th ultimo; "now for my defence. In the only two collections that I had the opportunity of examining (those sent to the Royal Horticultural Society, and to myself), in which all the three varieties (white, brown, and black) were included, not a hint was given which was the true *Simon Puro*. I was therefore obliged to find that out for myself, and my only chance was to go to the seed-shops; and at half a dozen around Covent Garden I asked for the Chinese Sugar Grass, and in every case a packet of the black seed was handed to me." Mr. Bateman therefore concluded that the black seed was the right sort, instead of which the white or the brown ought, Mr. H. now says, to have been selected. So much for the colour question; now for the question of names. As Mr. Hullett in his letter to the *Times* joined the "Chinese Sugar Grass" with *Sorghum tartaricum*, it was natural to infer, according to botanical usage, that *Sorghum tartaricum* was but another name for the Chinese Sugar Grass, a well-known plant in this country, which Mr. Hullett's *S. tartaricum* certainly was not. But if *S. tartaricum* was not the Chinese Sugar Grass, why did Mr. H. in his *Times* letter lead us to infer that it was? And if not that, what was it? Whence did he get the name (*S. tartaricum*)? Who gave it the name? He (Mr. Bateman) had spent several hours lately at the

Linnean Society's Library, and with the assistance of Mr. Kippist had tried to discover some trace of *S. tartaricum*, but all to no purpose. Neither among the *Holeuses*, nor the *Sorghums*, nor the *Andropogons*, a genus in which the former are sometimes included, was there any *tartaricum* to be found; so that if any Tartar was to be caught, Mr. Hullett must catch him himself.

With regard to the Sorghum, Mr. Bateman had collected the following information. Mr. Fortuno stated that at one time the French were very hopeful it might turn out a substitute for the sugar-cane, and tried it extensively in the south of France; but it failed. It might be useful as a fodder for cattle, but it requires a climate like that of Tein-tsin or Peking; and where rice would not grow, its place was taken by tall kinds of Sorghum, some as much as 12 or 15 feet high. It was from the long stout stubble of this grass that our cavalry horses in the late Chinese war suffered so severely. Mr. Thompson remembered it many years ago in the Society's garden, and about an acre of it was grown near Chiswick by Mr. Jessop, and who had it cut for cattle in pieces a foot long. Mr. Bateman also quoted Dr. Roxburgh as to the uses the *Holeus* or Sorghum is put to, as well as Dr. Royle, who says that the different kinds of Sorghum (called "durra" by the natives), the Great or Indian Millet, is an important branch of Indian cultivation. The species most commonly grown were *S. vulgare* and *S. bicolor*; but in another list all were classed together, viz., *S. album*, *rubens*, *nigrum*, *nigricans*, and *nigerrimum*. He had also examined the specimens in the possession of the Linnean Society, arranged by Dr. Wallieh, and which formed part of the East-Indian herbarium, and all were treated as mere varieties of the same species. These, with their black, brown, and white seeds, were then exhibited to the meeting. Mr. Bateman concluded by expressing a hope that Mr. Hullett, who seemed now to be in a communicative mood, would tell the Society, and it was the third time of asking, where *Passiflora Hullettii* (fruit of which had been pronounced superior to the pine-apple) had fruited; where and when the Durion had been fruited; and where and when the Mangosteens and Mangos, which according to his own account he cut in dozens and sold at 2s. 6d. a-piece, had been produced. Until these questions had been satisfactorily answered, he would recommend people to be cautious how they meddled with Mr. Hullett's "New Food."

CAMELLIA CULTURE.

NO. II.—THE CAMELLIA HOUSE.

ALTHOUGH the Camellia has so many admirers, it cannot be said that there are amongst them any great number of ardent cultivators—or rather perhaps I ought to say, amongst a great number who professedly admire them, there are few who provide all the conditions necessary for their successful cultivation. Therefore, however great may be their admiration of this beautiful flower, they can never see it in the state of perfection they might do, if only a portion of the expense were laid out in constructing suitable buildings for them, that is so lavishly wasted upon some other classes of plants that have only novelty to recommend them. But happily the Camellia has suffered less by depreciation in the estimation of the flower-loving public than many good old friends, as up to the present day it retains a good hold upon the affections of the public. I have no fear in predicting that we shall yet see it rising again still higher, and recovering the ground it has lost. But to do this effectually we must have steadfast admirers and skilful cultivators,—admirers who will ungrudgingly supply the means, and cultivators who will know how to use them.

But, in cultivating Camellia in the present day, the general cultivator is labouring under a disadvantage which our predecessors had not to contend with; as the present style of building our horticultural structures admits nearly double the amount of light that such buildings did in olden times. And this extra amount of light, I contend, is not favourable for Camellia culture, as every careful cultivator must have observed that they flourish much the best in a subdued light. Therefore I say, if we wish to see this plant got up to that degree of perfection it ought to be in, we must have suitable winter quarters for it, in the way of a specially designed house, where the admission of light is not so great as is secured at the present time for our fruit houses. The truth of this argument is to be tested even in these days; for wherever we see the best collection of Camellias, the houses in which they are grown date their career of usefulness far back into the beginning of the present century. It is not long since we were reminded of this in an account in these pages of an ancient and dark Camellia house, in which the trees were remarkable for size, beauty, and abundant flowering. (See page 582 of last year's issue.)

For the proper treatment of the Camellia during the two or three summer months that they may be placed out in the open air, we want a far more general provision made for their welfare than the prevailing custom sanctions, as they should not be exposed either to the parching midday summer sun, nor to the heavy storms and winds we sometimes experience. The shelter of a north wall or fence is better than none at all; but such a makeshift is not conducive to success in Camellia culture, as the drenching rains and winds are amongst their worst enemies. The best and most suitable protection for them during summer is no doubt a glass-roofed house with open ends and front on a north wall; as in such a position they would enjoy an abundance of air, and be securely protected against heavy rains; and as this roof could be temporarily shaded to reduce the amount of light, either by a canvas blind or a little lime and water, it would be just the position that they would delight in during the hot summer months. The air sur-

rounding them would be cool and moist, and they would occasion far less trouble than when standing exposed to all the powers of the elements. The next best covering for a similar structure would be felt. I have seen this used for the purpose with good effect. The only precaution necessary in using this is not to bring the front too low, or it shuts out too much light. With some such places for their summer quarters, and a suitable well-ventilated house for the other portions of the year, where the light is somewhat subdued, the cultivator has secured one of the first essentials to success.

As these remarks will appear at a very suitable season for Camellia growers, I shall give the details under separate heads, and will first direct the reader's attention to the subject of

PRUNING.

Pruning may seem a harsh word in connection with the cultivation of Camellias, but it is nevertheless essential that its application to these plants should be properly understood, as there are certain times during the life of a plant, especially with some varieties of Camellias, when the operation must be conducted with no sparing hand, as the loose straggling habits of some of them (take *Mathotiana* as an instance) cannot be kept within bounds unless the knife is used occasionally. On the other hand, there are many that will go on for years only requiring an occasional stray shoot taken away here and there. Individually, I object to the use of the knife amongst them any more than can possibly be avoided, as I have seen the almost fatal result of its indiscriminate use by some young cultivators. It is such experience that makes me cautious in recommending it, because too often the work of pruning is carried out without either skill or judgment to aid the operator; and, more often than not, the whole collection is allowed to go on for years without any attempt at pruning, until the plants become both unsightly and unmanageable, and then follows a general slaughter. The neglect of years is condensed into the work of a day, and where a few stray shoots, if they had been removed at the proper time, would now have prevented the removal of a large number, a slashing use of the knife is resorted to, to the manifest injury of the plants.

The proper season for pruning these plants is directly after flowering. As soon as any number of them are out of flower, collect them to one position in the house, and give them less water than those in flower for ten days or a fortnight. They should then be cut in, if they require it; but first give an eye to the form of the plant, and only cut away just sufficient to bring it into the desired shape. Give water sparingly for the next week, and then increase the quantity until they are shifted into larger pots. Put the whole collection through the above course until they are all set fair for shifting. But, as it is sometimes desirable to have a portion of them in advance of the others, the first lot so treated should be repotted as soon as ready, and placed in a mild moist heat to make their growth.

REPOTTING.

On the subject of potting I have some remarks to make; and first, I advise the cultivator to give liberal shifts, but not large ones, as over-potting is open to severe censure, and certainly ought not to be practised by those who have any pretensions to horticultural skill. But apart from that, if large shifts are given, a too vigorous growth is likely to result, and thereby the chances of flowering are reduced to a minimum. It requires some amount of judgment to decide in every case whether a certain plant requires shifting or not, as there are some varieties that are naturally vigorous growers, and which, so long as you afford them space to root in, will flower but sparingly. But omit to shift them for a year or two, and they will flower with a surprising freeness. And again, when the collection attains size and age, it is necessary to exercise the same caution in repotting, as very often some of them will go on for two or three years, or even more, without shifting, and still produce an annual display of flowers. When there is a prospect of their doing this, let the plant be taken out of its pot every year; let all the old drainage be carefully picked out, and some clean dry materials put in its place. I would impress upon my readers the importance of paying particular attention to this point of fresh drainage every year, when the plants are not shifted, as without some such precautions the plants will soon fall into ill-health; for without a ready means of escape, the water given them will soon render the soil soddened and sour, and by degrees the young rootlets become black and rotten, and the loss of them will not be detected by the cultivator until the sickly appearance of the plants leads to an inspection; and then very often it is found that, owing to the non-attention to the subject of drainage at the proper season, it will require a couple of years of careful culture to restore the plant again to its usual health. When it is decided that any of them should stand over for another year without a shift, if there appears to be any doubt about their going satisfactorily through the year, a mulching two inches thick of fresh-gathered sheep's dung will help them amazingly, it being a gentle stimulant and

abundantly nourishing. In every case where this is applied, the water to the plant should be given through a rose for the first month, as the water so given permeates the dressing below, and carries down with it what nutriment it contains. In similar cases sometimes, a topdressing of turfy loam and leaf-mould will afford the plant sufficient nourishment to go through until another season. But in each of these cases the cultivator must be guided entirely by the condition of the plants, and the purposes for which they are required. The above courses of treatment are given in full confidence of their utility, and with the knowledge that they can be adopted with advantage, both to the plants and the cultivator.

There is still another good reason why some judgment is necessary at this stage of their culture; for when plants have attained a suitable size for the house they are intended to decorate, and are not desired larger, they may be checked in their vigorous growth by allowing the pots to get full of roots, and supplying sufficient nourishment by topdressings or mulchings. If a perfect system of drainage is maintained, a healthy root-action may be kept up for several years without adding much to the size of the plant, and at the same time a fair share of flowers secured. With a collection of young plants, of course the treatment must be different to what has been above detailed. If it is desirable to increase their size, many of these, especially the vigorous growing ones, may have a shift into pots a size larger for several successive years. But as all are not alike supplied abundantly with roots, the observant cultivator must discriminate for himself between a weak and a strong-rooted plant, and make no attempt to increase the weak ones by giving a superabundance of pot-room, on the fallacious assumption that it will increase and strengthen them; the fact is, it would have an opposite effect. When such cases occur, with no hopes of their recovering under ordinary treatment, plunge the plant in a gentle bottom heat for some six or eight weeks. This will be found the most speedy method, and in a few months the plant will show its gratitude by its increased vigour and healthy appearance.

As a closing paragraph, I would call the reader's attention to the time, above stated, at which I recommend they should be shifted. My time is immediately after flowering; but there are one or two solitary individuals that tell us it should be deferred until late in the summer, when the flower-buds are formed. I find no fault with the authors of this plan, because no doubt, under their own treatment, it may work well. But it is so opposed to my own practice, and that of hundreds of others, that I should not advise anyone to adopt it, because I think, if we investigate the plan only lightly, we shall find that by giving the plants a fresh stimulus to action at a time when they should be gradually going to rest, and to mature and swell off their flower-buds, we are not likely either to promote the health of the plant or increase its flowering qualities. For other details as to soil, &c., I must beg the reader to wait until another number.

J. C. CLARKE.

CULTURE OF THE TUBEROSE FOR FLOWERING IN THE OPEN AIR.

Having lately read the article on the Tuberose at page 476 of the *GARDENER'S MAGAZINE* for 1866, the writer, S. H., says, "Mr. Salisbury told how to grow them in the open air—that is to say, how to flower them in borders; but I never could do it, and never met with the human creature that could!" I have felt it my duty, and I feel it to be a pleasure, to communicate on this subject, having for many years practised the flowering of this noble plant in the open border, with the most perfect success, at Beverley. I will not attempt to add to the description or the eulogy of this flower contained in the article I refer to. Let it suffice that the flower is at once one of the most elegant and most powerfully fragrant members of an elegant and fragrant family; that the plant is not hardy, and indeed is decidedly tender in constitution, and that therefore to flower it in the open border needs special preparation, and some amount of skill and care. I proceed therefore to furnish directions in accordance with the system of cultivation I have found perfectly successful.

Procure good sound bulbs, and about the first or second week in April pot them in 24-sized pots. The compost that we always used consisted of about equal parts of good yellow loam and leaf-mould with a little sand mixed with it. The pots were then placed in the back of the cucumber bed, some boards being put over the bed to keep the bottoms of the pots from the soil. We found that the heat that suited the cucumber did capitally for them. They were kept in the same place until the foliage of the cucumbers began to interfere with them. By this time (say the second week in May) they were all strong healthy plants. They were then gradually hardened off until the second or third week in June, when they were planted out in the rose-borders, where they were to bloom. The soil of those borders was rather strong loam on a bottom of clay, but they were always well dug, and a good coat of well-rotted manure dug in every winter; in fact, we always found that the soil that suited the roses suited the Tuberoses quite as

well. The only further care they required was to put a neat stick to each plant. We used common laths split in two or three pieces and painted. Care was always taken to keep the flower-stalk tied to the stick as it advanced in height; and they were never suffered to want for water in dry weather. They always commenced to flower in August, and were generally in bloom until cut down by the frost in the end of September or the beginning of October. We often had twenty blooms from a plant, and we have had as many as twenty-three. They were always very much admired by the many visitors to the gardens for their beauty as well as for their beautiful scent, which could be detected all over the gardens; and in the early morning, when we used to be mowing around them, the air was laden with their spicy fragrance. There is one caution necessary to those who would grow them, and that is to be sure and look well to the bulbs on receiving them from the seedsman. The plan that we always adopted was to take each bulb between the finger and thumb, and examine the lower part where the roots start from, as it will be often found that there is a small decayed spot there about the size of a pea. If this is not taken away, the result will be that the spot will spread, and the bulb will be useless. But if a small knife be taken, and the decayed part cut clean out and scraped, so that none of the decayed matter is left, and then let the bulb be well dried in the sun or before the fire before potting, it will be none the worse for it. The only other thing that requires care is to be sure and secure good drainage for the pots, as the bulbs are very impatient of damp, and a whole batch of bulbs may be lost by not attending to the drainage. I have no doubt that by potting some bulbs later, in places where the climate is warmer than in this flat part of Hampshire, and where the winter does not set in so early, that they may be had in bloom until nearly Christmas. Should any of the readers of the GARDENER'S MAGAZINE try this plan of growing one of the most beautifully fragrant of our summer-flowering bulbs, I trust the same success may attend them that attended the same mode of culture at Beverley.

WILLIAM MOSS, Gardener to F. Townsend, Esq.,
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EXTENSION VERSUS RESTRICTION IN GRAPE-GROWING.

It is very truly remarked by many, that we live in an age of progress, and the designation "sensational," so commonly applied to the various schemes and inventions that are designed to engage the public attention, is not always inappropriate, though it is novel and is sometimes used unfairly. I am tempted to say something on what may be considered a very novel idea, that is, when compared with our usual practice as sanctioned by long established custom.

Since the appearance in the GARDENER'S MAGAZINE of Dec. 8th, 1866, of that memorable leader on the "Glory of the Vine" (p. 542), there has arisen a lively discussion as to the respective merits of the extension and the restriction systems of Grape-growing. Mr. Cannell of the Fuchsia Nursery, Woolwich, made a stir by announcing in his Catalogue, published about six weeks ago, "a hint worth £100.;" this hint being to the effect that vines would be more healthy if allowed more room, and that if severe pruning above ground were practised, there ought also to be severe pruning of the roots. As an observer and practitioner of many years' standing in Vine-culture, I venture to offer a few observations on this subject:—

Some of the features of the practice recommended are not new to many of the gardening profession, as, for example, that of allowing the branches of one vine to cover the space usually occupied by several distinct plants; for by such a system, as is well known, they produce excellent crops of superior fruit. I believe that if the inquiry were extended, we might be enabled to cite numerous examples confirming the fact throughout the country.

Now it is quite understood by the growers of specimen plants for exhibition that, in order to secure a plant favourable in every way for the purpose, it is best, if possible, to choose it from among a number of the same age. It may appear a strange analogy when I say, as with the animal creation, so with plants—some will, though subject to precisely the same treatment, take the precedence of the rest, both in robust and rapid growth. Nurserymen, and other large growers who propagate their own collections of various plants, have in their choice an exceptional advantage compared with the general community of gardeners. Again, it is not uncommon to observe, where several vines are planted in the same prepared border and subjected to the same treatment, some will outstrip the others, not only in the present but in the future. Now comes the question, shall we depart from the practice almost universally adopted—that of planting a single vine to each rafter—or have recourse to the Editor's suggestion made three months ago, and now backed up by Mr. Cannell's advice—that of allowing one vine to suffice for the whole house, so that its branches may have every encouragement for freedom of growth?

For young gardeners, or those whose means are limited, to commit themselves to such a plan would, I anticipate, in many instances prove a fatal mistake. Departure from established rules by way of experiment is not advisable where it is likely to interfere with our expected returns, for with the majority of cultivators more experiment is out of the question. I have always maintained that gardeners, beyond every other class of artisans, were greatly indebted to local influences for extraordinary success in some of the branches of gardening; so that previous to recommending for general adoption any scheme that may have proved beneficial elsewhere, we should well consider the means that have aided or retarded our own success, and whether partly they may not be attributed, independent of skill, to a combination of circumstances. It is a well-known fact that very many of our most eminent Grape-growers in this country are

favoured by natural resources available within the vicinity of their practice. As one of many instances confirming my assertion, I would just refer to a well-known grower who supplies the London market with grapes—Mr. Rochford, of Page Green, Tottenham: this gentleman has a very extensive range of glass entirely confined to their culture. The same are of marked perfection both in growth and fruitfulness. The soil which constitutes the greater portion of the vine-borders is obtained from the spot on which the houses are erected. There is an advantage of the greatest importance to the cultivator. Now on that very plot of land occupied by Mr. Rochford there are two distinct strata of soil, and their effects on vegetation are just the opposite of each other. An example of it was forcibly illustrated by two plantations of black currants in the said grounds; the one growing luxuriantly, while the other presented the reverse of it. We will attempt to discuss some of the reasons advanced by Mr. Cannell, as an argument in furtherance of his teachings.

It may be in the recollection of my readers, that in a paper written by me on the failure of Peach and other fruit trees under glass, in the GARDENER'S MAGAZINE of last year (p. 491), that I refer to the failure of the breaking of the eyes of the early forced vines under the care of Mr. Davis, the gardener at Roehampton Park, and his subsequent treatment of them by the cutting of the rods back to the lowest eyes, and the remarkable growth they afterwards made. If Mr. Cannell would treat himself with a visit to Roehampton Park at the present season, and witness the result as now exhibited, I am persuaded that his opinion afterwards as to the non-use of the knife would undergo a revision.

In my previous paper on vines, as inserted in the magazine, I have always maintained that if there is a healthy root-action, then the well-doing of the vine is within the compass of the skill of the gardener; but the very act of allowing the shoots or branches to have full scope for their extension will not, I am certain, counteract or check the evils complained of, and which are attributed to the use of the knife. It is the neglect of external remedies which is too often productive of the evils common to grape-growing, although I am willing to admit that in too many cases the knife is only one amongst many of the influences for good or evil. Failure is the result of indifferent root-action. The want of colour in the grapes is sometimes caused by allowing them to become thickly infested with red spider, which cripples the energies of the vine, and renders the wood weaker and weaker, and thus it is unable to develop sufficient substance for fulfilling the requirements of fruitfulness in the year ensuing; so that both branches and berries become indifferent in size, and the consequence is that, if the vigour of the vine is not quickly renewed, then a failure in the crop must follow.

Further, I must affirm that mildew is not the result of sharp pruning, nor always the want of healthy action at the roots; but the presence of a stagnated moist atmosphere, in the absence of enough heated air to balance the temperature during the prevalence of dull cold weather. If, as Mr. Cannell supposes we do not—by the planting of one vine to each rafter—ensure that vigorous reciprocal action between the roots and the branches which ought to exist, surely we can accomplish it by occasionally cutting the rods back to the lowest eye, and thus reproduce new canes. I am justified in safely recommending the practice to others by what I have witnessed in the case of the vines alluded to at Roehampton Park.

JOHN F. McELROY.

HEREFORDSHIRE ORCHARDS.

The planting, cultivation, and general management of orchards has long been well understood. As early as 1656, Dr. Beale, in a very valuable treatise, entitled "Herefordshire Orchards a Pattern for all England," entered into full particulars respecting it and other matters of local agricultural interest. From this source we learn that the favourite system of forming young orchards was then, as it is now, to plant them in pasture land intended to be broken up and cultivated as hop-yards. The trees are thus well protected during their early growth, which is much promoted by the manuring and cultivation of the soil; and as soon as they become of a size to injure the hops, the land is usually again laid down to pasture. Thus an orchard is established at a comparatively small outlay. Both apple and pear trees occasionally grow to a great size. I have an apple tree from which, according to the evidence of the late proprietor of the estate, as many as 94 bushels, of 10 gallons per bushel, were once gathered by him; and near the vicarage at Holm Lacy, and within a short distance of the railway station, there is a remarkable pear tree, now extending over nearly half an acre of land, from the fruit of which it is stated, on good authority, that in one year 1600 gallons of perry was made, while tradition speaks of the extraordinary produce of 2,500 gallons at the time of its full vigour. On this, however, it is only right to observe that what is called "a tree" consists of a succession of trees, caused by the lower boughs having fallen to the ground and taken root; thus the parent tree, which died long ago, became surrounded by a group of trees, each one in itself of considerable size, and forming in the aggregate apparently one tree only of great lateral dimensions. I have measured one of these scions, and its girth at 4 feet from the ground was 10 feet 10 inches. The best old kinds of cider fruits are the Red Streak, Moyle, Foxwhelp, Skyrme's, Kernel, Hagloe Crab, Royal Wilding, red and yellow Styre, Cowarne, Red and Kingstone Black; but they are so difficult to propagate, and such uncertain bearers, that latterly several new sorts have been imported from Normandy, and have grown into favour, not only on account of their kindly growth, but their prolific yield. The sorts principally grown are the Strawberry, Huntsham, and Comey Norman, and the yellow, red, white, and black Norman; but the preference should most probably be awarded to the Strawberry, the yellow, and the Huntsham varieties.—*Duckham on the Farming of Herefordshire.*

MR. HULLETT'S WONDERS.—We have not met with any one who has seen Mr. Hullett's Passion Flowers and Mangosteens, or the wonderful "annual fruit" from Siam, which has seeds as big as a child's head; nor have we seen any of these things ourselves, nor have we been able to find any authentic account of them in any work of authority. We suppose the *Sorghum Tartaricum*, seeds of which were offered through the medium of the *Times*, to be identical with the sugar-cane grass, *Holcus saccharatus*, described and figured in the *Floral World* of 1858, p. 128. If it should not prove to be identical with this plant, we nevertheless feel fully persuaded that no one will ever eat a loaf of bread made from the seeds of this grass ripened in England. It may prove to be an ornamental grass, and perhaps of some value as fodder, but as a cereal adapted for this climate, it is worthy, we believe, of cultivation only by a madman.—*Floral World.*

MESSRS. F. AND A. SMITH'S NURSERY,

PARK ROAD WEST, DULWICH.

This extensive nursery is chiefly occupied with tender plants, and consists almost wholly of glass. Alterations are in progress in the construction of a drive to connect it with some land the Messrs. Smith have lately added to extend their frontiers, and on the margins of this drive there will be a display of coniferous trees; but nevertheless it is not a tree or shrub nursery, but a place covered with glass, and the houses all crowded with subjects of considerable value. I had strolled about some time before I saw a human creature, and I had taken note of the crowded state of the houses and the healthy appearance of the plants, and in particular of the miles and miles of hard-wooded plants in low pits and large span-roofed houses, when I halted at last in the midst of a mass of primulas, all so fresh and bright and good, that I was at once satisfied that the trip to Dulwich was well made for a curiosity hunter. At that moment one of the principals came along, shutting up the house, bang, bang, and I caught his eye as he caught mine, and in about twenty-five seconds we were tearing away in a discussion about primulas in general and these in particular. Now I must remark that it was to see what was going on in the primula way that I went to Dulwich. I have been full of curiosity about the primulas there; for it happens that I have noted every stage of improvement of this flower for about twenty years past, and so different are they now to what they were then—the large, rosy, lilac flowers being then the best—that I almost expect to see them transformed into roses, but nevertheless fervently hope they will never be anything else than primulas. It is a grave question with cultivators as to whose seed is the best, and at this time of year there are many debates in plant-houses as to the respective merits of the various strains that are grown for the market. And speaking of market reminds me of a market grower who paid a good price for seed at a house that bears a good name, and when the plants were in flower in January, and primulas were realizing a good price at Covent Garden, he could not pick out a dozen really good ones from amongst about five thousand. Estimate them at sixpence each all round—good primulas realize more than that early in the year—and this man's loss may soon be calculated. The case is not so bad when a gentleman's gardener discovers that he has been growing rubbish, but the case is bad nevertheless; and therefore it is no wonder that houses famous for this or that particular seed can generally sell as much as they can produce of it, and indeed during the present season many sorts of seed, such as hollyhocks, balsams, and even lettuces and endives, are so scarce that not a tenth part of the customary demand can be met, owing to the bad seed-time of 1866. For these and other considerations I felt particularly interested in the Dulwich primulas, and I am bound to say that I saw as fine a lot set aside for seeding as I have ever seen during multitudinous travels and experiences. The right way of ripening seed is to keep the several strains separate, and, if possible, to have them in bloom at different times. If seeds of good whites are required, it is not advisable to have reds in bloom in the same house with them at the same time, because of the many crosses that are sure to occur. But, above all, the matter of greatest importance is never to allow an inferior plant to remain in the place an hour after it has proved itself to be inferior, for the pollen will find its way to good flowers, and tell most injuriously on their progeny. Messrs. Smith, and all other practised seed-growers, know all about this of course, and act accordingly; but many gardeners not accustomed to seed-saving desire sometimes to grow a pinch of seed, and these remarks, suggested by the capital system I found in action at this nursery, may be of service to some of our readers.

But the primulas I went to see are double ones. They put me in mind of some of Messrs. Windebank and Kingsbury's superb examples, and I suppose there are not to be found in cultivation two finer varieties than two that I found here. One is white, the other is carmine-rose colour. The name of the first is *Queen of England*. The flowers of this are extra large, elegantly fringed, very double, the petals laid upon one another in a most exact yet luxurious manner. The colour is at first pure white, but this gradually changes to delicate blush-pink, so that the plant is covered with flowers in several shades of the refined and delicate colours. When I say "covered," I mean covered; for I counted on one plant in a 48-size pot thirty-six flowers full open, and fresh, and there were about twenty-five more to come. Reckoning for many that had been clipped out, for it is late in the season to see primulas, I suppose each of these plants had produced one hundred flowers. The name of the other is *Carminata plena*. It is a most queenly flower, of large size, and has six layers of petals laid one above the other in a regular imbrication, all of them elegantly notched; the colour lively carmine-rose, or rosy carmine pink, peculiarly fresh and pleasing. In addition to these there are many other beautiful varieties, but I made note of only one which happened to be amongst the singles, the flower of which is splashed and barred with rose on a white ground.

The double primulas are easy things to handle when you have them, but about the hardest things in the world to get. Talk about the rapid multiplication of soft-wooded plants, here is a case for the boastful propagator to manufacture a few thousands from one plant, and to do it in time short enough to pay, and well enough to ensure the good opinion of the purchasers. Of course, they are shut up after flowering, and the stools usually break up freely, and to make and strike the cuttings is easy work; yet there is such a difference in the ways of doing things, that now and then we meet with double plants that grow as freely as seedlings; but commonly there is a great difference, and many gardeners give up the doubles because of the trouble they experience in growing them, and their poverty of appearance at last. I counted the flowers on the old plants of the two double varieties, which are not the originals, but the first generation from the originals, in order that I might be able to say if the system followed here in making double plants is good; and I leave it to the practical to say if 100 flowers on a plant in a 48-size is good or otherwise; but I ought to add that the plants had leaves as well as flowers, and leaves such as we do not often see in cases where there is much flower in small pots. There was a great batch of the fern-loaved primula in the same house, making a very beautiful bed, more leaves than flowers; it is, in fact, not so free in flowering as the common form of *P. prænites*, but its fine character, and very graceful and characteristic outlines, entitle it to the highest consideration among spring flowers.

Having seen and said all that could be seen and said in the primula houses, I soon found my way to the hard-wooded department. Camellias appear to be done here as extensively as at Chandler's years ago. I went through furlongs of potted stocks that were in preparation for working, and of nice young plants growing freely in dark houses, and of good store plants almost advanced enough to be setting their blooms for next year.

So again with azaleas; there are thousands of them in all shapes and sizes, and a large stock too of all Messrs. Smith's own seedling azaleas, on which it is our business to report annually as they make their appearance at flower-shows. There are some nice things amongst the newest of these, such, for example, as *Amethyst*, rosy purple, a very showy variety for decoration; *White Perfection*, the best single white out; *Excelsior*, which I remember well as it appeared at the Royal Botanic, rosy purple, finely spotted, a thorough show-flower; *Humboldt*, superbly formed, the colour rosy salmon; and *Oracle*, equal in form to *Stolla* or *Vesuvius*; in fact, it cannot be surpassed in this respect; the colour is rosy pink with superb spots. This, besides being a first-class show variety, has as good a habit as any azalea known. Heaths, Epacrises, Hedaronas, and all the rest of the good hard-wooded plants, abound.

But what I saw in big houses of these was nothing to the stock in low pits. There are twenty of these pits in a row; each pit is 100 feet long and 10 feet wide, the paths between are 6 feet wide; they form a regular range, and are all heated with two rows of 2-inch pipe, the pipes being all connected with a main that runs through the centre of each pit. The main is at first a 6-inch bore, then it contracts to 5-inch, next to 4-inch. Every pit is separately connected, and at a touch of the finger any one of the twenty pits, whether the one nearest the boiler or the one farthest away, can be made either a cold pit, a warm pit, or a forcing pit; perhaps even a cooking dépôt, for there is abundant command of heat. As a rule they are kept rather cool, and the pipes are there for safety rather than for growing. What first struck me was, not the extent and order of the range, for that I am used to, but the perfect health, the brilliant appearance, the abundance, the variety of heaths, and epacrises in those pits. To pick out species and varieties is out of the question now; it is sufficient to know that there is scarcely a heath or epacris worth growing that may not be found here to the tune of a hundred or two, and of some sorts there are thousands. After such a winter, such a fearful time for houses three hundred or more feet from the boiler, as the most distant of these are, the assurance that not a leaf of anything had been hurt in any of these pits (in which, by the way, are many things more tender than heaths and epacrises), I went up to see the boiler; and I found in a well built stoker's two of Weeks's upright tubular boilers, one at work, the other quiet, but ready in case of an accident to do its duty. This is a very satisfactory example of the one-boiler system; the amount of pipe heated is about three miles, and the main and all the branches are nearly on a dead level.

The inspection of these things led to the unfolding of a tale; for at the upper end of this range of pits, and in fact close over the boiler that feeds them, are three neat span roofed houses which share with the pits the same flow and return. Here one of the members of the firm has carried out a new system of glazing without putty, which has not only stood the test of time and proved sound and good during stormy and frosty weather, but is elegant, admits more light than any other method, and is quite as simple in the end as putty, especially for repairs. Suppose the sash-bars to be cut as usual; but the rebate has a groove which serves as a gutter to carry condensed moisture from the roof to the eaves outside, and the squares are placed edge to edge without laps, and are fixed by means of headed screws, which just press upon them at the sides and no more. The lowest square has to some extent to bear the downward pressure of all that are above it, and it is fixed by a bit of lead or zinc bent to the shape of a letter S, which catches it at the lowest edge. For houses in which a flood of light is required this system is admirable. There is no drip, no cracking during frost, and to replace a broken square is a simple matter of releasing the screws that press it in its place and inserting another. There is no felt, no list, no soft stuff or padding anywhere; the glass is held in fact just as a workman would fix it for a temporary purpose with brads, but it is done neatly, completely, and wears as well or better than putty.

This is a bad time of year to judge Tricolor Geraniums, but at any time the difference between Mrs. Pollock and Tom Thumb may be seen; and at this time it is no hard matter to see in such varieties as *Souvenir de Sir Joseph Paxton*, *Sunshine*, *Refulgens*, *Jetty Lacy*, *Louisa Smith*, *Defiance*, *Beauty of Surrey*, and a few others in the extensive and splendid collection here, characters that place them in the front rank, and establish them in the best esteem of the best judges. The Tricolor house at Wellington Road is a spectacle, and is well managed for effect. Here no effect is attempted, it is sheer work; and if an impression is made on the visitor, it must be by the merits of individual things, not by any *tout ensemble*. It is proper to this report, therefore, to say that Messrs. F. and A. Smith have made tremendous strides in the breeding of tricolors, and in due time the public will have a chance of making selections from the varieties that are now being propagated for sale. *Amulet* has a finely coloured leaf, the edge deep yellow, the zone black and red, the flowers scarlet, the habit bold, and the whole carriage noble and effective. *Beauty of Surrey* has a yellow margin, a red and brown zone, brilliant in colouring, and distinct from all else in the same line. *Eclipse* is perfectly dazzling in the brilliancy of the zone colours, the prominent tint being vermilion-red. *Glory of Dulwich* is remarkably fine in colouring, the margin yellow, the zone a mixture of black with several shades of red. *Jetty Lacy* has a yellow margin, and a zone compounded of chestnut, red, and black; it is a good grower, and eminently effective. All those named above are fine; but there is no time or space to dwell upon their beauties, and I select as superb beyond all ordinary things in the way of Tricolors *Souvenir de Sir Joseph Paxton*, which has a sharp, narrow, gold-yellow margin; a zone of crimson breaking into bars of black, the older leaves changing to purplish carmine, so that the brightness of its youth is the presage of the subdued and ripened lustre of its age; how well named, therefore, after the veteran who so early gave tokens of genius, and so late in life displayed the full strength of a great mind, and a pure taste and deep appreciation of beauty! There are many more good ones in the hatch—one in particular, with leaf extravagantly convex, and very charmingly edged with creamy variegation, the disc being dull green. I missed the name of this, but it must be hunted up, for the leafage is of the most distinct and pleasing character.

In the soft-wooded collections, Cinerarias are an important feature. Messrs. Smith have bestowed much pains upon what may be called the tricolor section. In these there is the usual dark disc, the usual coloured margin, shading to another colour at the base of every petal (flore), so as to form a sharp inner ring of colour distinct from the colour of the ordinary broad ring, and within that a ring of white. *Flower of the Day* is one of the best of these. The margin is plum colour, shading to a sharp ring of magenta; next within this is a ring of white, and the centre is

nearly black. *Blue Beard* is exquisite in colouring: the margin is deep blue, the boundary to that is a sharp ring of crimson, then comes the ring of white, and the disc is dark and convex like a button. *Conspicua* is not a tricolor, but its crimson edge is heavy and rich, and the flower is one of the best in form that has been seen. Certainly these cinerarias of Messrs. F. and A. Smith are a tremendous argument against my doctrine, that in a packet of average good seeds you have all the varieties. Cinerarias were going down but a few years since, now they are reviving; in fact, they must revive when flowers of such superb quality, and so altogether new in character, are brought forward.

Pelargoniums, Verbenas, and all the rest of the popular flowers, are admirably represented; indeed, of pelargoniums of all kinds there are thousands—some destined for market, some for show, some for bedding, all for the delight of mankind, and I hope for the profit of their producers. Amongst the early flowering kinds, the following merit the special attention of people who indulge in forcing: *Etna*, scarlet and black, very showy and good, and decidedly early. *Flamingo*, well made, crimson and black, decidedly early. *Herald*, a second early, very striking, the colour vermilion, with black spots and white throat. *Premier*, rose and crimson, fine, and early. *Attila*, rich crimson, ruby and rose, superbly formed, and very showy. *Elegantissima*, most valuable for any purpose, especially for decoration or cut flowers, white throat with mauvy veins, top petals mauve, with large deep purple blotch. *Refulgens*, ruby and crimson black, very neat habit, remarkably attractive. *Snowdrop*, the best forcing white I have yet seen: *Alba multiflora*, with all its good qualities, is nothing to it. I might have made a note-book as long as the pipes in the twenty pits amongst the pelargoniums, but I marked down only such few as struck me by their superior style and thorough distinctness.

I made a special search after Roses, and found two or three houses crowded with *Manettis*. The new sorts appeared alone to have away, and own roots were out of the question; indeed, Messrs. F. and A. Smith assured me that they had no time to fidfad with things that were slow and uncertain, and the quickness and certainty of *Manetti* put own roots out of their heads. I saw nothing at all to make notes on amongst the roses, for of course none were in flower. But I forget; there was a batch of *Isabella Sprunt*, all neat plants, in 54-size, carrying half a dozen long pointed yellow buds each. It is evidently a wiry grower, and the buds wanted another week to bring them open. From what little I saw of it, I should say that it is a mistake, that the variety is as bad as its name, and will not be known after a year or two. Getting among miscellaneous things, I noticed a big batch of *Chrysanthemum Sensation*, which is to be in great demand this spring, in consequence of the GARDENER'S MAGAZINE reports on bedding last year. All the *Alternantheras* are here too, and the *Teleiantheras* too, but it looks as if these should be raised from seed; it is quite hard work to do them from cuttings, though they are being done that way, and there will be plenty to supply the gardeners in the month of May. In the stoves are many interesting subjects, one of the most interesting being a plant of *Ficus Cooperi* in fruit. The fruit is as large as a plum, the colour green, with brown stripes. In the houses devoted to mixtures of greenhouse plants, I noticed a good batch of *Acacia eriocarpa*, the most useful of all the species in cultivation. It is easily propagated from the soft tops of the shoots, and is well adapted to be made a market plant, and as it is tolerably hardy it might do for the plunging system, if kept back by the coolest possible treatment. The appearance of a batch of *Boronia serrulata* pleased me much; rarely is it seen in condition equal to the plants here. It is kept growing all the winter, and this method makes a great difference in its favour. *Kennedy microphylla* is a superb basket plant, the growth thick and elegant, and plentifully dotted over with scarlet flowers. A thousand other subjects worthy of mention must be passed over; but it will be proper to remark in conclusion that the collections of plants grown under glass are extensive in a marked degree: the camellias, for example, comprise 200 varieties, the geraniums about 600, the azaleas and heaths innumerable, and so on throughout all the departments: hence it is a capital rendezvous for collectors to exchange notes and make purchases, and there is room enough amongst the pits for extemporized congresses to settle offhand all the moot-points left moot by the formal congress of 1866.

THE VERBENA.

This stands next to the geranium in the scale of relative popularity amongst bedding plants, and is justly entitled to the favour it enjoys. It is an admirable subject for exhibition, and affords both brilliancy and variety to light up less attractive subjects; and in the garden it affords, in addition to colours and tints eminently attractive, some few that we cannot obtain from any other flower. I shall endeavour in a short practical Paper to set forth the principal points in the cultivation of the Verbena, for all the several purposes for which it is used; and as this is the season for propagating, we will take that subject first.

CUTTINGS.—The best plants for all purposes are those grown from cuttings made in February and March. The plants from which cuttings are to be taken must be placed in a temperature of 60° a few weeks in advance of the time at which it is desired to commence striking cuttings. Where there is a great demand, this of course must be early, as the young plants when potted off will furnish a crop of cuttings, so as to prolong considerably the season of propagating, which may be said to last from the 1st of February to the 1st of May, after which date it is very little use to strike any until the end of July or the beginning of August. For home use, the best time to strike cuttings is the second week in March, and the best cuttings are young shoots two inches long, taken off with a small knife at the distance of one eye from the main stem. In case I am not understood, let me say that a shoot is selected that has grown about two inches, and it is cut off in such a way as to leave at least one leaf with its accompanying eye remaining. From this base of the young shoot a new shoot will presently appear, which also may be cut when large enough. When the utmost possible quantity must be raised from a few plants, young shoots an inch long will answer, and it is better to take them off with a small knife, working it against the thumb, than to remove them by means of the thumb-nail, as is the practice of some. If this plan is not fast enough, the cuttings may be split lengthwise; but that is a very nice operation, and I suppose the man capable of performing it needs no advice of mine.

As fast as the cuttings are made, they must be dibbed into pans or boxes filled with silver sand. Nothing to equal shallow boxes, in fact nothing like wood everywhere about a propagating house, and old wood is

better than new. To insert the cuttings is an easy enough task: if there is enough clear stem to fix them in the sand, you need not take any leaves off, but now and then one of the lowest leaves must be removed; at all events, there must be no leaves half buried in the sand, for they will quickly rot, and cause the cuttings to rot with them. To strike Verbenas in this way is one of the easiest operations in horticultural practice. Yet many amateurs and single-handed gardeners find it a difficult task. I will endeavour to make the path of success free from thorns. In the first place, when you begin to work, be quick about it. If the cuttings lay about and get flabby, they will be a long time recovering, and will be difficult to handle. Two inches depth of sand is quite enough if the pans or boxes stand on a damp bed; and every part of a propagating house should be damp; it is half the battle. The sand should be damp when the cuttings are put in; they may be put as thick as they will stand, and when the box or pan is full, give a gentle sprinkle with water; put the box on the tank, dung-bed, or shelf over flue or pipes, wherever indeed there is a heat of 60° to 70°, and a considerable degree of atmospheric moisture. A dry place is death to such little soft cuttings as these. If you must strike them in a dry heat, put bell-glasses over, or have a little glass-frame of some sort to shut them up in. In case of sunshine, lay sheets of paper over the cuttings, but do not, if you can help it, shut them up in the dark, or in a close steam. The advantages of a propagating-house are manifold; there is a steady heat, a genial humidity; walls, paths, and shelves all give off, owing to their moist condition, genial exhalations that tend in a marked degree to promote the free rooting of cuttings, and yet there is plenty of light and a large body of air, so that the young stuff, though forced, is healthy from the first. Gardeners who have not such an advantage must make the best of bell-glasses and flues, dung-heat and common frames, and steal a few batches of bedding plants by putting pans of cuttings into cucumber and melon pits. I shall say nothing about the possibility of the cuttings damping-off, except that it is impossible if there is heat enough, and they are not absurdly drenched with water. Keep them quite moist, and in ten days every one will be rooted.

It is best to pot them singly into thumbs as soon as they begin to push roots, so that from the first they may have food, which the sand will not afford them. Make your mixture of any nice light rich stuff, with a good proportion of silver sand. If you wish to do the most extremely proper thing, prepare a mixture as follows: clean loam containing much fibre, two parts; gritty fibrous peat, one part; manure rotted to powder, one part; silver sand, one part. Let this be well chopped up and passed through a half-inch riddle. Set aside the coarse and the fine stuff in two heaps under cover, and in potting use the fine only for the thumb-pots, but at the next shift to 60-size, use the lumpy stuff at the bottoms of the pots. There are all sorts of ways of potting, but they are all alike in principle. If I had to pot a few thousand verbenas from cutting-boxes, as I have many a time, I might say hundreds of times, in my early days, I should set a boy to work to sift a heap of coal-ashes, and provide me with a few bushels of cinders, or fragments of clinker of the size of hazel-nuts, and from that to a walnut. I should sit down comfortably at the bench, with a heap of stuff to the right, a heap of cinders and sieve to the left, pots before me in the middle, cuttings close to hand. I should take a pot, throw into it a cinder, then a handful of stuff, and give the pot a tap; then deftly place the cutting with its two or three white roots spread on the mould, and cover it with a little more stuff, and quickly place my two thumbs on the soil to press it gently, and then whip it into the sieve. I should require a boy to feed me with pots, mould, plants, and cinders, and to carry away the sieve as fast as I filled it, giving me another at the same time, that I might not be a moment without it. Of course the little plants would go to a warm place, and I should prefer for them exactly such conditions as I have described for the cuttings, a damp bed to stand them on, and a heat of 60° to 70° to make them grow.

But again, I think of the man who must grow these things by thousands, and who must turn them out as fast as they are potted. Now we want a pit with a bed of equal parts half-rotted dung, and half-rotted hops, made rather extra wet, six inches deep on a wooden floor, under which there should be at least one 4-inch flow and return. Thus we should get a moist heat of 70°, and they would grow at a pace. As to air, they will want none until they are getting strong, and the weather is genial; but stopping must be attended to, and if fine plants are wanted, they must be shifted to 60-size as soon as they have filled the thumbs with roots. The first stop must be done when they have made a fair start in growth after being first potted. Delicately nip out the point of the plant, and it will presently put out side-shoots, which are the first foundations of a good plant. It is too much the rule to keep them in thumbs till bedding-out time, and they soon run into bloom in consequence. Then when planted out they have to recover themselves from the starvation they suffered from being too long in thumbs, and they grow vigorously for a long time before they flower. In nursery practice this can hardly be avoided, for purchasers will not pay for the shift to 60-size. But I advise every amateur who wishes for a fine display, commencing early and lasting long, to grow the plants generously, and never to allow them to become pot-bound. In fact, for a fine effect I would stop a second time, just before shifting to 60's, then again after they have got well hold of the soil in the 60's; again when they have made a free growth, and if time allowed, and it happened to be a backward season, I would shift to 48-size, and have them strong and well hardened off before planting out. But very few will do this, indeed very few can do it; and in 60-size fine thumping plants may be obtained without starving. As the season advances, they will of course do well in cold pits, and will want plenty of air; indeed, "pushing" according to the plans recommended is only needed in the earlier stages of their growth. There is yet another mode of procedure admirably adapted for the private garden, where plants are grown for use and not for sale. It is that which I have frequently recommended for the calcicolaria, as one step towards curing that plant of its fatal faculty of suddenly disappearing from the spots it was intended to embellish. It is that of planting them out from the cutting-pans into beds made up in frames a foot deep, consisting of light rich soil. These beds should only be made up a day or two before being required, as they will then be warm, especially if shut up during sunshine, and the plants will make a nice start. After planting, water them in with tepid water, and give no air for several days, shading from hot sun by means of canvas or mat, and of course taking care they are not roasted. After about four days give a little air, by tilting the light with a bit of stick to make a blink of two inches or so. Sprinkle them daily about noon, and at once shut close. Their growth will astonish you (unless you are used to such ways of doing things), and at bedding time you will have plants of the sort which the Magazine usually denominates "thumpers."

Of course, as they get stronger you will give more air, &c. I have now detailed the thorough practice of propagating as I understand it after years of practice. What I have said applies to almost every sort of plant propagated from cuttings at this time of year, and really it applies to the practice of an amateur, with only one plant-house or only a frame or two, as much as to the wholesale routine I have been accustomed to, for the same precautions are needed in every case, and every one can adopt them in a way to suit his own circumstances.

VERBENAS IN BEDS.—The situation of the Verbena-bed should be open and sunny. The verberna never blooms freely in a shaded position or in a poor, hungry, dry soil. Any good loam that will grow a cabbage will do admirably, and the same bed will do for verbenas again and again for any number of years, if dug over in November and left rough, and dug again in March, and refreshed with some good rotten manure. It is because people will not treat their beds in this way that they become "verbena sick," and they wonder how it is their verbenas will not bloom. If soil is prepared for verberna-beds, let it consist of mellow loam, with a fifth part of its bulk of rotten dung, and the same of leaf-mould or peat. I once had a heap of silt that was dredged up from the bottom of a river. It consisted of sharp grit, small shells, mellow mud, and the remains of aquatic plants in patches of black humus. This was heaped up in a part of the grounds near the river that was much frequented, and though we "pitched into it" might and main, summer came before we could get it all wheeled away to the kitchen garden, and there was still a small mountain left. I thought of covering it with succulents or gourds; but work pressed hard, and when the bedding was finished at the end of May, I took all the surplus verbenas of all sorts and sizes, and stuck them in all over the mound "anyhow," and left them. Fortunately mild weather with showers followed, and presently they began to grow like the bean-stalk in the story; and I confess, with all the joy proper to the man who makes a discovery, that they bloomed as I never saw verbenas bloom before or since. It was wonderful; the little mountain was like an earth-cast consisting of rubies, topazes, emeralds, garnets, with some bits of Mount Vesuvius all afire to fill up amongst them. It was all chance and accident, but I had coolness enough to take a lot of praise for my skill. However, putting aside all vanity, I take comfort that I know now what is the perfection of a soil for verbenas, and I fancy a few other things would have grown in that heap.

The distances at which verbenas are planted must depend on the habit of the variety. To take Purple King as a standard, I have been accustomed to plant it at 15 inches every way; in very rich soil and in a warm moist climate, I should put it at 18 inches, and in a poor soil and cold dry climate (as in some parts of the East of England) at 12 inches. Fixed rules are not wanted; a treatise which suits every case suits none, and the wise man carries with him the key to the paradox. Use your judgment; learn if possible what is the growing strength of the variety you are planting, and if you cannot learn it, try to make it out for yourself, by the relative size of the leaves and thickness of the shoots, for these are pretty safe criteria.

Plant them so that the shoots they have will tell best for effect. For example, in the case of a bed or several rows in a ribbon, let the first row lay towards the edge, and be full 15 inches from it; let the second row lay towards the first, and so on; this will make the most of them for covering the ground. When any shoots are promising to go beyond the line allowed, pinch the point out, and guide and train so as to cover the surface of the bed regularly. But I must tell you here something worth knowing. You may practise pinching with benefit from the time of planting to correct legginess, and promote an even distribution of the growth; but it is not well to practise pegging until there is a general show of bloom all over the bed, for *pegging checks the growth*, and the freer the growth at first the better the bloom at last. Some sorts never want pegging at all, and a perfect bedding verberna should spread itself as from a centre, and make a circular tuft all over leaves and flowers. The most perfect I know of in respect of habit is Maonetti and its varieties; they literally make mats of vegetation, but then they are not showy, and so they come short of perfection. In regulating the growth, the shoots may be allowed to cross one another, if there is anywhere a space to be filled; but where they overcrowd each other, it will be well to cut a few clean out. When a shoot has done flowering and is pushing side-shoots, it may be really in the way, and its removal therefore may be advisable. If so, cut it out; if not, nip away the old truss to prevent the growth of seeds, and let the side-shoots come on in their own way, and they will soon begin to flower. Here again fixed rules are out of the question. Use your judgment, and be thankful that the most accomplished adviser cannot supersede the intelligence and forethought of the individual cultivator, but must after all leave him free to use his brains, if he has any, or go to the bad if he has none.

To finish up this part of the subject, my advice to all bedding people is, that cuttings of all the kinds intended to be kept be taken in the last week of July or the first week of August. These will strike without the aid of artificial heat if put in frames or under hand-glasses, and if carefully kept through the winter will furnish cuttings in March, and will also be useful for planting out. And it may be proper also to add that old plants make good beds if geraniums or calceolarias are planted in front of them; but if we have to look down directly on them they are not always nice, as they generally show six inches or so of naked woody stem, and lack the lively vigour of young plants.

VERBENAS FOR EXHIBITION.—You don't want directions for obtaining the plants, but the hint may be acceptable that cuttings struck early are the best, and that the most plump and healthy-looking plants should be selected. The most shrubby habits are desirable, but generally, and properly, the cultivator thinks most of well-made flowers, fine trusses, and brilliant colours, three qualities of the very first importance for exhibition purposes. The young plants must be stopped as soon as rooted, and the after-treatment should be directed towards the formation of a handsome plant. They are usually flowered in 8-inch pots, the points of the shoots being constantly pinched out until within about six weeks of the date of the show, from which time all the shoots are allowed to run into flower. Early flowering should never be allowed; learn this by heart. The compost for growing them should be such as is already recommended, but without any sifting. The best place for them after the end of April (or earlier in a forward season) is the cold frame, and from the middle of May the lights should be off in good weather, night and day, but in case of cold weather put them on at night, and while heavy rains last put them on during the day also. Tie and peg them out as taste may dictate, making a nice plant, like a head of hair with curls all round uniformly. In case of mildew, dust

them with flowers of sulphur; but very rarely does this plague come if the growing is liberal from the first, as here recommended.

SEEDLINGS.—If you have the seed, sow it now, and start it in a heat of 60° to 70°. Treat the seedlings as advised for cuttings, potting them singly when they have three or four leaves a-piece, and by no means allow them to become drawn and weak with crowding. Plant out or flower in pots as may be most convenient. As a large proportion of them are sure to prove worthless, it is best to plant them all out rather thick, and in the end of July or early in August take cuttings of the best, and flower a pair of each under glass in pots the next season. In some rare cases a few may be named in the seed-bed, and their trusses exhibited. Generally they make finer flowers the second year, that is from spring cuttings taken from the original plants. Hybridizing is not difficult to perform, though rather a niggling job. Very few of the new varieties are the result of actual manipulation, though the raisers generally make a very wise appearance with their assertions about having crossed this, that, and t'other.

PROPERTIES.—Exhibition flowers should be large and flat, and in large trusses of a hemispherical form. The petals should be stout and velvety, the edges smooth and freely overlapping, so as to make a thick substantial flower, with a regular circular outline. The colouring should be dense, rich, or pure of its kind, well laid on with no blurring intermixtures or indecisive elouds. If there is an eye, it should be distinct, circular, and a clear white, lemon, or gold colour; a green eye is objectionable, and a coloured but dirty eye equally so. A sharply defined and perfectly circular eye in a flower otherwise good is a great charm. Many of the newer exhibition kinds are finely got up in the edges and the eye. Stiff foot-stalks and a healthy habit are essential. As for bedding varieties, colour and habit decide their values; it matters not whether the flowers be smooth or rough, if they are of a suitable colour and are plentifully produced, with sufficient substance and stamina to hold their own during bad weather.

NOTES ON A FEW VERBENAS OF SPECIAL MERIT.

Antonia.—Claret crimson shading to black, violet eye; a very fine variety for pots or beds.

Attraction.—Large, and finely formed, deep maroon crimson shading to black; a grand flower, and fine for pots or beds.

Alexandra.—White, mottled, and striped with purple; fine.

Annie is still the best of all the striped varieties, though dozens of them have been sent out to compete with it.

Ariosto improved, though an old variety, is still the best of its colour, fine puce.

Beauty of England.—The finest white for show.

Blue Shade.—A superb blue for beds.

Brunette.—Crimson, with auricula-like lemon eye; not large, but finely finished.

Cleopatra.—Bright rose, large white eye.

Coleshill.—A grand scarlet, with lemon eye.

Charles Perry.—Blush shading to crimson at the base of the petals, white eye; a curious, very distinct, and beautiful flower.

Delicata.—Delicate pink, lemon eye; most beautiful.

Gladitor.—Large pips and large trusses, carmine deepening to crimson, white eye; fine.

Gem.—Scarlet, with white eye; fine for exhibition.

John Keynes.—A most beautiful exhibition variety, scarlet, with white eye.

Junius.—The most distinct verberna known, having a fiery orange colour; in quality second-rate, but a very fair bedder.

King of Verbenas.—Dark lavender, fine auricula eye.

King of Scarlets.—A superb show flower; scarlet, with large round white eye.

L'Avenir de Ballant.—A fine old variety; rosy carmine.

Leah.—Finely formed, smooth and stout; colour clear pink, fine white eye; beds well.

Lalia.—A good grower, trussing well, bold and handsome; dark lilac, with violet-crimson centre.

Lady Jane Ellis.—White, with small green eye surrounded with a rosy ring.

Madame Cointet Aine.—A most beautiful variety for pot culture; colour white, with carmine eye.

Madame Hermann Stenger.—Scarlet striped with white; quite novel and beautiful.

Mauve Queen.—Fine form; mauve marbled with white.

Miranda.—Large and good form, blush with carmine eye; fine for pots and beds.

Mrs. Dean.—White, with scarlet centre; distinct and pretty.

Mrs. Elphinstone.—Well known and long established, and not yet beaten in its colour, which is a warm puce-rose.

Merry Maid.—Large, showy, carmine-rose shading to purple, fine trusses; quite a show-flower.

Napoleon Bossi.—White, striped lilac; a first-rate bedder, and greatly superior to Striata.

Nemesis.—This old favourite is still considered indispensable to a collection; it is a well-formed showy self, the colour scarlet with pink shade.

Polly Perkins.—A first-rate bedder; the colour rich magenta.

Queen of England.—A remarkable style of flower; the form good, the colour pure salmon, with flame-red centre.

Renaudet.—A splendid verberna, scarcely at all known; the form equal to any, the colour rich velvety crimson shading to black.

Rosy Circle.—Puce-rose, lemon eye; first-rate bedder.

Royalty.—Carmine, light centre; beats Lord Raglan both for exhibition and beds.

Shakespeare.—A very large, stout, and smooth scarlet-shaded crimson; a grand show-flower, scarcely at all known.

Startler.—In the way of Lord Raglan, and a better bedder.

Spark.—Crimson with primrose eye; sometimes better than Lady Binning.

Triomphe de Massifs.—One of the grandest show-flowers; the form good, and the trusses immense; colour cobalt blue with indigo shade, white eye. A good truss of this may be likened to a piece of gorgeous jewelry, and in the buttonhole of a Prince Esterhazy would pass for a thousand pounds worth of precious stones.

White Queen.—A fine white, of the best form and excellent habit of growth, not given to mildew, and behaves well during bad weather; first-rate for pots and beds.

William Dean.—First-rate in pip and truss; colour deep rich purple, with white eye.

Warrior.—A fine old favourite, quite first-rate still; colour rosy-pink, with white eye.

The foregoing forty-three were selected last summer from amongst some two hundred varieties, all growing in the same bed, as especially worthy of remark for their fine characters, good habits, and other qualities briefly stated in the descriptions given. I shall now offer a few selections.

A SELECTION OF FIFTY VARIETIES FOR POT CULTURE.

Alexandra	Foxhunter	Mme. Hermann Stenger
Annie	Géant des Batailles	Marie Rendatler
Antonia	Gladiator	Mauve Queen
Ariosto Improved	John Keynes	Minerva
Attraction	King Charming	Mrs. Dean
Beauty of England	King of Lilacs	Mrs. Elphinstone
Black Diamond	King of Scarlets	Nemesis
Black Prince	King of Verbenas	Ocean Pearl
Blanche of Castile	Lady Jane Ellis	Pallavicini di Brescia
Brunette	La Grande Boule de	Peep o' Day
Charles Perry	Neige	Queen of England
Charles Turner	Leah	Shakespeare
Cherry Ripe	Lælia	Triomphe de Massifs
Cleopatra	L'Avenir de Ballant	Warrior
Delicata	Lord Craven	White Queen
Duke of Cambridge	Lord Leigh	William Dean
Edward Barnes	Madame Cointet Aine	Wonderful.

A SELECTION FOR BEDS.

White.—Blanche of Castile, La Grande Boule de Neige, White Queen.

Rose and Pink.—Long Looked For, Laura, Mrs. Elphinstone, Ariosto Improved, Cicely, Leah.

Crimson.—Attraction, Crimson King, Fire Brigade (these two are much alike; the first is best for good soils and situations, the second for bad positions, especially if poor and dry), Brilliant de Vaisse.

Scarlet.—Lord Clifden, Mrs. Woodroffe, Startler.

Yellow.—Junius, fiery orange, Orange Perfection, orange pink, lemon eye.

Lilac.—King of the Lilacs, Napoleon Rossi, Lælia, Lady Leigh.

Blue.—Celestial Blue, Blue Shade, Azurea superba, Madlle. Marie Rendatler.

Purple.—Ocean Pearl, Purple King.

VENOSA SECTION.—These are usually classed as the "Velvet cushion" series, a very happy descriptive designation. They are the result of various crosses effected between *Verbena Venosa* and various garden varieties. The growth is dwarf and compact, forming close tufts of very neat leafage, above which the flowers are borne in neat hemispherical trusses. They are admirably adapted for front lines of ribbons, and in fact for any purpose where a close growth and abundance of colour are required. The best of this series are Scarlet Cushion, brilliant scarlet, Velvet Cushion, magenta colour, Silver Lake, dark rose, Beauty of the Glen, lavender blue, Golden Ray, dark rose.

Verbena Venosa has become deservedly popular of late years as a bedder, especially to mix with variegated leaved plants, the bright rosy colour of its flowers having a very cheerful effect. It is quite hardy, and may be left in the ground all the winter, in the same way as any other hardy herbaceous plant.

VERBENA MELINDRES.—This Beunos Ayres species has become deservedly popular, after being for many years treated with contempt, and almost lost to cultivation. It produces a profusion of glittering scarlet flowers, and has been advantageously used to mix with variegated leaved plants in beds. It is generally considered a difficult plant to keep through the winter, but there is a simple method that never fails of success, and for which preparation must be made at this time of year. Let us suppose the cultivator has a few old plants from which at the present time to obtain cuttings. These cuttings should be taken from shoots that have grown three inches, leaving, as before described, one eye and leaf at the base of each shoot to start again. The cuttings strike readily in a heat of 60°, and when rooted are potted into small pots in light soil. At bedding-out time a certain number of these are set aside for next year's supply: the remainder are planted where they are to flower, and there they are allowed to perish. Those set aside are shifted into 48-sized pots, and kept in cold frames all the summer, or on open beds of coal-ashes. In autumn they are housed, and kept airy and cool through the winter; and from these cuttings are taken for a fresh supply both of bedding and store plants. It is the attempt to keep through the winter plants lifted from the beds that is to be avoided; if kept in pots from the first, *Verbena melindres* is as easy a subject to winter as any in cultivation.

USES OF VERBENAS.—The uses of verbenas in beds need not be dwelt upon, for it is principally for this purpose the plant is cultivated. But they are also of great service to decorate the greenhouse and conservatory in summer and autumn; though the gardener who uses them largely for that purpose will never be thought much of amongst lovers of good plants, for to use bedders indoors largely indicates poverty of knowledge and limitation of resources. However, this is a use to which they may be put. To make the best of verbenas for this purpose, strong plants should be potted into 6-inch pots during April, May, and June: the soil to be good fuchsia compost. As everybody is not familiar with the requirements of the fuchsia, here is a recipe for compost for potted verbenas: mellow turfy loam four parts, well rotted stable dung, rather fat, passed through a sieve, two parts, good leaf-mould two parts, sharp sand one part. In place of leaf-mould thoroughly rotted hops may be used, or the most fibrous part of tough spongy peat chopped rather small. Mix the whole well together, break all lumps, but do not sift it. Keep them shut rather close in a frame for a few days after potting; then gradually expose them to the weather, keep them regularly watered, and train them into neat forms, to make dwarf round-headed plants of them. If many weak side-shoots are produced, pinch them out. When the trusses begin to form, remove the plants to a cool, light, airy greenhouse. Now begin to aid them with weak liquid manure twice a week, keep them clean, and wait for your reward. An immense number of cut flowers may be obtained from a collection grown in this way, and as there will always be a few left after the bedding is finished, it is advisable to turn them to account in this way. In selecting plants for potting, give the preference to those that have been stopped, and have made some nice shoots close down to the collar. Another most legitimate use for the verbenas is in the furnishing of suspended baskets. Of course the lanky growers are the best for this purpose, but almost any except the stiff upright kinds will answer. Fire Brigade, though a very

dwarf grower, answers well in baskets, on account of its tendency to spread, so that it soon forms a fringe of leaves and flowers on the side of a basket. Another and a very effectual method of displaying verbenas, and one well suited to a grower of seedlings who wishes always to plant out a few of the best, and perhaps has no care for ordinary bedding, is to plant them on the face of a sunny bank or rockery, intermixed with graceful plants, the verbenas being in detached patches, with no particular order as to colours, and the patches separated some two or three feet from each other, so as to make blotches of colour rather than masses.

WINTERING VERBENAS.—The plan proposed above for wintering *V. melindres* will answer admirably for the whole collection of bedding kinds. If it is not convenient to keep plants in pots all the summer, take cuttings from the beds the first week in August, and put four cuttings in a 48-sized pot, in a rather poor sandy mixture, the pot well drained. Sbut up these pots in a frame rather close for a fortnight, by which time they will be rooted, and must have air. Harden them gradually, and keep them in the sun out of doors till as far into October as will be safe, taking care not to allow them to be frosted or soddened with cold rains. Then house them in a light airy house, and keep them near the glass, or put them in a pit. They will go through the winter well if kept safe from frost, and in fact will bear 6° to 8° of frost unhurt, if at the time rather dry, and if struck early in August. If cuttings are made later than the first week of August, a gentle bottom-heat must be used to persuade them to root quickly, and in the case of a cold bad time when the cuttings are made early, or if only hard, woody shoots can be obtained, heat must be resorted to. But it is far better to get them well rooted before the 15th of August in cold frames; they are so much hardier for the winter. Give plenty of air all the winter, and never allow them to go dry unless you apprehend frost, in which case withhold water for fear it should become necessary to mat them up.

VERBENA DISEASE.—The black spot and the poor condition of verbenas at this time of year are two results of defective nutrition. The cure for what is known as "Verbena Disease," and which usually appears during February and March, and is accompanied with patches of fungus, which a good lens will resolve the black patches into,—the cure for this is as simple as the cure for hunger, which can be applied wherever there is food. Find in a propagating house or stove, wherever there is plenty of light, and a rather moist heat of 60° to 70°, a broad wooden shelf, nail a three-inch edge to this shelf, and then spread on it three inches of rotten dung. Place the verbenas on this bed, keep the bed moist, and in a week from the commencement of the treatment there will be signs of new growth in the points of all the shoots. The disease will disappear, and you will obtain five times as many cuttings, and all healthy too, as by any other method. Of course, as they will root through, they must not be moved at all from the time they are placed on the bed till they are worn out, and have to be thrown away. If not convenient to treat them in this way, let the heat be 70°, the pots on a damp shelf, and weak manure-water to be given twice a week.

MILDEW AND VERMIN.—Whenever mildew appears, dust with flowers of sulphur. If insects of any kind, fumigate with tobacco. If anything is the matter with them the nature of which you cannot make out, syringe with a solution of soft-soap, at the rate of half a pound to a gallon of hot water, using the mixture when tepid. Be prompt at all times in checking insects or mildew. When taking cuttings, if there are any indications of fly or spider on the plants, as in a hot dry summer there may be, dip all the cuttings into the soft-soap solution before inserting them in the pots. Lastly, never allow a lot of verbenas to lay about in a starving state in thumb-pots, for they become diseased and smothered with vermin, and do mischief that will spread far and wide, and last long; they may, in fact, contaminate all the verbenas in the place, and secure a strong outbreak of verbenas disease the next spring. It would take time and space that we cannot spare to prove this, and all I will say is, when you have finished planting, do something with the surplus stock at once, or destroy it.

I regret that this paper appears later in the season than was designed. Some time ago I requested one of our most able and experienced cultivators to treat upon the *Verbena*, and he commenced his work in earnest, but was immediately taken ill, and was unable to proceed. I have therefore at the last moment taken up the subject, regretting much that my excellent friend was not permitted both to do better for our readers than I have, and also to save me the trouble, for time just now is more than precious.

S. H.

VITALITY OF SEEDS.—In a paper addressed to the Academy of Sciences, M. Pouchet, the celebrated physiologist of Rouen, gives an account of some experiments of his on the vitality of the seeds of the *Medicago Americana*, a sort of clover. A vast quantity of wool is received at Elbœuf from Brazil; but it is in a very dirty state, and contains, amongst other impurities, the seeds of various plants. M. Pouchet was told by several credible witnesses that the seeds mixed up with this wool would strike root and grow up into plants even after undergoing a four hours' ebullition during the various operations of dyeing. This was a startling assertion, it being admitted on all hands by physiologists, from Spallanzani downwards, that the vitality of seeds is utterly destroyed in boiling water. M. Pouchet resolved to verify the truth of this alleged fact, and accordingly boiled some of these seeds for exactly four hours without any interruption. After this operation, the seeds of the *Medicago* were found to be enormously swollen; the water had become mucilaginous, and it was with no great faith in the success of his experiment that our author put these disorganised seeds into flower-pots containing earth utterly free from any seeds of the same kind. Nevertheless, in the course of from ten to twenty days, several plants sprang up; and this experiment was repeated more than twenty times with equal success. After minutely examining all the circumstances, M. Pouchet at length found that among a large number of seeds in a state of utter disorganisation, there were yet a few that had successfully resisted the action of boiling water. They had, indeed, borne the temperature of 100° Centigr. for the space of four hours, but their outer tegument had proved water-tight by some unexplained circumstance. Our author immediately concluded that such must also be the case with other seeds, and he accordingly tried with wheat, barley, millet, &c., but without success; for the present the seeds of the *Medicago* are the only instance of this wonderful vitality.

BREAD WITHOUT YEAST.—To every half-quartern of flour add one teaspoonful of carbonate of soda and half a teaspoonful of salt; mix all together; then to the water, sufficient to make a dough, add half a teaspoonful of tartaric acid; put into the oven at once. This makes beautiful sweet bread.

Calendar.

WORK FOR WEEK COMMENCING MARCH 16.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Get manure on to the plots that are to be sown or planted this month and next, and dig the ground over deeply, and leave rough. Level down the ridges of ground prepared last month, so as to be ready to sow and plant as soon as weather permits. Plant the main crop of potatoes where the ground is well drained at once, but on damp soils wait till next month. It is not safe to manure for potatoes, but charred rubbish, old mortar, and other dry materials may be used to lighten the soil and nourish the crop. For main crops use a plot that was well manured last year; for early sorts that are to come up before the autumn rains set in, manure may be dug into the trenches. Potatoes are best planted in trenches, and covered loosely with soil; dibbling is apt to cause rotting by the holes getting filled with water. Horseradish may be planted in any spare corner, but the ground should be dug deeply, and the roots will come finer if the subsoil is well manured. The crowns should be planted fifteen inches deep, and six inches apart every way, and the holes filled up with fine coal-ashes, or the sets put in as the trenching proceeds. Any part of the root will do as well as the crowns, if cut into inch pieces. Mark out onion beds, and let the soil be liberally manured. Get ready for all successional summer crops, so as to have the ground firm and well sweetened in time to receive them. Make sowings this week of Broccoli, Carrot, Cress, Peas, Onions, Lettuce, and a small breadth of Cabbage. Keep the hoe in use to destroy weeds. Earth up beans and peas as required. Plant out early-sown cauliflowers as soon as the weather is mild and promising, but not while the wind holds in the east.

TURNIPS sown now will require a soil that has been well manured and pulverized, so as to secure a quick growth of handsome roots for use in a small state. There are many sorts adapted for sowing now, such as *Early Stone*, *Early Dutch*, *Snowball*, and *Early Strap-leaved*.

BEANS must be resown again if there is any likelihood of a demand for them late in the season. For quantity, the best is *Johnson's Wonderful*, but for quality *Green Windsor* cannot be surpassed.

BROCCOLI.—Succession plants must be provided in considerable breadths by sowing at once. It is much better to sow in pans and boxes, and give them the shelter of a frame, than to sow in the open ground; but in sheltered places seed-beds on warm borders will do very well now. We have never had such fine broccolis as from plants brought on with care in the earlier stages of growth; they get less clubbed, less attacked by bot and weevil, and when put out in well-manured ground are handsome plants to begin with, and the result justifies a recasting of the adage so as to make it "handsome does as handsome is."

REMAINDERS OF CROPS are oftentimes allowed to become nuisances. We see heaps of cabbage-stumps rotting on the ground, and emitting poisonous odours, or still occupying ground for which they pay no rent, or at best give a few sprouts which in the end will be of far less value than the rows of spinach and early saladings that might have been obtained from the same spots. The most satisfactory way to deal with old stumps of cabbage, broccolis, &c., is to chop them up, throw them into a trench two feet deep, sprinkle fresh lime upon them, and cover them over. By this treatment they return to the soil very much of what they took out of it, and the lime makes a quiet end of the vermin that have identified themselves with the ancient cabbages.

CARROTS to be sown for the main crop if the ground is dry and fine. If it is wet, or consists of hard clods, wait a bit; another week may improve it much, especially if east winds blow freely. All fine seeds that are destitute of albumen, as carrot, parsnip, lettuce, &c.—in other words, all seeds that have little substance in them, require more care in sowing than seeds that may be described as fat, or that have a decidedly visible bulk, such as peas, beans, cabbage, &c. These flimsy seeds should be sown when the ground is tolerably dry, and the surface well broken, so that the seeds can be covered securely, yet lightly; if buried deep, or let fall anyhow amongst rough clods, only a few will germinate, and the crop will be patchy, or, as the farmers call it, "a bad plant."

PEAS to be sown for main crops; and to balance the remarks made under the head "carrots," we will here say that peas and beans should be sown four inches deep. They will not push through quite so soon as those that are sown just covered with a scratch of earth; but when hot weather comes, they will stand it better than those sown shallow, and give far larger crops.

PEAS in a forward state in districts exposed to the full blast of north and east winds, require a little protection, or half their life will be blown out of them. First earth them up well, this will protect the lower part of the stems; next put sticks to them of sufficient height and strength to carry the crop; and, lastly, stick short lengths of evergreen branches along the rows, or on the windward side only. Peas so treated now will three weeks hence be a full week forwarder, to say nothing of their superior freshness and health, than those that have to fight it out, though the same sorts on the same ground, and sown the same time. In the end it may make ten days' difference in the date of the first gathering; if it makes only two or three days, the gain of days will more than pay for the extra labour.

POTATOES peeping through the ground must be covered with a drawing over them by the hoe of fine soil; or if there is a good store of burnt earth, burnt brushwood, or other alkaline and carbonaceous material of a rough kind, turn it to account to cover the young haulm lightly. This will foster the tender leaf, and screen off light frosts, and the washings down of alkalis by the rain will greatly improve the crop.

RHUBARB that has stood long in the same place may be taken up, divided, and planted in fresh soil. This is essential to the production of large, early, handsome stalks. The soil for the new plantation should be a deep loam, abundantly manured. If it is half marshy, it scarcely matters, for rhubarb seldom suffers in winter through being in a damp soil, and in summer it always grows the better for it. If the cultivator takes any pride in the growing of fine rhubarb, he will not take a single stalk from the new plantation the first year. If otherwise, a few stalks may be thinned out when the plants have begun to grow freely, which of course will be rather late in the season, but they must be very moderately taxed for the use of the kitchen.

SALSIFY is the root which has been sometimes described as the "vegetable oyster;" when properly cooked it is delicious, and the pity is that it

is so little known. To grow it well, trench a piece of sandy loam, putting a good body of manure at the bottom of each trench, so as to make a manure bed two feet below the surface. Sow the seed in drills fifteen inches apart; cover lightly; thin to nine inches apart; keep clean with the hoe, and wait till November. Then take up the roots, and they will be large, long, and handsome. Trench the ground again, dress it with a good surface coat of charred refuse, and it will make the best onion-bed in the parish.

SCORZONERA to be grown the same way as salsify, but the distances to be eighteen inches and twelve inches. If either of these are grown on ground not improved by a subsoil of manure, the distances for salsify may be twelve and six inches, and for scorzonera fifteen and nine inches.

WINTER GREENS of all kinds to be sown in very small breadths, so as to secure a few early supplies of the several sorts.

Flower Garden.

HYACINTHS in frames must have plenty of air to keep the spikes short, and to retard them. As the bloom will soon be over, and as flowers of many kinds are now abundant, it will be well to keep a few hyacinths for decorative purposes to as late a period as possible. Those that have not been taken out of frames are mostly full of colour, and will be in perfection in another week or so. If kept cool and airy, and near the glass, they will last longer and look better than if put into a warm house. Give hyacinths in pots plenty of water; it makes an immense difference in the character of the spike and the leaves that surround it.

CALCEOLARIAS for hedging to be freely exposed to the air, but to be covered at night in case of frost.

CLIMBERS FOR THE GARDEN to be grown liberally, so as to have them a good size by the time they are planted out. It is miserable to see elaborate trelliswork, and the supporters of pavilions, &c., naked until about the middle of July, as they very frequently are, owing to the microscopic size of the soft-wooded climbers that are planted in May to cover them. Where the plants exist already, now is the time to shift them on into larger pots; and if they do not exist, there must be no time lost in obtaining seeds, cuttings, or plants. The following are useful plants for trellises, poles, walls, and to sprawl over hanks, &c., in the flower garden: *Abrota viridiflora*, *Boussingaultia baselloides*, *Calampelis scaber* (*Ecremocarpus*), *Calystegia oculata*, *C. pubescens flore pleno*, *C. pubescens simplex*, *Cobaea scandens*, *C. scandens foliis variegatis* (very beautiful), *Dioscorea batatas*, *Lophospermum Hendersoni*, *L. spectabile*, *L. scandens*, *L. grandiflorum*, *Maurandya alba*, *M. Barclayana*, *M. kermesina*, *Mikania scandens* (*German Ivy*), *Passiflora cœrulea*, *Pterospermum acerifolium*, *Fylogine suavis*, *Rhodochiton volubile*, *Thaladiantha dubia*, *Thunbergia* (various colours), *Tropæolum canariense*, *tuberosum*, and of sorts, *Vinca elegantissima*.

POLYANTHUS.—Seeds to be sown in pans of light rich soil; not to be put in heat, and the seeds never to get dry. If it gets dry for one day after it is sown, it will probably never germinate.

GRASS TURF requires careful dressing now to ensure a good sward during the coming summer. The turf should be well rolled with a heavy roller; any patchy or mangy places should be returned, and all alterations, such as cutting new beds, turfing where beds have been, &c., completed speedily. If the grass is poor throughout, and it is not intended to renew it, spread over the whole surface a thin sprinkling of nitrate of soda. Again in the middle of April give another sprinkle, and again at the end of May another. The result will be a stronger growth without coarseness, new grass in many places which are now nearly bare, and a green turf in July and August, when except for this care it might be worn-out door-mat.

BALSAMS for bedding out to be sown this week. These need not have such high culture as those now coming on for early bloom in pots, as short, sturdy, slow-growing plants are required. Balsams must always have a rich light soil, suffer no check, and be well supplied with water.

Greenhouse and Conservatory.

SUCCULENTS are growing, many of them flowering or about to flower, and all want the cultivator's help. Such as are topping over the sides of the pots, and want more room, should be repotted. In doing this, remove some of the old soil from the roots, but do not strip the roots bare: put them into pots a size larger than they were in before, and use a mixture of mellow loam, nodules of chalk of the size of walnuts, sharp sand or sifted sweepings of gravel walks, and thoroughly decayed cow-dung, equal parts of each all through. In place of chalk, broken brick or old mortar may be used. They must have plenty of sun, and they may have plenty of water now.

HERBACEOUS CALCEOLARIAS to be shifted into larger pots, and have a mild bottom-heat to assist them in taking hold of the new soil. The mixture to consist of loamy turf, leaf-mould, peat, and cow-dung, all in a sweet and decayed condition. A moist atmosphere will greatly contribute to the production of fine trusses, and also to prevent the spread of greenfly.

HARD-WOODED PLANTS growing freely will be much benefited by careful stopping of leading shoots, both to make the heads more compact and uniform, and also to produce a heavier mass of bloom when the season for flowering comes round again. Ericas are growing freely, and must have more root-room if the plants are large compared with the size of the pots they are in.

LILIUM AURATUM must now be kept near the light, and have regular watering. If allowed to get dry, a good bloom cannot be expected. So also with *Lilium lancifolium*, the shoots ought now to be three or four inches long, and the roots are greedy of moisture. Any *Lilium* not yet potted up for the season must be attended to immediately, as they will grow now, whether cared for or not, and it is not kind to allow them to feed on their own vitals.

PELARGONIUMS are now pushing into flower in all cases where they have been some time without a shift. To cure this bad propensity, stop first and shift afterwards. Those shifted a month ago will now want stopping, or flower trusses are sure to appear. The only way to deal with them is to nip out the points of all the shoots, and cut back a few joints any shoots that are pushing out beyond the general circumference. Keep them rather close after the operation, to encourage the pushing of the lower buds. Gauntlets and other early kinds now in full bloom must have a genial temperature, very judicious ventilation, and liberal supplies of water. All the early blooming kinds are tender, and do no good at this time of year unless assisted with fire-heat. Those coming on for early summer bloom to have all the sun possible, and to be shut up early.

BEDDING PLANTS have not made much growth of late. Keep the stock warm, and give little air. We shall soon have bright weather, when they may be more freely ventilated, to harden the wood and check their growth.

Let nothing remain in the cutting pans after forming roots, as every day beyond the proper time is a day wasted to the injury of the plants.

DAHLIAS at work will require to be potted, and those not set to work should be laid over a tank, or placed on dung-heat at once, to get strong plants. The Dahlia grower is, however, reminded that the gain in time by early propagating is sometimes a loss in the end, and is at least a matter of much more importance to trade than to private growers.

GREENHOUSE PLANTS are now in active growth, and require more than usual care. Green-fly and all other enemies will abound, and if not kept in check irreparable mischief will ensue. See at night that there is water in the house to warm and soften for next day's use. Use the syringe among Fuchsias, Acacias, and other subjects that are now growing freely. Be careful in giving air that there is no chill, and regulate watering and ventilating by the weather. As soon as the weather gets warm and settled, pass every potted plant through your hands, to shift those that need it, top-dress those not shifted, and to prune, train, and propagate as occasion may require.

Stove and Orchid House.

STOVE AND ORCHID HOUSE.—During the fine weather with which we are usually favoured at this time of the year, a kindly heat must be kept up, for there is at such times plenty of light to stimulate vegetation; but owing to the prevalence of east winds, the houses soon cool down after sunset unless the heating is well managed. Shut up early, say at 80° to 85°, and allow a fall to 60°, or even lower, during the night. Stove-plants, recently cut back, and now breaking nicely, to be shaken out, and repotted in smaller pots than they were in before, and be immediately plunged into bottom-heat. In case of being in doubt about the proper soil for any stove-plant, use equal parts turfy loam, peat, and leaf-mould, and add sharp sand enough to make the whole friable and porous. But this general advice is not to stand in the way of the little trouble needful to discover what is the best mixture for any particular plant.

Forcing Pit.

CHERRIES in the forcing house are showing a good crop this season. Do not be in haste to thin the crop, as during the process of stoning it will probably thin itself. But take into consideration the subject of thinning nevertheless, and be ready to thin if the trees appear to be laden with more than they can fairly bring to maturity. Keep the leaves and roots rather dry while stoning is in progress, but take care not to cripple the trees by over-ventilation while the wind blows keenly from the east.

PEACHES.—The remarka under the head of "Cherries" may be considered to apply to this department. The stoning process is slow, and to the young cultivator rather trying. During this period the temperature must be tolerably uniform, ranging from 55° at night to 70° by day as the extremes either way; the roots to be kept rather dry, and as much air given as possible without causing a chill. When the fruit are as large as cherry-stones, thinning should commence, but must not be all done at once. Luxuriant shoots to be stopped back, and a sharp look-out kept now for black-fly on the under sides of the leaves at the points of the shoots. "Apbis Wash" will settle them expeditiously.

STRAWBERRIES under glass require frequent and liberal supplies of water at the roots, and sprinkling over the leaves. They must also have something stronger than water at the roots occasionally while swelling their fruit; but manure-water should be withheld a few days before gathering. See former notices under this head. Strawberry in the open ground may now be heavily mulched, if not done already. Let there be no deep digging near them, and see that the plants are firm in the ground. Plantations made now will give a moderate crop.

MELONS begin to require considerable attention to set the blooms; train the vine, thin out the superabundant growth, and ventilate cautiously. The more fully developed leaves are better if evenly distributed, so as to have a fair share of light; leaves that are overlapped may be removed, and no side-shoots should be allowed to push which are likely to crowd the vine and rob bearing laterals. But the other extreme must be avoided; thin plants will never produce fine fruits, and none should be allowed to bear until they have acquired a robustness of character. The smaller kinds of melons may be very successfully grown in pots, and if well managed the fruit so produced is invariably handsome and finely flavoured.

PINES.—Plants recently shifted and scarcely yet growing require much care, especially to shade them during sudden bursts of hot sunshine, and beware of giving them too much water while they are making new roots. When the heat can be sustained without-trouble in pits properly constructed, there is no plan so satisfactory as planting them out, or plunging the pots, and allowing the roots to run out into the bed.

VINES that have begun to swell their fruit will be much benefitted by an abundance of atmospheric moisture, if the heat is kept steady. The thermometer should not go below 65° by night, nor above 80° on the brightest days; but 75° may be considered a good day average. In houses where the vines are coming into bloom, there must be less moisture. As the atmosphere is just now in a damp condition, a little extra fire may be used, as stagnant moisture is most destructive to pollen. As grapes begin to show colour, more air must be given. Prevent crowding by stopping laterals, or removing them altogether where not wanted. One thing must always be kept in mind, and that is, that every bunch of grapes should be shaded by its own leaves.

CUCUMBERS in bearing to be kept in good health by very careful ventilation and a steady heat. During dull weather, water very sparingly, so as to allow of keeping them rather close. Those coming into bloom to be regulated carefully, and the laterals stopped above the second joint. Thin the crop in time, if fine fruits are required; but where produce is more important than size and beauty, they may be allowed to bear all that set, and they will be sooner over to make room for succession plants. A brisk heat in the frames may be encouraged now by linings; but vermin will abound unless a sharp look-out is kept to fumigate when needed.

SOMETHING ABOUT TREES.

Every lover of rural life enjoys a few days "outing," when time and business will allow, away in the country amongst the woods and parks, to admire the grand old trees,—ah! and in old churchyards as well,—to gaze on the noble elms, the giant oaks, and the beautiful sombre yews, with the graceful willow hanging over the tombstones and sweeping the ground,

With branches twisted like a maze,
Just to break the vulgar gaze.

About two years since I had a rare treat in this way, and extended my journey to Scotland, and "did" the country, to use a tourist phrase, between Melrose and Edinburgh. I was delighted with the old trees and old castles, and in fact with all and everything. I saw the remains of some venerable old ash-trees (the largest, I think, I ever saw anywhere) in Bowden kirkyard, just the other side of the Eldon hills, by Melrose. These trees appear to have been planted all around the yard, but the storms of ages have destroyed all their tops. There some of them lay in wild confusion all around the trunks, whilst many of the trunks themselves are hollowed out to the depth of three or more feet. I was told that the minister in the heat of summer would mount up in the hollow of one of these old trees, and deliver his sermon. And very sensible of him too, I say; for the church is small, and I am sure both himself and the congregation would be more at ease in the open air, and the hollow tree would make an excellent pulpit. But, be that as it may, the sight of the old trees, and the idea of what they were in their prime, occupied my thoughts most, for never did I see so many patriarchs so close together in one spot before; but now, like the dead around them, they are fast going to decay—

For as man, so trees, as time does fly,
Together, in the dust shall lie.

I saw some fine old trees as well at Dryburgh Abbey, the burial-place of Sir Walter Scott, also along the banks of the Tweed, and the rugged glen leading from St. Boswell's; and again, going further north towards Edinburgh, the country is beautifully wooded, along the banks of the Esk especially, from Penicuik to Roslin and Hawthornden. Through the kindness of Mr. Ramsey, gardener to Sir George Clerk, Bart., I was allowed to accompany him through a part of the beautiful grounds of Penicuik House, and it was a treat indeed to see the magnificent trees in every part of the domain. The rising ground especially that slopes gradually from the side of the river Esk upwards to a height of several hundred feet contains many noble trees, which when seen in perspective appear massed together in beautiful irregularity; in fact, the whole of the grounds are beautifully wooded, and viewing them as I did, just as the setting sun cast its crimson shadows around, compelled me to linger and gaze on what was to me a spectacle of grandeur.

On leaving here, and following the banks of the Esk, I came to Roslin (or Rosslyn, as it is by some called), with its waterfall or linn, its ancient chapel, and ruinous castle. Here my attention was rivetted to a fine old yew tree, the largest in the trunk and circumference of branches I have ever seen. It is said to have been planted in the reign of David Earl of Huntingdon (afterwards King of Scotland), in the year 1140; but notwithstanding its great age it is still beautifully green and clothed with branches from top to bottom. It is growing close by the ruins of the old castle, and by the entrance to the vaulted chambers once inhabited by the brave retainers of St. Clair; and the trees no doubt furnished them with branches to form their yew bows and arrows with.

After leaving the tree with its surroundings, I strolled by the river's bank towards Hawthornden, and a beautiful wooded walk it is, with many a fine tree on the hill-side; and returning again to view the linn, and the old chapel, and again from the valley looking up on the castle and its wooded heights, and the shades of evening, with a beautiful full moon rising, caused pleasurable sensations that possibly I should not have experienced unless I had been a lover of trees and all their rustic belongings. Now I daresay some of your readers will say, "What does all this prose and verse tend to?" Just this: let all who have land to spare for the purpose, plant a tree on every spare occasion. They will not only enjoy its beauty in their lifetime, but will confer a lasting pleasure on future generations; for trees were made for enjoyment and pleasure, and made, too, before man; and our dear island home would be shorn of its greatest beauty were our woods and forests to be cut down and not replaced. So, plant trees; they will grow when we are asleep, and protect us from sun and wind when we are awake.

Albert Nursery, Bayswater, W.

JOHN BURLEY, F.R.H.S., &c.

Literature.

The Manual of Botany for March contains a report of the London Botanical Exchange Club for 1866; a Tabulation of the World-distribution of British Ferns, by J. G. Baker, Esq.; a Revision of the Section *Tomentosa* of the genus *Rosa*, by A. Deseglise; and notes on various new Continental botanical works.

The Ladies' Treasury for March is undoubtedly the best Number we have yet seen. It abounds in variety, is original everywhere, and is most elegantly got up. The story of Frøbel's Kinder Garten is one of the most interesting amongst many excellent papers. There is a capital sketch of Cervantes. The series on Furnishing Houses will be found of great value by young housewives, perhaps also by those who are not young, if we may be so ungallant as to suppose there are any such. The coloured print for a flower design in woolwork is in good taste, and beautifully produced. None of our lady readers should abstain from reading this admirable monthly.

The Intellectual Observer for March is scarcely so lively and varied as usual. The principal articles are on the "glass-rope" Hyalonema, an extraordinary sponge which spins a rope of crystal threads—this is by Professor Wyville Thomson; The Star Chamber, by F. W. Rowsell; Indian Insects, by the Rev. R. Hunter; The Climate of Great Britain, by R. A. Proctor; The Vegetable Sheep (*Roualia eximia* and *Haastia pulvinaris*) of New Zealand, by Mr. Jackson of Kew; and a further contribution to the attractive series of papers on "Pleasant Ways in Science." The coloured illustrations represent the Hyalonema and the Vegetable Sheep.

The Floral World for March opens with a paper on collecting and selecting, which will interest those amateurs who are influenced by the "revival" of true taste in gardening. These papers are devoted to Sub-tropical Plants, Effective Bedders, Propagation of Plants by Cuttings, Roses for 1867, Ferns and Fern Cases, the Flower of the Yucca for Display, and a new feature, called the "Finger Post," under which selections are placed.

The Gardener for March contains further contributions on the Flower Garden, Strawberry Forcing, and New Florists' Flowers; also able papers on Orange Trees, Varieties of Vegetables, and Ornamental Kale. The Gleanings of the Month are scarcely so full as is desirable, but they are written in the right spirit.

RECEIVED: *Our own Fireside*; *The Gospel Magazine*; *Old Jonathan*; *The Watchmen of Ephraim*; *River of Life Pilgrims*; *Report of Manchester Field Naturalists' Society*; *Steinmetz on Sunshine and Showers*.

Correspondence.

ROSES ON OWN ROOTS, AND THE RECENT FROST.—Having had a Number of the GARDENER'S MAGAZINE of last month sent me from the midland counties, with a marginal note against an article on roses,—"How does this accord with your experience?" and "drop the editor a short article,"—I beg leave to begin by giving you an extract from an article I wrote in 1861 on Manetti and brier roses, after the severe winter of 1860: "As a great deal has been written both for and against the use of the Manetti stock for roses, I venture to offer a few remarks on the subject from personal experience. I have grown roses on the brier and Manetti for some years, and until last severe winter found little difference in either stock, for each had its good properties; but the results of our last severe winter have compelled me to give an unconditional preference to the Manetti. My reason for preferring this stock to the brier is, that in spite of the intense cold of last winter I lost only 5 per cent. of roses on the Manetti, whilst on the brier I am sorry to state that my loss was 75 per cent. This fact is, I conceive, greatly in favour of the Manetti as a hardy stock, superior in one of its most essential qualities to the brier. I am also confirmed in the opinion formed of the Manetti from the circumstance that my case is far from being a solitary one. The only drawback, if it can be so called, that the Manetti has is its inclination to throw up suckers; a little watching will, however, obviate this. The brier has the same tendency; besides, the Manetti gives us an advantage over the brier, inasmuch as we can layer roses on the Manetti, and so have them on their own roots if desired; this we can hardly do on the brier." Since then I have not lost one rose on the Manetti, but several on the brier. This winter has been very severe here. I cannot say precisely how low the temperature was in my garden, which is situated in the suburbs of this port, and is protected from the north and north-east winds, because the glass that registered the lowest degree of cold was broken just before the frost set in, and I had not got it replaced; however, I believe it was close upon zero. Now with this severity of weather I have not lost a perpetual rose on the Manetti, and I have only lost two on the brier, Empereur de Maroc and Cardinal Patrizzi; to lose a rose on its own roots would be a remarkable occurrence with me. As I have said, you can layer roses on the Manetti, and so have them in due time on their own roots. Now I have all my Manetti roses on their own roots, except those which I have got in last November and the year before. I will have no roses that are not low-budded; these, of course, I plant two inches or so below the surface. After the second year of planting I take them up and almost invariably find that the rose has rooted just above or close to the union; I then cut the Manetti entirely off, and as a consequence have roses on their own roots: some with which I have so operated I have taken up in a year or two after, and separated into three good fibre-rooted roses. The propagating by layering is an easy process and pretty certain, but I prefer propagating from cuttings under bell-glasses in the open air, which I do most successfully, inasmuch as I consider it bad work if I don't strike three-fourths of all I put under the hand-glass. I have now in green leaf cuttings which I put under the glass last summer that have had no protection but the bell-glass (I may observe that it is quite delightful to see them after the severity of the winter). I have several groups of roses of all kinds which I have struck from cuttings put under glass in the years of 1863, 1864, and 1865, that have not yet been transplanted, and fine strong plants they are; not one succumbed to the winter's frost; last summer they looked splendid in the groups—of all kinds and colours, from the deepest scarlet to the purest white we have. Many of these I purpose sending to a young rosarian near Birmingham, to give him an extra stimulus in the growing of roses, and let him see what may be done with enthusiasm, attention, and perseverance. In fact, I am glad to say that I am well repaid for years of untiring personal attention and devotion to the rose, which have enabled me to grow and bloom it almost as I choose. Last July I had as perfect a bloom, or rather a bloom of as perfect-shaped roses, as ever I saw, except perhaps at the rosery of that renowned rosarian, the Rev. W. F. Radclyffe. Whoever is wishful to be a successful rosarian must do his own work; his ardour must be such that it will not allow him to waste his hours in morning slumbers, when the aphides and grubs are destroying the vitals of the blooms which he is so anxiously looking forward to enjoy; neither must he be afraid of dirtying his hands or pricking his fingers, for he must plant his roses, prune and manure them, &c. As for myself, I do everything but the laborious work. I will just observe that the rose, the carnation, the pink and picotee, are all the flowers in my garden I particularly care to see, but the rose is the jewel of them all.

"She will meet you with a smile at morn,
She will lull you to repose;
The poet and the painter's flower,
The everlasting Rose."

I am glad to say that Maréchal Niel is a hardy hero. I have two plants that have been exposed to the severity of the winter and are looking well; and I have also two cuttings under bell-glass that were put in last summer, and are now in leaf. It promises to be a hardy rose, and I am glad of it, because in point of colour it is a rose that has been so much desiderated, and one which I have looked for for years to our good rose-producing neighbours the French.

Derringham, Spring Bank, Hull, March 9th, 1867.

JOHN MILNE.

It seems that the experience of all rose lovers and growers is unanimously in accordance with your often expressed opinion, that the best and only safe way to grow roses is on their own roots. Now, for the satisfaction of yourself and those who take an interest in this subject, I may as well mention that my garden is on the slope of the hill running up to Blackheath; aspect of the slope south-west, and subsoil gravelly. Capital situation, no doubt, for such roses as can stand London atmosphere, and at first impression probably you even will say that I cannot have had the annoyance of losing many roses. But I have lost several, and amongst them one *Maréchal Niel* on own roots; *Climbing Devoniensis* (matted up) killed down to last two buds; one *Maréchal Vaillant* dreadfully cut up, and even *Sénéateur Vaisse* blotched with bronze frost-marks. The fact is, the susceptibility of the rose to frost depends on the soundness of the constitution of the plant, its position, and its being in a state of rest at the time of the frost. Thus my *Maréchal Niel* was a mere infant of a plant, too small; another escaped with little injury because it was stronger and finer altogether. An *Ophir* on brier, a fine dense head, in a drafty place, perished ingloriously; and not far off a *Géant des Batailles* on own root was cut down to the snow-line. *Maréchal Vaillant* and *Sénéateur Vaisse*, fine plants in sunny positions, having grown on until long after all others, were not at rest, and so suffered

for their tenuity; while the well-known tender *Jaune Desprez*, from which I had stripped the leaves, after giving it a good lift in early November, was positively discovered by me the other day beneath its loose protecting mat as sound as *Charles Lefebvre*. My own-root roses are now showing their first leaflets, and I look forward to their fully vindicating your teachings.

VIATOR.

STOCKS, TO DISTINGUISH SINGLE AND DOUBLE.—I notice your observation upon Stock-growing, and will, if I may be permitted, although not a professional or professional gardener, make a few observations, not to controvert what you say exactly. I am in the habit of having a bed of stocks, which always are very fine. My plan is to sow the seed in rich earth, and when up, if crowded in the pan, transplant the whole of them, taking up with the blade of a knife (a stick might do, but it is apt to bruise the roots), care being taken to lift, not cut off, the roots. The transplanting is into seed-pans, about an inch apart every way; the plants I leave in the pans until they have four or six leaves, or until I want to plant them out, having prepared the bed as you say. The top-dressing you speak of on planting out I think an improvement. When I am planting out, I lift every plant and examine the root, and all the plants which have roots like a carrot I reject, but all which tuft at the root I plant; and the result is, in a hundred plants I rarely have a single-flowered one. I only want about one hundred plants, and my object would be defeated in having single flowers amongst them; and by the mode above spoken of I invariably get a bed of double flowers. This may be a hint, in your hands, with your great knowledge, worth trying. I have never found it fail, and for experiment I have planted the carrot-rooted ones by themselves, and all have been single. As a rule, I find the forked roots are double flowers, the carrot-rooted single. I am unwilling to arrogate to myself the notion of having made a discovery, for I may have met with the hint somewhere, or have been told, but if so, where or how I cannot say; but to every person I have suggested it appeared to them new, and only last year a gardener gave me a number of stock plants which he said were something excellent. Of course I was obliged; but on looking at the roots I told him I feared he was mistaken, and that I believed every one was single, and so they proved. This was a man who is considered to be very skilful, and has the charge of a large establishment. His trial was the same as mine; all his were single. He then remembered what I had said, and desired my secret. If you think my observation is worth a trial, try it, or make use or not as you please of it; but if it is a matter that is of consequence to market growers, then I think it, in experienced hands, is worth a trial, and on the trial I believe the result will prove satisfactory. This letter is written, not for publication, but for your information and for that of your readers, if you choose to frame a paragraph, always supposing there is any worth in your estimation in the suggestion.

S. B.

[It would be most unwise to frame a paragraph with so clear and interesting a statement ready to hand, and so we give the letter in full, merely suppressing the name and address of the writer.]

HORSERADISH.—You must really have the goodness to pardon my inquiry whether in your directions under the Calendar of Operations for Kitchen Garden for March 2nd, you have not made a mistake in stating that the crowns of horseradish should be planted 15 inches deep, and 6 inches apart. I should not have troubled you with the inquiry, but put it down as a typographical error, had I not the recollection of having read the same instructions in the GARDENER'S MAGAZINE some time back. I should have read it 6 inches deep and 15 inches apart, although 15 inches apart would seem rather wide.

BURIED ALIVE.

[Very few people know how to grow horseradish, and hence it is seldom we see sticks a foot long, an inch thick without a fork or fibre, and so free from woodiness that they may be all scraped away, and if properly scraped become like white foam, emitting a delightful fragrance, and possessing a delicious flavour. Having given our way of growing it, we have taken the trouble to copy from a few well-known authorities their several directions, and leave "Buried Alive" to take his choice amongst them. We repeat, however, that horseradish fit for a gentleman's table is produced in but few gentlemen's gardens.]

Abercrombie's Method.—As the green crowns must be left on the best roots to render them marketable, you must obtain sets from the offsets that arise from the bottom or sides of the main root, and of which take cuttings of their tops two or three inches long, or use the tops and crowns of the old roots when taken up for use, in cuttings of the above length. Choose an open situation, and as light and deep a soil as the garden affords. Then proceed by dibble-planting, in the following manner: Being provided with a long dibble, beginning at one end of the ground, range a line crossways, and with the dibble make holes about 12 or 15 inches deep, and be careful to make them all of equal depth, which you may do by making a mark upon the dibble, and so thrusting it always down to that mark, making the holes 6 inches asunder, dropping as you go on one set or cutting in each hole, with the crown, &c., upright, taking care to close the holes up properly with the earth; and let the rows be 2 feet asunder. When the whole is planted, the ground may be sown with spinach, which will come up time enough to gather off in April and May, and give the horseradish full room to grow.—*Every Man his own Gardener*.

Judd's Method.—After having fixed on a spot of the garden sufficient for the crop I intend to plant, it is trenched full two feet deep, either with or without manure, according to the state of the soil, which, if in itself good, requires no enriching; but if it is poor, some good light manure ought to be added to it, and this must be carefully laid into the bottom of each trench; for, if not so done, the horseradish, which always puts out some side roots, would send out such large shoots from the main root in search of the dung contiguous to its sides as to materially deteriorate the crop. After the bed is thus prepared, plants are procured by taking about three inches in length of the top part of each stick, and then cutting off about a quarter of an inch of this piece under the crown, so as to leave no appearance of a green bud. Holes are then made, by means of a dibble, eighteen inches apart every way, and sixteen or eighteen inches deep; the root cuttings, prepared as directed, are let down to the bottom of the holes, which are afterwards filled up with fine sifted cinder-dust, and the surface of the bed is raked over as is usual with other crops. This is done from the middle of February to the middle of March. It will be some time before plants appear, and the operation of weeding must be done with the hand and not with the hoe, till the crop can be fairly seen; afterwards nothing more is requisite beyond the usual work of keeping clean, till the taking up of the crop, and this may be done at any time during the winter months.—*Baxter's Library of Agricultural and Horticultural Knowledge*.

Mr. Knight's Method.—Mr. Knight premises that the ground be previously trenched three feet deep, and that there be two or more beds side by

side; each bed is to be four feet wide, with one-foot alleys between the beds. Nine inches of soil is to be taken from the top of the first and laid on the surface of the next adjoining bed; then the first bed is to be trenched and planted with crowns only, the trenches to be fifteen inches deep, and the sets nine inches apart each way. The trenches are to be planted one after the other, but the alternate beds only will be cropped; thus, if there be four beds, the first and third will be planted, the second and fourth will be vacant; and, moreover, their surfaces will be higher by nine inches than the surface of the first and third. The plants must be kept free from weeds, and as soon as the leaves decay in autumn be carefully raked off with a wooden-toothed rake. In the following February, eighteen inches of the earth of the unplanted beds must be laid as light and equally as possible over the beds that are planted; then trench and plant the vacant beds exactly in the same manner as before directed. The following autumn the first planted horseradish may be taken up, by opening a trench at the end of the bed to the bottom of the roots, so that the sticks or roots of horseradish may be taken up entire and sound, which for size and quality will be such as have not been generally seen. The following February the one-year old crop will require additional earth as before (eighteen inches), which must of course be taken from those beds that are vacant, which, when done, if the ground appear poor or unlikely to produce another vigorous crop, they must have a coat of manure.—*Horticultural Society's Transactions.*

JUDGING AT SHOWS.—This is rather a delicate subject to approach, Mr. Editor, but I do not intend to interfere with judgment more than belongs to horticulture or floriculture. I think you, and many of your readers, are aware, and will admit, that justice is not fairly administered at—shall I say, provincial exhibitions only, or at exhibitions generally? I have been to many exhibitions, and have very, very often heard of some dissatisfaction respecting the awards of prizes (that, you will say, is universal, for gardeners couldn't do without grumbling); however, I think there is very often just cause for it. I will give you an example of justice at a country show held in the Midlands. A prize of £10 was given for roses; there were but two competitors—one a large grower, the other a small one. The discerning reader will say the large grower was first, of course, and the small one in his proper place. Now it so happened that they were not in their proper places, for the first prize lot were bruised and beaten to tatters, many of the blooms were very stale, and a good number of them *could see for themselves.* The second prize lot were very clean, good size, the centres first-rate, and, above all, as fresh as possible; the only fault they had was that they were a little too close together. I could give you many cases like this, but will not take up your valuable space with them. I know if I could ensure satisfaction to all exhibitors, I should soon be in a very enviable position; but I think I can state how there might be great improvement. We very often get judges who are gardeners to some lord or duke's place. I heard a secretary say last year, "It sounds so well if we can but get men from places like those." Now, with every respect to gardeners who hold nobleman's places, I do not hesitate to say that it is one of the greatest errors ever committed to appoint men merely because they are in large places. I have frequently observed where such men have been selected plants and flowers have not had justice done them. Last autumn I was with a gardener who holds one of the best places for fruit hereabouts. After he had awarded prizes to dahlias and hollyhocks, says he, "How do they do to grow them so fine? Which do you think are the best flowers? Are they much trouble; for I do not know anything at all about them?" If those who are judges do not know a good flower or plant, how is it possible for them to award prizes fairly, though good cultivators are not always good judges. Fruits and vegetables, I must say, are better adjudicated; but I have seen errors in them. For competitors of the upper and middle classes, quality should be the first point; but for cottagers, productiveness and usefulness must, or ought, to have the preference. In a cottagers' class last summer I saw twenty or thirty dishes of the King of Flukes potatoes passed over, and prizes awarded to those which perhaps might be better in flavour, but could not touch them for productiveness and usefulness. What I should propose to managers of societies, is to select men who are capable of awarding prizes honourably and fairly, and pay them well for it; for cheap judges are like other cheap articles, often worthless. Farther, I would adopt a standard for things to be grown and shown by, so that cultivators in a great measure might be their own judges. It is a well-known fact that manufacturers, engineers, and stock breeders and feeders have standards of what perfection ought to be; and if horticultural societies were to lay down a code of rules for their several productions, exhibitors would be glad to pay for the trouble and expense they (the society) might be put to, so that they might feel themselves satisfied with some degree of safety in growing whatever they might take in hand, instead of the uncertainty which they have to contend with at the present time.

J. T., near Leicester.

* * * A typographical error of the purely "unavoidable" class occurred in page 106, last week. In the reply to J. W. T., on propagating the Weeping Birch, "varieties of fir" should read "varieties of birch." The error no doubt corrected itself in the minds of most readers.

Replies to Queries.

Improving a Lawn.—Redland.—To get rid of worms is neither an easy nor a desirable matter. We have seen them completely extirpated by scd dening the ground with a solution of corrosive sublimate, but the grass was worse afterwards than before. Usually a watering with lime-water brings out a great many, especially if the watering is done during mild moist weather; and if that is followed with occasional thin sprinklings of nitrate of soda, a good thick growth of grass is produced. As your lawn was drained and re-turfed last autumn, it is not possible it should look well now. Probably as the season advances it will improve. Do not have it beaten till quite the end of April or some time in May, when perhaps beating it level will improve it. At this time of year beating would only smash the half-alive grass. The mixture of sand, loam, old mortar, and guano you propose to sift over it will certainly do it no harm, and if you put on but a thin coat at a time, will probably do good. Perhaps all you need is patience.

Flower Beds.—Amateur repeats the query which was answered Feb. 9, p. 61. So many correspondents sign "Amateur," "Constant Reader," and "Subscriber," that a little confusion must be expected. Correspondents have the remedy in their own hands.

Floral Vignettes.—Lady H. S.—They depend more upon taste than skill; we have seen some that were equal to coloured pictures. Small yellow flowers, such as tormentil, nicely pressed sprigs of pimpinell, yellow violet, and slender grasses and mosses, are the kinds of plants best adapted

for the purpose. They should be carefully dried between folds of blotting-paper, and after that taste must be exercised in disposing of them. To fix them in groups on note-paper with a brush dipped in gum is quite a simple matter; but to do it with effect depends upon taste and practice.

Annals for Cold Soil.—B.—The best annals for a cold clay are any of the showy Californian kinds, sown in pans in a pit or frame, or on a gentle hotbed, and planted out when the ground is warm. If you grow *Oxalis rosea*, *Hunnemannia*, *Nemophila maculata*, *Leptosiphon*, or *Fenzlia dianthiflora*, or *Ipomeas*, get them forward in pans, and do not plant them out till May. Give preference to the crimson, purple, and white candytufts, *Nemophila insignis*, *Campanula speculum*, *Venus's Navel-wort*, *Silene armeria*, *Kaulfussia amelleides*, *Viscaria oculata*, *Gilia rosea*, *Escholtzia crocea*, and peony *Poppy*, and others that we have described as suitable for autumn sowing, as they are the hardiest. If you sow any of these the first week in April, you may expect them to bloom nicely in June and July.

Cockcombs.—J. W. T. B.—Sow in a brisk heat, prick out as soon as large enough to handle, and then pot on, never allowing them to become pot-bound; soil sandy loam and very rotten dung; keep in hotbed till the combs are nearly full grown, and use manure-water pretty freely. Remove to greenhouse when combs are fully spread. Throw away any that are ill-shaped or badly coloured; you will soon be able to determine which will prove the best for keeping.

Roses dropping their Blooms.—R. Baxter.—*Devoniensis* and others that are in a strong clay, and drop their blooms, will behave very differently if you temper the soil with a liberal admixture of turfy peat, leaf-mould, old dung, and sand. These ingredients, with yellow loam, all in equal proportions, make a first-rate mixture for tea-roses. Your soil is too cold and too heavy, and they show their indignation by casting their blooms.

Mathiola bicornis.—C. S.—This plant is a crucifer, native of Greece (Don, *Dyehlamydeous Plants* I. 153. Smith, *Prod. Fl. Græc.* II. 26). Leaves hoary, pinnatifid, siliques torulose, furnished at the tip with two acute horizontally-spreading spines, from which it takes its name. Flowers purple; grow the same as stocks in a light soil. It is the two-horned podded stock of gardens.

Sphagnum.—R. R. R.—This is a moss which abounds in most hoggy places, and generally grows in spots where it is covered with about two inches of water all winter, in sappy unsafe ground. There are a few spots on Hampstead Heath where we can always obtain a supply, and that is the nearest spot we know for it near London. It is a gray moss of coarse texture, very distinct in character, and when bitten between the teeth yields a hitter taste. It is useful for a hundred different purposes in horticulture, and is largely used by nurserymen to pack plants in, as it retains a certain amount of moisture when dry to the touch, and is so astringent that it prevents decay of the plants packed in it. You can obtain fern-spores of the first-class seedsmen; any who advertise in this work will supply you.

Ferns for Cover.—Sir T. H. S.—The reason why ferns do not grow in your covers is probably that the soil does not suit them, and this is the more likely as they grow "admirably two or three enclosures off." The best fern for your purpose is the common brake, which will grow in almost any soil, but most freely in a damp peaty earth. It has been said in books that the brake cannot be easily propagated, but we have been overrun with it through the introduction of pieces of the roots to the garden in bog-earth from Wanstead. As the bog is always chopped to the size of potatoes when used, it is evident that moderate-sized pieces of the brake-roots will grow. If we had to manage your coppice, we should select a certain few favourable positions, and open circular trenches, from which we would remove the earth to a depth of eighteen inches and a breadth of three feet. Those trenches we would fill with a mixture of surface parings of turf, charred rubbish, moss, rotten wood, and any other peaty material we could lay hands on. A few loads would go a great way, as a portion of the soil taken out could be mixed with it if loamy. Plant these belts with *Pteris aquilina*, *Lastrea filix-mas*, *Polystichum angulare*, *Athyrium filix-femina*, and *Scelopendrium vulgare*. The first is the most important, as it is real game cover, and will grow almost anywhere. If you cannot get a supply of plants in your own neighbourhood, a nurseryman will supply you by the hundred or thousand. Do the work at once, and finish it off before the season advances towards summer.

CATALOGUES.

Mrs. DIXON, 48A, MOORGATE STREET, LONDON.—*Select List of Kitchen-Garden, Farm, and Flower Seeds for 1867.*—Contains everything in request at this time of year, and is admirably arranged for reference.

SUTTON AND SONS, READING.—*Farm Seed List for 1867.*—This excellent list is embellished with beautifully finished coloured figures of Sutton's New Intermediate Mangel Wurzel, a fine, solid, yellow root of an oval form, and Sutton's Champion Swede, one of the best for cropping, storing, and resisting disease.

JAMES BACKHOUSE AND SON, YORK.—*List of Alpine Plants and Hardy Perennials, 1867.*—For lovers of floral beauty who have souls above flat bedding and Kidderminster carpets, this is something more than a list of plants; it is a sort of "key to golden palaces" and "gate unto that paradise" which is reserved for the thoughtfully tasteful and the tastefully refined. We shall have to notice this again.

DOWNIE, LAIRD, AND LAING, 17, FREDERICK STREET, EDINBURGH, AND STANSTEAD PARK, FOREST HILL, LONDON.—*Catalogue of Garden, Flower, and Agricultural Seeds, &c.*—This is arranged so that customers can fill in the quantities they require without having to write the names of things. It is at once, therefore, a catalogue and an order-sheet.

STUART AND MEIN, KESLO, N. B.—*Select List of Fruit Trees.*—This is one of the best of lists for the northern parts of Britain, and it is prefaced by an admirable article on the cultivation of Dwarf Apple-trees, by the Rev. R. O. Broomfield, accompanied with a selection of varieties for the colder parts of the isle.

ARTIFICIAL WOOD.—An important branch of industry has recently sprung up in Rhenish Prussia. It consists in the manufacture of various articles from refuse wood and sawdust, which are agglomerated by a cement, the exact nature of which is not stated, and then pressed in moulds, so as to form covers for photographic albums, small picture-frames, rosettes, and other ornaments for the use of cabinetmakers, &c. For the last-mentioned articles the composition is stained to imitate ebony, mahogany, walnut, and other woods. The composition, or "seifarine" as it is called, may be sawn, cut, drilled, attached together by glue, and bent on hot plates. It may be polished with oil or French polish, and may be varnished and gilt. A similar composition was manufactured in France a few years ago by mixing fine sawdust with blood, and submitting it to the action of a hydraulic press.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun rises.	Sun sets.	Moon rises.	Moon sets.	WEATHER NEAR LONDON, 1865.				M. temp. avg. of 43 yrs. Gravh	Orchids that may be in bloom. I, Indian House; M, Mexican House; O, Greenhouse.	M D		
							Barometer.	Thermometer.	Rain						
1867			b. m.	h. m.	b. m.	h. m.	IN.	MR.	MX.	MM.	MM.			1867	
24	S	3rd Sunday in Lent	5 57	6 17	10 57 p.m.	7 55 a.m.	29-13	29-05	51	40	45.5	·08	42.2	Cypripedium caudatum roseum, I Peris	24
25	M	Lady Day	5 57	6 19	11 55 "	8 28 "	30-05	29-02	49	29	37.5	·60	42.3	C. hirsutissimum, I ... India	25
26	T	Duke of Cambridge born, 1810	5 52	6 20		9 4 "	30-15	30-00	50	43	40.5	·02	42.4	Vanda cristata, I ... "	26
27	W	James I. of England died, 1625	5 50	6 22	0 49 a.m.	9 46 "	30-14	30-04	52	35	43.5	·10	42.6	Epidendrum crassifolium, M Mexico	27
28	Th	Raphael born, 1493	5 45	6 24	1 38 "	10 34 "	30-13	30-05	50	41	45.5	·04	42.8	E. suraticum, M ... Guatemala	28
29	F	Peace with Russia, 1-54	5 45	6 26	2 33 "	11 38 "	30-12	30-10	44	48	56.0	·00	43.0	K. hirsutum, M ... Mexico	29
30	S	Stilian Vespers, 1282	5 43	6 23	3 0 "		30-15	30-07	61	43	52.0	·14	43.4	Aganisia pulchella, I ... Demerara	30

The Gardener's Magazine.

SATURDAY, MARCH 23, 1867.

GARDENERS' WAGES were the subject of very active discussion two years since, and it appears, if we may judge from the proceedings of a meeting reported in the present sheet, that another discussion may be looked for on the same subject. We use the term "diseussion" somewhat inadvisedly, for the utterances are all on one side, and the so-called discussion amounts to a collective protest by gardeners themselves against the insufficiency of their scale of remuneration. We have not yet heard a vigorous defence of the prevailing rate of wages from any employer; the verdict therefore goes by default, and on both sides it appears to be agreed that gardeners are not well paid, and that the time cannot be far distant when some amendment will take place. It is equally our interest and our duty to be impartial; our clients comprise employers and employed, and the interests of both are, by consequence, to be made note of at the head of our brief. Now we have no hesitation whatever in saying that the interests of both are bound up in this question, and that if the rate of wages is lower than strict justice demands, the employer is as great a loser by it as the employed. There is nothing gained by injustice, nothing gained by an ungenerous policy, no advantage worth having can result from labour that is unfairly compensated. These postulates apply to the whole case of employment in any and every capacity, but they apply with peculiar force to the employment of the gardener. Here is an occupation that cannot be governed by mechanical rules—an occupation demanding personal energy, peculiar intelligence and tact, and as much earnestness and honesty as any kind of labour in which men are engaged. The embellishment of the house and the table are matters largely in the gardener's hands: if he does his duty, the family enjoy cheerfulness and plenty, in so far as it is possible for the gardener to minister to their moral and physical necessities; but if the gardener neglects his duty, the garden itself becomes a nuisance and a vexation, and the good fruits of the earth, that should so emphatically vindicate the gardener's art in the social circle, are conspicuous by their absence, and the gardener's wages are all thrown away. We wish to avoid the appearance of boastfulness in regard to either of the parties to a consideration of this sort; but we do feel bound to say that, *as a class*, the gardeners are exemplary for faithfulness, intelligence, and application to their duties; and the employers of gardeners, *as a class*, comprise the best-intentioned and most generous-hearted people in the country. English gentlemen and gentlewomen are the employers of gardeners, and to such we may appeal with the best assurance of a fair hearing and of perfect justice in the end. We ask them to ponder in a kindly spirit the fact that as a rule gardeners are paid at a lower rate than the practitioners of other kinds of skilled labour; that they rank equal or superior to building operatives in intelligence and skill, but are considerably below them in respect of hours of service and average pay. There are grades of honour in gardening as in other occupations; the mere labourer cannot and does not expect to be paid at the same rate as the skilful artist, but in respect of both present remuneration is at a low ebb, and the prospect of advancement is neither bright nor extensive; it must rest with the gentlemen and gentlewomen of England to improve the gardener's lot, and open the way for his attaining to a better position in the scale of social life.

We beg pardon of all the gardeners for the last observation. If second thoughts are best, we will say that it does not rest so much with their employers as with *themselves* to effect an improvement in their position. If societies formed to promote good fellowship, on the basis of pure decorum and mutual improvement, were established in every considerable district—town, village, or parish—after some such model as the West London Gardeners have adopted, the gardeners as a body would soon attain to the social rank they are entitled to as essential members of the body politic. They have never yet been united; even the United Society has proved a mockery, for it has become a clique of six bent on the practice of the basest toadyism. It is real *unity* that is wanted, in the spirit of manly independence and uprightness and true mutual regard. One of the best qualities in a man who is dissatisfied with his lot is *self-respect*, which will prevent his bowing down before a brazen image or an idol of wood, as we have

seen gardeners do in these degenerate days, and secure for him perfect justice, which is better than patronage, and fair play, which is better than any gift. The love of patronage is the curse of the gardening community, and of some other communities of the industrial order. But this curse is fast being removed by the improving intelligence and independence of the order; and we hope to see, as one of the most marked of the moral features of horticultural industry, the observance of a proper respect for wealth and superior social status, without a shadow of cringing or of fawning for patronage. The cultivation of self-respect implies the practice of habits of sobriety, thoughtfulness, thrift, and every principle of personal honour, and it demands the rendering unto Cæsar whatever is Cæsar's due of time, strength, skill, obedience, and deference, and all these things must come from within the man, and be the evidence of his character and intentions. Union for mutual improvement and the mutual advancement of pecuniary interests may be made the corner-stone of a new and better order of things for all who live by garden labour.

Let us not forget, however, that during the past two years something has been really done to improve the circumstances of the operative gardener. Most of the great London firms have advanced the rate of wages, and this without being put under pressure. This fact should encourage those who have as yet in no degree participated in the improvement. Let them persevere, using such moderate means as cautious men will approve, and let those who are well off in respect of both employment and wages give assistance cheerfully to their brethren who are not so.

HYDE PARK.—In the House of Commons lately, Mr. Alderman Lusk asked the First Commissioner of Works if he thought it desirable to continue the elaborate horticultural embellishment of the Park-lane side of Hyde Park at considerable public expense, while the Bayswater side and Kensington Gardens were, in the same respect, comparatively neglected.—Mr. NICOL inquired whether the unsightly fence surrounding the park could not be removed, and whether the contractor could not be induced to complete the new railing before July, 1868, and whether it was true that the price of those railings was to be £40,000.—LORD J. MANNERS. Assuming, as I cannot do, that the adjectives and adverbs of the worthy alderman's question are correct, I can only answer it in the affirmative. With respect to the question put by the other hon. member, there is no doubt that the contractor might be induced to hurry on the work, if the public are prepared to expend more money in paying him for so doing. But considering how and by whom the railings were destroyed, I am not prepared to recommend the House of Commons to make any additional outlay. With regard to the hon. gentleman's question, it is one of the most incorrect statements I have ever heard in the House.

KEW GARDENS.—In the report by Dr. Hooker on the affairs of the Royal Gardens during 1866, it is stated that the number of visitors during the year was 488,765, being 14,000 less than the total for 1865. This is attributed to the bad weather during June, July, and September. The palm house is described as having been rearranged, and the fern and aroid houses are in the finest condition, but the tree ferns are so crowded that the public cannot see them. The collection of succulents has been increased. The orchids are improving; but the collection is far below what these gardens should possess. The hardy herbaceous plants are in a very unsatisfactory state, but they are being rearranged under a new foreman. The temperate house has been replanted, and a grand effect produced by arranging tree-ferns, half-hardy plants, &c., down the centre. The ornamental trees in the pleasure grounds are in a bad state, the trees dying by hundreds, and a considerable outlay will be required to arrest this mortality, and effect necessary improvements. Numerous important works are in progress, and various changes have been made in the staff and administration, the full benefits of which are not as yet realized. Upon the whole, the report is a gloomy one; but it affords reasonable ground for hope that these gardens are in process of restoration from a long accumulation of neglect.

WEST LONDON GARDENERS' SOCIETY.

On Wednesday, March 13, a meeting of gardeners was held at the Shaftesbury Club House, 35, Princes Street, Notting Hill, for the purpose of establishing a society the object of which is to promote mutual defence and advancement of their interests. The chair was occupied by MR. SHIRLEY HIBBERD, who opened the proceedings by stating that he was glad at all times to assist in any movement of gardeners intended for the advancement of their art and their own personal interests, when a straightforward and plain-spoken course was taken to carry their proposals into effect. He was not aware of the course it was intended to pursue, but no doubt he should learn from the resolutions; and he was only anxious, as chairman, that those who had to speak should have a courteous hearing, and that whatever was decided upon in reference to the formation of a society should be with circumspection; for it was the fate of many societies to die young, and frequently the elements of discord were in them from the beginning, so that it was impossible they should prove of any lasting service to their founders. As to the general proposition to establish a system of mutual

instruction, it was entitled to the approbation of all right-minded men. He believed they might benefit more by a well-conducted mutual improvement society than by seeking the assistance of the most learned professors; they would find, in fact, that one of the quickest and surest ways of learning something was to make an endeavour to teach it. Every man's experiences differ in some respect from the experiences of every one else engaged in the same pursuit or business. Every one amongst the many gardeners then present could tell his friend or neighbour something worth knowing, if experiences were exchanged freely. It is the thoughtful observant man in every business who is the most successful, and this is especially the case in gardening; for it is a business founded on observation, and no man who does not observe,—who does not, in fact, keep himself always at school, in the greatest school of all, the school of Nature,—can ever expect to excel in the cultivation of plants, and it is quite a question if he has any right to attempt to cultivate them, for he cannot possibly succeed. Moreover, the observing and reflecting man will find his business full of delights; he will find it a cheerful, elevating occupation; but the careless man, following his calling as a cart follows a horse, or as a machine moves because it is driven by steam or some other power, will find no pleasure in it—will be without a stimulus to exertion or improvement—will not only not prosper in life, but will not deserve to prosper. This mutual improvement scheme was opportunely proposed, for the working classes were waking up throughout the land, and the subject of their political rights and privileges had become of so much importance that their consideration at the present time constituted an historical epoch. It was a happy thing for this country—for its institutions, its liberties, its prosperity, and progress—that the masses of the people are claiming to exercise a due share of influence in political affairs. It was a time, however, in which working men should put in action all the discreetness they possessed. It was not for the idle or the dissolute to say much about the wrong involved in the exclusion of the artisan and labourer from the franchise; the proper declaimer against that wrong is the sober, industrious, intelligent, generous-minded man, who, by his example and good life, can put to shame those who would deny to him the right of influencing directly at the polling-booth the destinies of this great country. He hoped that if they should form a society, it would be the means of bringing together the gardeners of the district for mutual aid in whatever was worthy to be promoted. Well-regulated combinations are wonderfully useful, but it needed caution at the outset to prevent the intrusion of the elements of discord, and also to guard the movement against the possibility of assuming a tyrannical form. There is just one thing certain—that working men understand their own wants far better than most of the people who were perpetually preaching at them; therefore working men should meet together, and consider their own interests. Employers will have more confidence in men who cultivate self-respect than in those who are mere drudges, and who pursue their duties in the fashion of a horse that goes round and round in a mill. The great thing wanted for the improvement of our social life—that is, for the advancement of religion, morality, intelligence, and the increase of the comforts of life—was for the working classes to do for themselves what well-meaning but misguided patrons had endeavoured, but had failed, to do for them. Self-improvement is the best of all improvement. The search for knowledge gilds the pill of life, and those who exert themselves for the benefit of their fellow-men will assuredly benefit themselves by the endeavour.

Mr. John Burley moved the first resolution: "That there exists a necessity for an increased co-operation amongst gardeners, for their individual advancement and mutual benefit." He said, I am sure it will be agreed by all present that a society having for its object to promote co-operation amongst gardeners is very much wanted. As a class we—that is to say, the gardeners—are second to none in general intelligence and love of our profession; and there is a great deal of good-feeling amongst gardeners that requires to be brought out, and afforded opportunity for expression, both in words and deeds. Take notice what happens when gardeners take it into their heads to visit some place where they have heard there is something good to be seen, and how generously they are always received, and how freely they are invited to walk round the garden and greenhouses, and see the best and the worst the place has to offer them. Wherever and whenever gardeners meet, the spirit of freemasonry—that is to say, the spirit of good-fellowship and large-heartedness—is manifested; and it is a pity that this generous feeling should have so few opportunities for its exercise than at present. The society to be established on the present occasion is intended to foster a brotherly feeling, and afford opportunities for gardeners to compare notes with each other, to exhibit their produce, and perhaps read essays on their cultivation, and engage in friendly discussions on matters affecting their interests. The diffusion of knowledge amongst us will tend to raise us in the social scale to the position we deserve but do not yet enjoy. A great deal has been written and said of late on the pay that gardeners receive, and, as an employer of labour and skill, I must say there is room for improvement in that direction. A gardener's work may be said to be never finished. Sometimes he must be at it extra early, and at other times extra late, and now and then early and late together, as the exigencies of the season, fashion, and weather require, and always a bit of Sunday work as well that cannot be avoided. Then it is a situation of trust. The gardener is surrounded with valuable property; he has more or less to do with the house, and exerts a considerable influence for or against the comfort of its inmates. Now, I say that, considering these things, they are miserably under-paid, worse, in fact, than most artisans; worse, too often, than coachmen and footmen, ay, and sometimes worse than the cooks for whose gracious approbation they submit well-grown cauliflowers, tomatoes, and the rest of the good things that, with much anxiety, are brought to perfection in English gardens. Combination is essentially necessary, especially in regard to the financial part of the question. Mind, I don't mean that you are to combine and strike for wages, but I wish you to show your employers that a fair wage is due to you for the anxiety and skill you are required to exercise in the care of his property. In conclusion, I beg to state, sir, that the business of this society has been thus far conducted by a committee of twelve gardeners, including myself, and we shall not mind the time and money we have expended upon it, provided the objects we have in view are promoted by our labours.

The resolution was seconded by Mr. Thomas Burley, and supported in an effective speech by Mr. O'Dell, and was then agreed to unanimously.

The Secretary then read to the meeting a series of rules that had been framed as the basis of the proposed society, after which Mr. M'Elroy moved that these rules be adopted. This was seconded by Mr. W. Hills, and carried unanimously.

The usual vote of thanks to the Chairman terminated the proceedings.

The following are the rules agreed to:—

1. That this society be called the "West London Gardeners' Mutual Protection and Improvement Society;" its object being the advancement of horticulture, and the improvement of the circumstances and prospects of persons who follow it as a business.
2. That gardeners alone are eligible to become members of this society, and only those who will be admitted who are known to be persons of good character.
3. That the subscription be at the rate of four shillings (4s.) per annum, to be paid quarterly or yearly in advance. Members in arrear to be fined twopence (2d.) per month while their subscriptions remain unpaid.
4. That the quarterly meetings be held on the evenings of the first Wednesdays in January, April, July, and October, in the Shaftesbury Club House, 35, Princes Street, Notting Hill, to commence at 8 o'clock, and to close at 10 o'clock; the meeting in January to be also the annual meeting. That at these meetings essays on gardening subjects may be read, and specimens may be exhibited by members. That the reading of an essay shall occupy not more than fifteen minutes, and in the discussion following no one be allowed to speak beyond ten minutes; and no person to be allowed to speak a second time, provided there are others who wish to speak, with the exception of the essayist, who is entitled to ten minutes to reply to the observations that have been made. The committee shall publish a list of the subjects on which essays are to be read, with the names of the persons who offer them.
5. Any person subscribing twenty-one shillings (£1 1s.) in one sum to be eligible for election as a life member, such election to be decided by a majority of votes at a quarterly meeting, when, if the candidate does not obtain a majority of votes, the subscription he has paid shall be returned.
6. That the management of the society be entrusted to a committee of twelve members, they being elected by a majority of the members present at the annual meeting. The treasurer, secretary, and other officers are to be elected at the annual meeting, and are to be, by virtue of their offices, members of the committee. At committee meetings five shall constitute a quorum.
7. That the rules shall be altered only at a special meeting convened for the purpose, and that previous to any such special meeting taking place notice thereof must be given at a quarterly meeting, in order that the members may be fully apprized thereof.
8. That a book or register be kept by the secretary in which to enter the names, addresses, and qualifications of members in want of employment; and members are desired to acquaint the secretary with vacancies occurring, and it shall be his duty to inform the members whose names are on the Employment Register. The expense of postage and any other expenses especially incurred in seeking or obtaining situations for members to be defrayed by the persons benefited.
9. That the expenses of the society be entirely defrayed by donations and subscriptions of members, and any deficit or surplus shall be dealt with by the members at the annual meeting in January.
10. That, to prevent, as far as possible, any cause of dissension, and to promote a brotherly feeling, expressions tending to religious or political controversy at any meeting are forbidden; and the observance of strict decorum is required by every person attending the society's meetings.
11. That all moneys received by the secretary or any other officer be paid to the treasurer within one week of the date of the receipt thereof, and that the treasurer give an account of all moneys by him received or expended at least once a quarter.
12. That no person be considered a member, or entitled to avail himself of any of the privileges secured by these rules, unless his subscription be paid in advance, in accordance with Rule 3.
13. That a library be formed by gift and purchase, to comprise only books that treat upon horticulture and correlative sciences; that for the keeping of the same a librarian and assistant-librarian be appointed in the same manner as other officers at the annual meeting; that the books be lent to members, and that rules be framed by the committee for the entire management of the library, with a view to render it useful to the members generally.

In accordance with the foregoing rules, the first Quarterly Meeting will take place at 35, Princes Street, Notting Hill, on Wednesday the 3rd of April next.

ROSES AND THE FROST AT STAMFORD.

It is only after the effects of such frosts as we experienced during the first week of the present year that amateur rose-growers have the means of discriminating between the consumptive and robust occupants of their Roseries, and nurserymen the opportunity (and I trust they will take a lesson) of disencumbering their catalogues of many third-rate varieties; and although the frost brings its trials for us hotly, "as out of good there cometh evil," it must be somewhat of a satisfaction to all to have the invalids and rubbish so speedily selected and disposed of by such an impartial test. During the nights of the 1st, 2nd, 3rd, and 4th of January my thermometer registered here, in a walled garden at five feet from the ground, and in the open, 23°, 21°, 22°, and 22° of frost respectively. My soil consists of a light, well-drained, highly-manured old town-garden humus overlying the oolite rubble. The garden is surrounded E., N., and W. by high walls and buildings, but open to and sloping towards the south, within a few hundred yards in which direction is an overflowed meadow, at about twelve feet lower elevation. The snow here froze on the branches, and was three inches deep on the ground. Below this line a good many dwarf roses on the Manetti and their own roots are uninjured. I see my lists below do not in every instance correspond with those already published in your paper; but I know that we have suffered here very severely, probably from the situation and the nature of the soil. We are about three or four miles from the fen district, which continues open thence to the North Sea. My list of uninjured (No. 1) may therefore be relied upon as containing only thoroughly hardy sorts. The varieties that are only partially injured are contained in list No. 2; and list No. 3 includes all those that are either killed *in toto*, are irrecoverable, or are destroyed down to the snow-line. I am sorry to include in the latter list Comtesse de Chabillant, Sénateur Vaisse, Prince Camille de Rohan, Le Rhone, Rushton Radclyffe, and Madame Charles Verdier, which must be placed here amongst the most delicate. I lost plants of the two latter varieties also from frost during the winter of 1865-6, although they were then protected by a slight covering of brakes. This year my plants were entirely exposed, and all were on the Manetti (I hope yet to see the Rev. W. F. Radclyffe rose-father to a better rose, English bred and with a better name). Céline Forestier, which has been so beautiful with me during the past two seasons, has suffered much, the wood being even blacker than that of Cloth-of-Gold. Nearly every unprotected plant of Devonensis is killed; on the other hand, John Hopper is A. 1, and Madame Rivers, Madame Vidot, Prince Léon, and Madame Furtado, four roses which I have hitherto looked upon as amongst the most tender, have stood the cold fairly without any protection. My observations have been taken (except as to the varieties of the past year) in most cases from several plants of each variety, and in many instances I am confirmed by results in another garden somewhat differently situated. I find that, as a rule, the old wood and old plants especially have suffered most, and that dormant buds have weathered best. Those of the race of General Jacqueminot appear particularly impatient of frost. The lists are long, but a perusal may save some trouble and inconvenience to amateurs, and perhaps some annoyance to growers for sale, if they will discontinue (as I intend to do) to plant and propagate even those varieties only in lists Nos. 2 and 3, the flowers of which are not beyond mediocrity, and those that are worthy of propagation on account of their beauty can in future

receive some slight protection, a course which cannot be resorted to in many gardens with respect to all sorts indiscriminately.

LIST No. 1.—ROSES UNINJURED.

Hybrid Perpetuals.	Hybrid Perpetuals.	Hybrid Perpetuals.
John Hopper	Marguerite de St. Amand	Beaufranc
La Ville de St. Denis	Comtesse de Paris	Duc d'Anjou
Madame Knorr	Semiramis	La Gloireuse
Caroline de Sansal	Jean Chérpin	Catherine Guillot
Victor Verdier	Auguste Rivière	Marguerite Appert
Jean Gonjon	Baron de Rothschild	La Tour de Crony
Charles Lafebvre	Madame Fillion	La Tour d'Anvergne
Madame Rivers	Hippolyte Flandrin	Alphonse Karr
Rev. H. Dombain	Madame Elise Vilmorin	Maréchal Forey
Madame Victor Verdier	Charles Wood	Reine de Castille
Triomphe de Paris	King's Acre	Madame Domage
Alpaide de Rotalier	Deuil de Prince Albert	Triomphe de l'Exposition
Madame André Leroy	Dr. Andry	
Princess Mary of Cambridge	Souvenir d'une Mère	Other Varieties.
Duchesse de Medina	Maréchal Souchet	Maréchal Niel
Cosli	Princess of Wales	Gloire de Dijon
Bertha Levôque	Belle de Printemps	Charles Lawson
Prudence Besson	President Lincoln	

LIST No. 2.—ROSES PARTIALLY INJURED.

Hybrid Perpetuals.	Hybrid Perpetuals.	Hybrid Perpetuals.
Wm. Griffiths	Virginal	Mademoiselle Marguerite Dombain
Baron Prevost	Géant des Batailles	Duc de Wellington
Madame Vidot	Sour des Anges	General d'Hautpoul
Madame Boll	Duc de Rohan	Duchesse de Caylus
Baron de Noirmont	André Leroy	Souvenir de Wm. Wood
Madame Bontin	Lord Clyde	Exposition de Brie
Madame Caillot	Madame Furtado	Alfred Colomb
General Pellissier	Prince Léon	Fisher Holmes
Mathurin Regnier	Madame Julie Daran	Chevalier Nigra
Comte de Nanteuil	Vicomte Vigier	Chas. Rouillard
Alexander Fontaine	Triomphe des Beaux Arts	Souvenir de Dr. Jamin
Baron A. de Rothschild	Louise Darzens	Dr. Lindley
Louise Odier	Charles Margottin	
Baron Gonella		

LIST No. 3.—VERY TENDER ROSES.

Hybrid Perpetuals.	Hybrid Perpetuals.	Hybrid Perpetuals.
Prince Camille de Rohan	Duchesse d'Orléans	Madame Herman Stenger
Lælia and Louise Peyronney	Léon des Combats	Jean Touvais
Comtesse de Chabrillant	Queen Victoria	Murillo
Sénéateur Vaisse	Madame Vigneron	Bernard Palissy
Le Rbone	Adolphe Bossaige	Souvenir de Bernardin St. Pierre
Anna de Diesbach	Madame Charles Wood	Achille Gonod
Mademoiselle Bonnaire	François Louvat	Madlle. Amélie Halphen
Louis XIV	Madame Clémence Joigneaux	Lord Herbert
Beauty of Waltham	Belle de Bourg la Reine	Lord Macaulay
Madame Masson	Clément Marot	Xavier Oliho
Duc de Cazès	Maurice Bernardin	Madame Moreau
Madame C. Crapelet	Baron d'Heckeren	Belle Rose
Duchess of Sutherland	Madame Guinoisseau	Monsieur Boncenne
Pierre Notting	Turenne	Elizabeth Vigneron
Madame Charles Verdier	Princesse Mathilde	Le Phocéène
Rashton Radclyffe	Alphonse Damaizin	Marguerite Bonnet
Lord Palmerston	Madame William Paul	Josephine de Beauharnais
Souvenir de Leveson Gower	Triomphe d'Angers	President Mas
General Jacqueminot	La Esmeralda	Other tender varieties. †
Professor Roche	Laurent Descourt	Devoniensis
François Lacharme	George Paul	Ruhens
Maréchal Vaillant	Souvenir de M. Rousseau	Madame Willermoz
Olivier Delhomme	Madame Derreux Donville	Safranot
Souvenir de Comte Cavour	Claude Million	Maréchal Bugeaud
Evêque de Nîmes	Princess Alice	Triomphe de Guillot
François I	Maréchal Canrobert	Fils
Monsieur Ravel	Madame Freeman	President
Empereur de Maroc	Pavillon de Pregny	Souvenir d'un Ami
François Arago	Madame Souppert	Triomphe de Rennes
Eugène Appert	Gloire de Sacré Cœur	Céline Forestier
Lord Raglan	Eugène Verdier	Modèle de Perfection
Gloire de Santenay	Mrs. Dombain	Louise Margottin
Jean Bart	Souvenir de Charles Montault	Acidalie
Anna Alexieff	Alfred de Rougemont	Malmaison
La Reine	Madame Eugène Appert	Paul Ricaut
Souvenir de la Reine d'Angleterre	William Paul	Victor Emmanuel
Gustave Rosseau	George Prince	La Quintinie
Sénéateur Favre	Leopold I.	

CHARLES LAXTON, Stamford, in "Gardener's Chronicle."

THE HISTORY OF THE POTATO.—The potato is still found on the western slopes of the Andes, the tubers, however, being no bigger than the common filbert. It was first brought from America to Ireland, where it was cultivated in 1586; but it is said to have been introduced into Spain and Portugal even before this date. From Ireland it found its way to the low countries, and to Germany, and from Spain it reached Italy and France. It is an object of cultivation in Asiatic countries only where Europeans have colonised or settled, and there chiefly for their consumption, and only since the beginning of the present century. It is successfully cultivated in Australia and New Zealand, which produce no esculent farinaceous root at all, not even the yam, the taro, or the manioc.

* In the above list are included some of the newer varieties, the powers of endurance of which I cannot thoroughly testify to, having only one plant of each.
† I have not had the means of testing any other Tea-scented varieties as they were mostly protected.

FURNISHING CONSERVATORIES.

There is scarcely any need to dilate upon the class of flowering plants best adapted to the wants of our conservatories, because those at present in popular use are perhaps as good as could be selected. Our azaleas, geraniums, both "fancy" and "show," heaths, greenhouse plants generally, and the "soft-wooded stuff," under which term is comprised calceolarias, cinerarias, &c., are all admirably adapted to fulfil our ends in this way, provided they be intermingled and tastefully arranged among such subjects as we shall presently mention. The better grown they are, the better the effect, of course. The fewer the stakes, &c., employed, the better the effect also. We once saw thirteen raspberry canes stuck round an unfortunate fuchsia; and the fuchsia, observe, is a plant that requires but one tapering stake, and which may, indeed, be grown very well and as a tolerable specimen without a stake at all when its stem becomes firm and a little established. Avoid trellises also as much as possible, though the sweet and beautiful *Rhynchospermum jasminoides* and other choice things must be grown on them. Use the best varieties of the fuchsia more than they are generally used, for if well grown into tapering and graceful plants, the fuchsia is the loveliest summer and autumn plant you can employ; its flowers are so gracefully disposed over its abundant leafage, its shape is so good, and the variety of colours so charming. Cultivate a little more variety than is generally sought, as without variety it is impossible to have interest in garden or conservatory. For the sake of a little more variety it would perhaps be well to reduce a little the azaleas, geraniums, &c., wherever the stock is solely made up of these and such as these. To advise upon the variety to be sought would not be desirable; every one should consult his own taste first, and our flower-shows and nurserymen's establishments and catalogues afford abundant opportunities to that end. But a little of such advice may not prove unacceptable with respect to the kinds we think so useful towards conservatory improvement.

Ferns are the first plants that recommend themselves in this way, and, unquestionably, a batch of comparatively free, hardy, and elegant kinds should be grown for every conservatory. A great number of ferns usually grown in the stove or warm fernery bear removal to the conservatory in summer and autumn without injury, and even with advantage, while of course all greenhouse ferns will do well, and not a few of the finer varieties admirably. We particularly allude to some of the elegantly divided varieties of the Lady fern, like *Plumosa* and others which have been introduced to cultivation of late years. They have all the grace and elegance of tropical ferns with the hardness of constitution of the commonest Britishers. Other British ferns may also be used; notably the beautiful Welsh Polypody, the charming Maidenhair, many varieties of the Lady fern (*Athyrium filix femina*) as before indicated, some of the Lastreas, and especially *L. filix mas cristata*, and the beautiful soft green oak-fern. Such may be well grown in a cold pit and removed to the conservatory at pleasure. A goodly batch of the common Maidenhair fern (*Adiantum cuneatum*) should be grown in a stove, warm vinery, or warm house of some sort; they will be useful at all times for the conservatory. Indeed, so good an aid is this plant for all sorts of arrangements of plants, that several hatches of it should be used. It is easily divided and propagated, and most useful at all times for intermingling with cut flowers. The now very popular *Isolepis gracilis* is a thing of which you can hardly have too much, its inimitable grace and refreshing green furnishing a unique effect—admirable for drooping down from the margins of stages, the edges of vases, the side of the conservatory bed, the edge of a large basket, or anything of the kind. But it is not enough to grow these and such as these; there are many plants in the country which preserve their foliage and aspect intact all the year round, and upon such stores we must draw.

The Agave *Dracæna* and *Yucca* families furnish many fine things in this way, some of them of inimitable grace, many curious and of the greatest value for intermingling with flowering plants, and particularly for furnishing effect in water when flowering plants are scarce. "To be wise," says Mr. Ruskin, "we must see and think." It is not enough to read, and therefore we advise any of our readers who are much interested in this matter to see a good collection in this way; and it is only fair to state that the best we know of in this country is in the large conservatory in Williams's Victoria Nursery, opposite the Archway Tavern, in the Highgate-road. There you may see the fine effect this class of plants produce. Some of them are variegated in the most striking manner, like *Yucca Stokesii*; others of surpassing grace, like *Dracæna lineata* and other members of the family; others, again, a rare combination of elegance and singularity, like *Beaucarnea recurvata*, which sends a slender, tapering stem from an enormous "wooden" base, so large that it nearly covers the pot, and this stem is densely furnished with leaves which, after slightly ascending, droop again and become gradually attenuated, fall several feet in the most graceful way—a slow-growing plant, and not one of those which grow as free as a cabbage, soon get too big for the house, and have to be thrown away. There is a specimen at Chatsworth with the slender stem as long as a fishing-rod and a base as big as a wigwam, but it has taken many years to come to that, and may remain a fine ornament there for ages to come.

Enough of these. There are several dozen kinds suitable for conservatory decoration. For the greater part they may be removed into the open air in summer, and utilised in the flower garden in connection with the sub-tropical movement; and then, having been well washed by the summer rains, they must be again taken into the conservatory early in autumn, where they will furnish a fine effect during the winter months. Some of the palms in a young state are also admirable for this purpose, notably the rather hardy and very graceful *New Holland Seafortia elegans* (which may also be introduced to the open air in summer), the little European date-palm, all the species of *Chamærops*, while most palms and cycads will bear the conservatory in summer. The Norfolk Island pine (*Araucaria excelsa*), which is tender in the open air in this country, is a most elegant conservatory ornament, and may also be taken out of doors in summer; while *Dacrydium Franklini* is also most graceful, being of close weeping habit. In large conservatories a few specimens of the most easily obtained tree-fern (*Dicksonia antarctica*) would be very effective, and they are now comparatively cheap, except perhaps in the case of large and well-formed specimens, which go at fancy prices. However, it is a much better as well as a much more economical plan to obtain them in a smaller and younger condition, and then grow them on, than to buy them very large. We have known them bought very large at from twenty to thirty guineas each, but they soon got too big for the house. Young specimens of the Dragon's-blood tree are very graceful from their recurved leaves.—*The Field*.

WELLS'S GROUND VINERIES.

Paper read by Mr. S. BROOM, of the Temple Gardens, at a Meeting of the Central Horticultural Society.

Now that the gardening world is every day becoming acquainted with the greater utility of these structures, I have thought a few remarks, based upon practice, might be by many appreciated.

The lady and gentleman amateur, the scientific and practical gardener, have already derived much advantage and pleasure from the use of them, and at this moment, in many gardens where horticulture is carried out upon just principles, these structures are used, advocated, and, I am pleased to say, they are recommended. Upon their first appearance in gardens, they were used exclusively for grape-growing, after which season they were carefully stowed away during the many months of the dormancy of the vine. Now they are kept in active operation during the whole year. The lady amateur finds she can manage a crop of grapes, then devote the frames to the bringing on of a few plants for late autumn and Christmas flowering; after which a few miscellaneous floricultural pots are made to occupy them, also bedding and other plants. Others, again, are being used for the protection of salading, &c.; and thus they are kept in active exercise throughout the whole of the year.

In the present month many are devoted to forcing rhubarb, and I have seen a hotbed made for them, and covered an inch thick with ashes, into which are plunged pots of Dutch bulbs, hyacinths, tulips, &c. Others, again, are used in a similar manner for the propagation of bedding stuff, and the raising of seeds of tender plants for the embellishment of the parterre. These structures are invaluable, since a lady or gentleman who does not retain the services of a regular gardener can obtain and enjoy many horticultural luxuries which are denied where only an ordinary glass-house of the original form is at hand. The scientific and practical gardener can apply these miniature houses to a thousand different uses. But a few days ago I saw a fourteen-foot length filled with hyacinths and tulips, which are intended for our great spring bulb-shows, and nothing could exceed the luxuriance and the vigour they possessed. I have likewise seen them applied to the growth of that delicate winter plant the Neapolitan violet, and beautifully well-coloured blossoms were being gathered from them, when not a vestige of flower was discernible in the old-fashioned, dark, dismal box-frame, although both were placed near each other, and were subjected to the same and equal management. The plan of arranging the ground vinery for this purpose was extremely simple, but clever, and shows what really invaluable structures these prove to be for the gardener. In the month of October last, when all the fruit had been cut from these vineries, a bed was marked out of the area of the vinery, round which common bricks were laid two deep; the bed thus formed was filled with ashes of coal, and the violets, which had previously been potted into 32-sized pots, were plunged in them. The plants were thus exposed to intense light—an agent so essential (as all gardeners are aware) to the well-being of this plant. The folding nature of these structures renders them particularly adapted for violets, too, because it is the easiest matter possible to expose the plants fully to the weather, or entirely protect them from its effects. Should the weather be mild with moisture falling, the lids or sides can be raised nearly horizontal, thus exposing the plants to air and protection from wet at one and the same time. During the inclement weather we had in the past winter, the vinery was covered with litter and thatched hurdles placed together in the shape of a span roof. This protection bid defiance to cold 9° below zero, and will henceforth afford means of protection for these unheated glass structures. During the past season I have seen some magnificent crops of grapes under them. The bunches were of a good size, the berries well swelled and above the average size, with the colouring as perfect as any that have been cut from more spacious houses, and the flavour exquisite—in fact, everything the greatest connoisseur could wish. I find many growers, elated with the success of these vineries, intend applying them to the growing of stone-fruits, such as peaches, nectarines, &c. These are to be planted out and treated precisely the same as the vines. The slates will be laid down and perforated at regular distances, so as to admit pegs wherewith to peg down and lay out the branches at regular distances. The roots being free to act on the outside, as in the case of vines, no watering is necessary, as when these fruits are grown in pots upon the orchid-house principle. Moreover, the moisture emanating from the slates, with which the wood and foliage are in contact, prevents red spider, thrip, and other insect pests from generating. The wood is short-jointed, vigorous, and ripens so early that no difficulty exists in the production of fruit-buds. This process, under these circumstances, is more certain than by any other means. The free admission of heat, light, and air is the chief and great characteristic of this invaluable invention, by which all the agents are secured, and upon which the highest principles of horticulture are dependent.

I find the best method of cultivating fruits under these vineries is as follows: At one end of the vinery a hole, two feet square and about two feet deep, is dug and filled with a compost of good loam, rotten dung, and a little road-sand. These should be well incorporated together, previously throwing in about a peck and a half of bones, merely bruised, to afford drainage to the mass, also to feed the vines during hot weather or when the heat is so great as to rob the plant of its natural moisture. The bones will likewise absorb the fluids passing down to them the more readily by being bruised. All being thus prepared, the vine is turned out about the middle of March, providing the weather is open and mild, the cane being introduced and pegged down. Air should be admitted about 10 o'clock a.m. by raising slightly the lights; this, with the additional air from the bottom of the frames, will serve to check the vines from making too quick and premature a growth before the season is sufficiently forward to assist and facilitate the young growth. The cases should be closed again about 2 p.m., if possible, securing a little atmospheric warmth. The vines should be at this period slightly syringed. The moisture will aid the expansion of the bark and the bursting of the young buds and leaves. This process should be continued until the flowers are expanded, when syringing must be entirely suspended, and air admitted upon every opportunity. As soon as the flowers are set, I find moisture applied in the form of vapour highly beneficial: this can be obtained by pouring tepid water upon the slates. Atmospheric warmth is generated throughout the day, and causes the moisture to evaporate, thus charging the internal air with an agent highly beneficial. As soon as the grapes have got to the size of sweet peas the bunches should be thinned, taking out all ill-shaped and deformed berries, also all those which are in immediate contact with others, taking care not to take out all the interior berries, or the bunches will be loose and ill-shaped. At this period the structures should be kept close,

and as much warmth secured as possible, as the critical time of stoning will have arrived, and a check at this period would prove highly injurious. As soon as colouring commences, as much air as possible should be admitted consistent with safety from chilling; and the vinery must be closed sufficiently early to secure, as before stated, as much natural warmth as possible. If this course is pursued, I feel confident every success will attend the operator, and will repay him for the pains he may bestow. The weight and quality of the fruit will equal, if not surpass, that which is grown in extensive vine-houses.

I have, during the past winter, seen a very happy adaptation of these useful structures to horticulture, and applied to a very excellent use. One of the fourteen-foot large sized vineries was selected; a site facing south was arranged, and a pit dug 3 feet deep, the sides bricked with 4½ work. Two feet above the ground-level, upon the brickwork, was laid a wooden plate, and to this the vinery was fixed, being screwed down at the four corners of each division. The pit was then filled with coconut fibre refuse, and such plants as fuchsias, geraniums, bulbs, &c., &c., placed therein. These when introduced grew with great luxuriance, and in other cases, where they were well covered with litter and the thatched hurdles, resisted the intense frosts we experienced during the month of January last. The same vinery pit, at this moment, is filled with fermenting material, and rhubarb and sea-kale and salading are being cut therefrom, with cucumbers climbing along the roof and looking as luxuriant as upon ridges in summer; while Dutch bulbs are being brought out weekly for the drawing-room, &c. This plan is merely an enlarged idea of what was before exemplified, and serves to prove how invaluable they are to the horticulturalist, and to what a variety of uses Wells's Ground Vineries can be applied. I have no hesitation in saying that, when more generally in the hands of gardeners and nurserymen, a greater demand will be made for them; their elegance of design, lightness of construction, portability, and durability, will ere long secure to them great popularity; and no garden, whether the manse, villa, or baronial, will be without them; and the day is not far distant when wonders in horticulture will be achieved by the use of Wells' Patent Ground Vineries.

SEEDLING AURICULAS.

The raising of seedling Auriculas having become a favourite pursuit, the following instructions may be of service to those persons who are desirous of transmitting their names to posterity as the originators of a few first-class flowers; but let me here advise the raisers of seedlings not to be discouraged should their first efforts prove a failure. The seed of the Auricula, even when saved from the very choicest flowers, is very uncertain as to its produce. I consider myself very fortunate when I get a first class show flower from a thousand plants.

The most suitable time to sow the seed is about the beginning of February, and the best site for the pan is the front shelf of a greenhouse. Persons who may not have this convenience, may place the pan in a window of a fire room, looking to the south, as frost must not be allowed to act upon it. The pan or box will require to be either 3 or 4 inches deep, and of a size proportionate to the quantity of seed to be sown. Fill the pan with the usual compost to within ½ an inch of the top, and press the surface perfectly level. Then water with tepid water, applied by means of a fine rose or a soft brush; when the latter is used, shake out the water and strike the bristles with the hand, so that the water may fall like fine dew on the surface of the soil. Should there be any inequalities on the surface after watering, fill up the cavities, and have it perfectly level. Sow the seed carefully, not too closely, and merely cover it with some of the compost finely sifted. When the seed is sown, water again as above directed, and place a piece of glass over the top of the pan. This obviates the necessity of watering often, keeps off dust, and accelerates the vegetation of the seed. Never allow the soil in the seed-pan to become dry.

In about a month or six weeks at farthest the young seedlings will begin to come up. They will then require to be looked over daily, for when they come up, they almost invariably throw themselves out of the soil with a jerk, and must be replanted immediately, otherwise they would be lost. This can be done easily with the point of a penknife. Make a small cleft in the soil, lift the young plant with the point of the knife, and replant it root end downwards, and close the soil about the neck of it.

After the plants are up, give air for a few hours, when the sun is upon them. In April remove the pan into the shade, where they will get the morning sun till about ten o'clock. Whenever the young plants have six leaves, shift them into pans or pots, and when they again get crowded shift again.

When they have attained to blooming size, pot three plants round the edge of a 5-inch pot. From long experience I have found this the best method of treating them. Then as they bloom in the spring, all the useless sorts must be taken out of the pots; these will do to plant in the borders. Those that promise well are to be repotted, in pots of a suitable size; but they must not be over-potted, and when they bloom the following year, and prove to be really good stage flowers, they must be taken care of. Too often the raiser is disappointed in the quality of seedlings that he anticipates will prove to be first-rate. Often they degenerate and turn coarse, after blooming extra fine in the first years of their existence. No dependence can be placed on an autumn bloom. A spring bloom is the only sure test. I have now been raising these flowers for the last forty-six years, and the information contained in this article is the result thereof.

I think I have tried every sort of experiment in the way of fertilizing, but the most successful was fertilizing Chapman's Maria with the pollen of his Sophia. These flowers are both beautiful violets. From this seed I got what have proved, after years of blooming, five first-class varieties—one of them a self, and I think about the finest I ever saw; but after growing it for ten years I have not yet had any increase from it. The others are all very beautiful violet-ground sorts, causing me to rejoice at having attained the object at which I was aiming. It is curious that among the seedlings raised from this fine seed there were some Primulas, although I have none of either them or Alpines near me, for fear of spoiling the seed.

GEORGE LIGHTBODY, Falkirk, in "Gardener's Chronicle."

In the time of Sir John Macpherson's Government, most of his staff consisted of Scotch gentlemen whose names began with Mac. One of the aides-de-camp used to call the Government-house *Atmack's*. "For," said he, "if you stand in the middle of the court and call *Mac*, you will have a head popped out of every window."

THE LOIS WEEDON HUSBANDRY.

Without entering into any examination of what Jothro Tull really did teach, the points wherein Mr. Smith differed from, or rather went beyond, his great instructor may be briefly stated. At a time when tillage implements were of a rude description, and arable husbandry was almost entirely unmanorial, Tull completely established three propositions—first, that inter-culture amongst growing crops is a necessary operation in well-conducted farming; second, that adequate mechanical tillage is an economical substitute for manure; and third, that thorough tillage is also competent, with or without the aid of manure, to secure the profitable growth of any given species of cultivated plant, year after year on the same ground. At first derided, at last universally appropriated, Tull's maxims have become the foundation of modern practice in the culture of all roots, of many green crops, and certain kinds of grain. Tull conceived that the rootlets of plants "depastured" (as he called it) upon the superficies of minute particles of earth, and that, therefore, to feed a crop with all the nourishment it needs, an abundance of this pasture must be provided by pulverization, effected partly by mechanical tillage, partly by air and moisture introduced by this means into the soil. And farmers now are fully alive to the stimulating power of ploughing and stirring the ground between rows of plants sown in rows wide apart for this purpose. But the soundness of the theory is still disbelieved in, and the practice repudiated in relation to cereals—the drilling of wheat and oats and barley being adopted mainly as a facility for cleaning the crop of "annual" weeds. Tull himself had grown small but remunerative wheat crops year after year on the same land, and without manure, disproving the supposed necessity for what is called the "rotation" or alternation of different crops; and Mr. Smith devoted his leisure to the delightful employment of testing Tull's principle to the uttermost. If that mingled mass of the oxides or rusts of certain metals which we call "earth" really held an inexhaustible store of plant-food within it, or had the power of acquiring this fertility in proportion to its divisional treatment by tillage, there could be no valid reason for limiting mechanical operations, as Tull did, to the few inches of ground called the "staple;" for if sufficient pabulum for a prolific wheat crop cannot be procured in this thin stratum, why not search deeper with our tools, and try if successive crops will not find pasture enough in a comminuted subsoil? Mr. Smith dug his way inductively into the exhaustless fecundity of his clay subsoil. The details of his husbandry would make too long a story for this paper; but in general his plan was this—he sowed his wheat in stripes of three rows each, the rows being ten inches apart, and left between the stripes bare intervals of forty inches breadth, which he followed by spade, fork, and horse-hoe. The next year's wheat stripes were sown upon these intervals, and the stripes of stubble dug in for fallow spaces. Absolutely, each crop stood upon stripes of land that had been bare-fallowed throughout the previous year; but so extraordinary was the effect of digging and horse-hoeing the fallow intervals for next year in close proximity to this year's growing plants, that the area occupied by the wheat stripes—that is, half the surface of the field—was found to yield in measured produce of grain fully double what the same area would yield if after a year's bare fallow the wheat were sown "together," or in one whole plot, without interlined stripes of fallow; that is, each row gave an increase of 100 per cent. from the mere circumstance of being what a printer would call "spaced out." Mr. Smith's maximum crop gave 40 bushels per acre over the whole field; or, to state the fact in another way, half the field (in the form of 30-inch wide stripes) bore a crop of 80 bushels per acre; while the other half of the field (in 30-inch-wide tilling stripes) was dead fallowed for the next year's crop. Mr. Smith, however, preferred to speak of his wheat as grown annually without intermission on the whole field. The average produce of the first eight years, beginning with the harvest of 1847, was fully 34 bushels per acre—the whole area within the boundaries of the field being included in the measurement; for the next four years (1853-1858) the yield averaged 38½ bushels per acre; and in another equal period (1859-1862) the average was 33 bushels per acre. The crop of 1863 thrashed no less than 40 bushels per acre—which had been equalled before both in 1855 and 1858; and the last harvest of which any account has been published (1864) produced 32 bushels per acre, this being the eighteenth wheat crop in yearly succession. The average yield of the last ten years was 35½ bushels per acre, which is just 1½ bushels in advance of the average for the previous eight years. As to quality, Mr. Smith usually made the price of the best red wheat in his market; and the quality of his latter samples surpassed that of the earlier. No manure, animal, vegetable, or mineral, was ever applied to the land during all this long course of incessant corn-bearing; mechanical tillage did it all. Indeed, the length and bulk of the reedy stems and broad flags of the "straw," and the weight of the huge heavily loaded "ears," would not bear any forcing by manure; that is, heavier crops would have "gone down" flat and failed to ripen properly. This was the Lois Weedon experience with corn, which is thought an "exhausting" or manure-loving crop; whereas, roots and green crops, which are looked upon as acquisitive or fertilising crops, would not respond to Mr. Smith's treatment unless he plentifully pampered them with manure. The effect upon the land of eighteen years' wheat growing without manure was that a good brown heavy loam, equally good and fertile to a depth of 1½ to nearly 2 feet—for to this extent did the spades penetrate, accomplishing a perfect "inversion" of top and bottom "spits"—took the place of the original 5-inch staple and the 13 to 18 inches of raw clay subsoil which used to lie under it. So far from "exhaustion" coming in view, the land became not only ameliorated, but greatly enhanced in value. Mr. Smith's annual profit upon his outlay was also large; though he sold the grain at low prices, and set a moderate valuation upon his straw, which was all carried away and applied as manure to other land.

It is remarkable that the success of the Lois Weedon wheat-growing has never thoroughly commanded the sympathy of practical men. If Mr. Smith had happened to win his great results by the use of horse-drawn instead of hand-worked implements, his practice would probably have found numbers of eager imitators. But it will be a lasting reproach to British husbandmen if they allow the whole experiment to die, merely because hands are not numerous enough, over thousands of farms, for a slavish copy of Mr. Smith's manipulation. The magic power lies in the tillage, not in the tools; and it is a poor compliment to modern agricultural art to think that it cannot adapt the Lois Weedon system to implements worked by animal or steam-power traction. In fact, the "Journal of the Royal Agricultural Society" for 1855 does contain a paper describing four years' experience of the stripe-cultivation of wheat, in which the plough, subsoiler, grubber, and horse-hoe, the harrow, drill, and roller, were the implements employed. The whole process is explained, every item of outlay stated, the annual profit fully proved, and a system suggested for introducing with advantage two or more

successive white-straw crops into a rotation. The writer, Mr. John Algenon Clarke, concludes his essay in these words: "I know that it is difficult to move the mind of a practical man out of its habit of settling things from general considerations. I shall be told that an extension of wheat culture is not advisable, because roots, clover, and cattle crops have of late years answered better. But what can the wheat crops that don't pay possibly have to do with my wheat crops which will pay? The entire case rests upon the low cost of production by my method, in comparison with the cost of a wheat crop in ordinary farming. I raise two good wheat crops in succession for £5 10s. per acre each (every source of outlay included); and at the same time, and for the self-same money, I am fallowing and cleansing the ground in readiness for roots or other of the third year's crops. Can any other system show an economy of expenditure like this?"

We believe that a few attempts at the spade culture of annual crops of wheat have been made in different parts of the kingdom, some successfully, others not. We have seen in a traveller's volume an account of a "Lois Weedon" experiment in Normandy; and in the spring of 1866 Mr. Smith received a number of earnest applications for information from persons in Canada. We may hope, therefore, that whatever of sound principle was demonstrated over and over again in his protracted and astonishing experience will not be lost to the world; that future wheat fields will bear in their beautiful triple lines the indelible mementoes of his thoughtful toil; and that thus, as well as in the fruits of a good ministry among the villagers whom he loved, his "works" will long "follow him."

"Field and Homestead," Daily Telegraph, Feb. 28th.

CULTIVATION OF DWARF APPLE TREES.

Dwarf trees are most suitable for small gardens; they may be planted six or seven feet apart every way, trained like bushes, and nothing should be planted over or near their roots. The bearing branches should spring from one central upright stem, the undermost at about six inches from the ground if possible, as the nearer the trees are kept to the ground the better. The branches should not interfere with one another, and be so far apart as to allow light and air to pass freely amongst them. The form will be somewhat of a low, broad pyramid, not open or basin-shaped, as sometimes recommended, but with every part of the space of the tree properly filled up, and the height never allowed to exceed five feet. Young trees should not be cut back at the time of first planting, any cutting which may be required to put them into shape being reserved for the autumn pruning. In following years the summer shoots may be pinched or topped, beginning with those of the upper part of the tree towards the end of August; leaving those at the sides and under part till two or three weeks later: this assists the developing and maturing of the fruit buds, and the ripening and colouring of the fruit. As soon as the leaf falls the trees may be pruned: all the wood shoots not required for main branches should be removed pretty closely, and the ends of the leading stems cut back to from three to six eyes, according to the strength of growth and habit of the variety. If the cutting be too long, some of the buds remain dormant, and the branch becomes so far bare; if the cutting be too short, the eyes become wood shoots instead of fruit buds. When the growth is too luxuriant it may be checked, either by opening a trench round about the trees at a little distance from the main stem, and cutting rambling roots, or by lifting them entirely out of the ground, cutting back the strongest roots, and replanting. Each of these operations requires to be done with some judgment, for if the cutting is made too close, the tree will receive too great a check; then, again, where the soil is light from which a tree is lifted, the roots will, most likely, come clean out without any soil adhering to them, and as this of itself will give a considerable check, the less root-pruning will be required. In adhesive soils, where trees can be lifted with a good deal of earth attached to them, the operation of lifting and replanting is more easy and safe to persons of little experience. Whenever a tree is lifted its roots should be gently treated, not torn, but fairly raised from the ground.—REV. R. O. BROOMFIELD, in *Stuart and Mein's Fruit Tree Catalogue*.

COCKROACHES.—While cockroaches partake largely of the common articles of diet in the ship's stores, they also rather like books, clothes, boots, soap, and corks. They are also partial to lucifer-matches, and consider the edges of razors and amputating knives delicate eating. As to drink, these animals exhibit the same impartiality. Probably they do prefer wines and spirits, but they can nevertheless drink beer with relish, and even suit themselves to circumstances and imbibe water, either pure or mixed with soap; and if they cannot obtain wine, they find in ink a very good substitute. Cockroaches I should think were by no means exempt from the numerous ills that flesh is heir to, and must at times, like human epicures and gourmards, suffer dreadfully from rheums and dyspepsia; for to what else can I attribute their extreme partiality for medicine? "Every man his own doctor" seems to be their motto; and they appear to attach no other meaning to the word "surgeon" than simply something to eat. I speak by experience. As to physic, nothing seems to come wrong to them. If patients on shore were only half as fond of pills and draughts, I, for one, should never go to sea. As to powders, they invariably roll themselves bodily in them; and tinctures they sip all day long. Blistering plaster seems a patent nostrum, which they take internally, for they managed to use up two ounces of mine in as many weeks, and I have no doubt it warmed their insides. I one night left a dozen blue pills carelessly exposed on my little table; soon after I had turned in, I observed the box surrounded by them, and being too lazy to get up, I had to submit to see my pills walked off within a very few minutes by a dozen 'roaches, each one carrying a pill. I politely informed them that there was more than a dose for an adult cockroach in each of those pills, but I rather think they did not heed the caution, for next morning the deck of my little cabin was strewn with the dead and dying, some exhibiting all the symptoms of an advanced stage of mercurial salivation, and some still swallowing little morsels of pill, no doubt on the principle of *similia similibus curantur*, from which I argue that cockroaches are homœopaths, although had they adopted the other homœopathic theory first, and taken infinitesimal doses, they would then have experienced the full benefit of that noble doctrine, and the medicine while doing them no good, would have done them just as little harm.—*Chambers's Journal*.

A certain method of keeping eggs from spoiling.—Eat them while they're fresh.

ROSES AND ROSES.—No. III.

The last I saw of O P Q was enough to make the most sanguine of the hopeful class despair of his taking a First this season. He seems bent on taking nothing but vexation, and if now he sings at all, it should be the sad song of Kirke White, the blighted genius :

“Come, Disappointment, come.”

You will understand that I have but small hopes of his success, for I found him pruning his roses with a knife and fork, and he would have ruined them had I not R S T'd his hand. When I say “knife and fork,” I use a figure of speech for that sort of pruning which consists in hacking things about without any proper knowledge of their requirements, or any consideration of the way in which trees grow after pruning. Yes, he was simply cutting them by the rule of guess-work, and appeared to think that there was a proper way to prune every particular rose, and, therefore, to make a study of the art of pruning would be to waste a lifetime, and then not learn it all ; and so the way out of the difficulty was to cut the Gordian knot, and become the exponent of a slashing universalism. But I learn something from such examples, and I learn now that we “gentlemen writers” are very much to blame for putting our teachings into ambiguous language, and actually making traps for the unwary in the books and papers we write. Take this subject of rose-pruning, and how simple it is in reality, yet how few amateurs know anything about it after all their searching ! There is first the question of the Time, and secondly the question of the Manner.

Now, as to the time, the rose itself will speak. Every variety that persists in growing until stopped by hard frost, and that begins to grow again the moment the temperature rises above the level of freezing, is by its precocity always in danger during the treacherous English spring. It grows to-day that it may be killed to-morrow, and the climate appears to be always ready to assist it in the gratification of this base ambition. What shall we do with such roses—shall we prune them early or late ? Now, before we answer this question, let us consider in what respect pruning influences trees. We find the first and strongest growth usually takes place at the extreme points of branches, and while trees are in good health the finest shoots are formed in their highest parts. There is evidently a power in operation tending always to drive the sap upwards. Observe now the roses that have not been pruned, and at the extreme ends of the longest branches there are little tufts of green leaves, and all the next adjacent buds are starting freely. Now to bring the trees into shape these growing buds must be removed, and the moment we prune, say the third part of a shoot away, the buds at the base of the shoot will in the order of growing take the place of the buds that were removed by pruning. So long as they are unpruned the topmost buds have the lion's share of the sap ; when pruning is accomplished, the sap is pretty evenly distributed amongst the buds that remain, and these grow almost immediately after pruning is performed, in consequence, we may say, that, as the sap is moving, *it must go somewhere*. Now the time for pruning must be regulated by a consideration of these facts. This is a treacherous climate, and the precocity of certain kinds of roses exposes them to the destructive influences of our late spring frosts ; therefore we must not by early pruning force the growth of the buds on the ripe hard wood that we intend to keep, but let the growth proceed as it pleases until the season is so far advanced that the roses are out of danger, and then we may prune them. Compare now at this moment unpruned plants of the common Cabbage Rose with some of the Hybrid Perpetuals. The buds of the cabbage roses are so little swollen that we can only discover them by their accompanying red rings, but the perpetuals are bristling with new growth. We may therefore prune the cabbage roses, for they are in no haste to grow ; but it will be safer to wait till the end of March, or even the first week in April, to prune the perpetuals, so as to reserve to the latest possible moment unhurt those buds from which we are to obtain our roses. In fact, sorts like the Cabbage, the French, the Alba, and the Damask roses may be pruned any time during the winter, for they will not begin to grow until the season is sufficiently advanced to put them out of danger ; but we must leave untouched till quite the end of this month all the excitable kinds, that in the event of frost it may spend its rage on the tops of the shoots where the sap is now most active, and kill if it pleases the callow shoots that are ultimately to fall before the pruning knife.

We come now to the manner ; and I beg O P Q and all else to observe that the prevailing manner of pruning roses is too severe. I am an advocate for extension here as in the vinery. I saw some Alba roses on a steep bank at Cyfarthfa Castle last year ; they were on legs a foot long, from whence sprang great round diffuse heads about four or five feet high, and four or five feet through, these heads dotted all over with white roses, glorious to behold. Some of the fraternity would like a chance to cut them down to within a foot of the work, and convert these huge, these magnificent bushes into dumpy doll's-garden trees. You will see in No. I. what my

ideas are about pruning for exhibition, and mayhap I may yet speak again on that subject ; but here let me say that the one object of the man who prunes roses with a view to improve the beauty of his garden, should be to promote the formation of large handsome trees.

Then, as to the manner of it, it may be held as a rule that the more robust the growth, the more sparing should be the use of the knife. The long whip-like shoots of *Gloire de Dijon*, *Jaune Desprez*, *Maréchal Niel*, and *Lamarque*, should only be a little shortened, so as to cut away the mere soft point of the least perfectly ripened wood, in which case the upper two-thirds length of those long shoots will bristle with flowers, presenting the grandest appearance possible in the rose-garden. But if, alarmed at their enormous length, we cut two-thirds of the length of such rods away, the remaining third will probably not afford a single bloom ; so lay the rule to heart, my dear O P Q, and all else who pretend to doat on the Queen of Flowers. Apply the rule, and see how well it holds, with scarcely an exception. The Provence, Damask, French, and Alba are all moderate growers, and may be cut back to within two or three inches of the old wood. Suppose I take the knife in the right hand, and a stout branch of cabbage rose in the left. I see at a glance which are the shoots that were made last year : some of them perhaps have still the remains of flowers, perhaps pods of seeds hanging to them. I cut those last year's shoots away all but the last or lowest three, four, or five buds, and any branches that cross through the centre of the tree I cut clean out from the base, and any long thin shoots that have no strength but extravagant elongations, I cut back to one bud, in the hope that the one bud may produce a strong shoot in the forthcoming season. But when I come, or when you come, to the robust Perpetuals, Bourbons, and Noisettes, we must not prune so close ; we must first cut with a view to form a large, bold, regular head, and next with a view to get rid of thin spray and branches badly placed ; and if there is a gap in any part of the tree where a strong shoot would be an advantage, we must cut back one or two of the twiggy branches next it on either side to one or two buds each, and the probability is that those buds will break forth in vigorous growth, and fill up the gap as required. I repeat that, as a rule, roses are too severely pruned, and the result is two great defects of the rose garden—the trees have no beauty and produce but few flowers. Lay it to heart, friends, and when the time to prune arrives, see how little, not how much, you can cut away, and yet do justice to the trees in every particular.

Lastly, what do you say about not pruning at all ? I can suggest to you a possible sensation. Lay out a border four feet wide ; it may be of any length you please, but must be in an open spot, exposed to all the winds of heaven, without shelter from sun and wind. It will be well if it is within view of the principal windows, with a background of evergreens a few yards in the rear. If it is good loam or clay, have it dug two and a half feet deep, and heavily manured with fat half-rotten dung, and leave it as rough as possible till the first week in May. Then turn out from pots own-root plants of a few of the most showy and robust hybrid perpetuals—say, for a good dozen, the following : *Jules Margottin*, *Victor Verdier*, *Baronne Adolphe de Rothschild*, *John Hopper*, *Sénéateur Vaisse*, *Louise Darzens*, *Madame Alfred de Rougemont*, *Comtesse de Chabillant*, *Anna de Diesbach*, *Caroline de Sansal*, *Madame Victor Verdier*, *Xavier Olibo*. They must be four feet apart, and the bed must never be planted with anything else except mere surface-rooting plants, such as stocks, asters, and other small subjects. Indeed, this bed would serve admirably for a display of the smaller kinds of hardy herbaceous plants, such as the tutted campanulas, and also of annuals of small growth. In the March following prune all to one foot, the next year prune all to three feet, the next year prune all to five feet, and the next year do not prune at all, but advertise a grand rose-show, and charge for admission as much as you can get. But I had almost forgotten the life of the recipe, the seasoning to this grand dish. Every year, as soon as the pruning is done, cover the ground with about half an inch depth (not more) of wood-ashes and guano, neither of which have been previously exposed to the weather. I saw some men at work in O P Q's garden carting loppings and prunings somewhere to be burnt. If the burning has not yet been done, I advise him to wait for dry weather, then burn, and at once store the ashes in a dry place, as the first instalment towards the sensation. As for the rest, his soil is loam in which trees grow superbly, and he can afford the labour and the manure for the rest, as he can also the few shillings that will suffice to buy the roses. As a last word for the present, I say abjure the knife and fork system, and don't be in a hurry to prune growing roses. *Melius est cavere semper quam pati semel.*

S. H.

A gigantic work is on the tapis. It is nothing less than the drying up of a great part of the Zuyder Zee. The extent of the land proposed to be reclaimed is 380,000 acres, and the cost of the work is set down at £10,650,000.

NOTES ON BEDDING EFFECTS AND BEDDING PLANTS.

As the time is coming on when all who have gardens will be thinking about how they will arrange and decorate them this season, I think our time will be well spent if the matter is thought over a bit in advance. Let us see if we cannot do better than we have done before. We will first go to the plan that has been adopted of massing plants of different colours together, to have what is generally called the best effect, as in the grouping system in the gardens of Kew, Battersea, Hampton Court, and the Crystal Palace, as well as of other gardens on a much smaller scale. But has it never struck you, gentle reader, as it has me often, that we really bestow much labour and time on what, after all, is but a transitory scene, or, in other words, we are planting and potting, and otherwise preparing plants for nine months, to enjoy but three months of their beauty; for bedding plants cannot be said to have very much show in them before the middle of June (and you must have strong plants to get it then), and after the middle of September their beauty and gaiety is all but gone, or at any rate fast going, and that is just three months? And a very little later in the season, up we pull the plants, or a portion of them, to pot, to supply us with cuttings and so forth, when needed, for the coming season; and during all the rest of the year our beds are a blank (or, at any rate, where the bedding system is carried out), unless we plant bulbs for spring decoration; and in nine cases out of ten this generally turns out different from what we intended, or at least expected, for it is generally managed so, viz., hyacinths or tulips edged with crocus or snowdrops, and as a matter of course the crocus and snowdrops bloom first, and that is just like looking at a frame without the picture, and *vice versa*.

There used to be a time (and I look back to it with much pleasure), when I was young at gardening, that the flower garden was at all times attractive and somewhat gay, and with hardy herbaceous plants, that gave us no trouble whatever, except when we dug up the borders, and that was just to put the spade through them to divide all clumps that were becoming too large. There were our immense clumps of *Phloxes* of all colours, "and so sweet," mixed with the herbaceous *Lobelias*, with their lovely spikes of scarlet, blue, crimson, white, and damson, and other colours: these, with a large clump of *Tritoma* in the middle, formed the centre part of a large round bed. Then came some *Pentstemons*—and how lovely these were, so bright and lasting! *Antirrhinums* of all colours; *Campanulas*—and of those we had shades of blue and white, both double and single, and short and tall; *Perennial Lupins* of many sorts and all heights, with here and there a clump of *Ribbon Grass* (*Phalaris arundinacea*) mixed up with the flowers to add grace to their richness. Then, for the front of the bed, we had our *Carnations* and *Pinks* and *Pansies*, with *Aubrietias*, *Arabis*, *Alyssum*, *Daisy*, *Hepatica*, *Iberis*, and a host of plants in this way—and these were all hardy, mind you; and in the summer we mixed up with them our *German Asters*, *Stocks*, and a certain quantity of various *Geraniums*, *Verbenas*, *Calceolarias*, &c. Now by following this plan of bedding-out, we were seldom without bloom of some sort; for at Christmas, and long after, we had the *White Hellebore*, then came our clumps of *Snowdrops* and *Crocuses*, in company with *Violets*, *Hepaticas*, *White Alyssum*, and other plants. Then the *Pansies* came on, with the double and single *Auriculas*, *Polyanthus*, and *Primulas*; and in May we had lots of things to look gay, including the *Lily of the Valley*, *Dielytra spectabilis*, and so forth; and then through the summer and autumn the garden was always looking cheerful with something right up to November, the last to bloom excepting *Chrysanthemums* being *Antirrhinums*, *Verbena Venosa*, *Asters*, *Mignonette*, *Tritomas*, and other plants.

I say again, I see no reason why all these beautiful plants should be quite put on one side, to give place entirely to summer bedding plants. Why not grow a selection of each, and secure bloom in our gardens a greater portion of the year, instead of, as now, having a blaze like a sky-rocket for a short time, and then so soon fading away, leaving nothing but the sky-rocket case and stick? And I am sure, if a portion of the good taste displayed in arranging the bedding-out plants were brought to bear on herbaceous plants, we should not be wanting a good display. But you will perhaps say, "We are wanting in colours in herbaceous plants to make the display that we get in bedding plants." Are we, indeed? Let's contrast a few plants together, and see how we shall get on. Now for **YELLOWS**, the *Calceolaria* is about the main prop for your bedding plants. Just so; but I have seen clumps of *Ænothera* that would place all such in the shade. It is true it does not open on wet days, and it would be as well if *Calceolarias* did not; for I don't know of any plant that has such a water-logged appearance in wet weather, leaving out the shattered aspect they present the morning after a thunder-storm. Then for **BLUES**, *Lobelias* we all like, and always shall, and *Purple King Verbena* ditto, and there is not much else in bedding plants of this colour. But suppose we introduce some

beautiful *Delphiniums* and *Plumbagos* and *Herbaceous Lobelias*, and vary our edging with some *Gentianellas*. These last are so beautiful that I wonder how it is we get along without them. I saw an edging of them around the flower garden at Abbotsford, the seat of the immortal Scott, and every flower was as large as a pigeon's egg, and the colour a heavenly blue. And for **SCARLET** and **CRIMSON**, I must confess to have seen a bed of *Dianthus Dunnettii* that shut out all the pretensions of *Geraniums*. Then we have the *Lobelia fulgens*, and the *Gladioli*, and a lot of other plants. And for mixed colours, there are the *Veronicas*, the *Hesperis* or *Rocket*, the beautiful *Double Pyrethrums*, of all colours; and for edging, the *Gnaphalium*, *Aubrietia Campbellii*, and many others equally beautiful. Now, what do you say after all this chat about bedding-out plants? Don't you think it is time we turned over a fresh page in our bedding-out system? Suppose we try half herbaceous plants in our coming summer decorations? We shall be sure to come to it at last, and the longer it is left the more difficulty and expense there will be in forming a collection of good subjects. At present the cost of those I have named will be no more than for strong bedding stuff, and in some cases much less even than that. So, good reader, I have placed the whole matter carefully before you, and there is plenty of time for you to reflect before bedding-out time in May. Or should you decide on giving a few hardy plants a trial, you can begin at once. No fear of the frosty mornings for these; and another advantage is, there they will be year after year, and increasing in size and beauty.

JOHN BURLEY, F.R.H.S., &c.

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THE CYCLAMEN.

If those people who profess to be so anxious to retain the common or vulgar names of plants, in preference to the botanical or scientific names, which are derived from or founded upon some peculiarity in the manner of growth, or else in the shape or colour of the flowers, or perhaps the whole combined, would take the trouble of inquiring into the subject, and ascertaining what really are the common names of the generality of the plants that they are so desirous of retaining, I strongly doubt whether they would be so loud in their protestations in favour of the retention of them. For instance, who would willingly change the name of this very elegant and charming little plant for its anything but elegant name of "Sowbread"? The fact of the wild boars of Sicily being partial to the varieties indigenous to that island would, I should fancy, be but a poor compensation, and do very little towards reconciling them to what I consider in my own mind to be a not very agreeable change. But I am running from my subject, for I certainly do not intend entering into a discussion or controversy upon the question of plant nomenclature, which would in all probability be of very little service to any one, and at the same time occupy very valuable space that can undoubtedly be made available for much better purposes. It will not be necessary for me to pass a eulogy upon the merits of the *Cyclamen*, particularly *persicum*; for there cannot be two opinions about its being quite invaluable for the decoration of the conservatory through the winter and early spring months, and also, for furnishing fancy baskets and jardinettes for the drawing room through that season, nothing can equal it. It is also quite an acquisition for bouquet making, for through January and February flowers suitable for that purpose are not so very plentiful to cut at. I think this latter point to be one of the chief excellences of *persicum*.

The only way to propagate this plant readily and with certainty is by seed. I have seen in treatises upon this subject propagation by division recommended, but I question very much whether the writers have ever divided the corms with a sufficient degree of success to warrant their being able to *conscientiously* advise the following out of that practice. It is my opinion that it has been written upon supposition only, instead of being based upon actual practice. I have never known it done, and therefore I shall certainly not advocate it; besides, a careful examination of the structure of the corms has left a very strong impression upon my mind, that it must require an unusual amount of skill and dexterity in the use of the knife to be able to accomplish a division without entirely destroying them. We will now turn our attention to propagation by seed, which is decidedly the best way, and the only one which will enable a good stock to be raised quickly. The best time to sow the seed is directly it is ripe; now is also a very good time, particularly for any one who has no plants to save seed from, but has to procure it from the seedsman. The seed should be sown in a mixture of nice light rich stuff, say equal proportions of loam and leaf-mould, and a sprinkling of sand; the leaf-mould should be sifted through a medium fine sieve, for the young plants will be able to be pricked off much easier, and without suffering so much damage at the roots, than they would if the seed were sown in soil too rough in texture. I prefer 48-size pots,—they are so very convenient for shifting about,—and cover them with moss to keep

the soil moist without such a frequent use of the watering-pot as would otherwise be necessary. It will be scarcely requisite for me to say, that as a matter of course the moss must be removed immediately the seed germinates, as the young plants will be so weak as to be quite unable to stand ordinary rough usage; and, moreover, quickly damp off. Covering seed with moss is very well, provided the practice is not abused by leaving the moss on the pots until the young plants commence pushing through it, when of course it does a much greater amount of harm than good. The seed-pots should be put in a temperature of about 75°, such as a cucumber-house or warminery; and as soon as the plants are fit to handle, they should be potted off into small 60's, using the soil, as before advised, without sifting, and the addition of a little thoroughly decomposed manure. Now push them along vigorously; and as soon as they require it, shift into 48's or 32's, and keep them growing.

It is a common practice to dry off the bulbs as soon as they get a nice size, and give them two or three months' rest, which is not required, our object being to get them as strong as we can by the season for flowering. Seed sown in May or June, if kept growing and managed well, will make splendid plants for blooming the following November twelvemonth; and sown early in February, it will produce pretty little roots for flowering the next March twelvemonth. I am unable to see the utility of keeping a lot of old roots about a place unless good varieties, when in the space of twelve or eighteen months plants full of vigour, both in leafage and flower, can be obtained with very little more trouble than the stowing away, shaking out, and repotting of the old roots. Of course I would not by any means advise a wholesale destruction of roots after the plants have done flowering, but would keep those only which are really first-class, and consign the others to the rubbish heap without the slightest feeling of compunction. In a batch of seedlings, even if the seed has been very carefully selected indeed, some will be very poor and not worth growing, and it requires as much labour and room to be bestowed upon them as the very best. The seed should be saved from those plants which have the properties of stout broad petals, short stiff flower-stalks, and dwarf finely marked foliage. If there is any desire to keep a good strain, it is quite impossible to do so if the seed is saved indiscriminately from the whole collection as soon as they have finished flowering. The corms that are to be preserved should be gradually dried off, and the pots laid on their sides in any shady out of the way corner where they will be protected from the wet, and some time in September repotted in fresh soil; and now, as in all stages of their growth, the top of the corms should be just out of the soil. When in full growth, the plants will require a sufficiency of water without saturation, and an occasional supply of weak manure water will be of immense benefit to them.

The preceding has been written more directly in reference to *Persicum*, the best kind for indoor culture, though for the hardy kinds, to grow them out of doors, they require a nicely sheltered border of light rich soil, and to be protected with a covering of coal-ashes or cocoa-fibre during the winter, until the plants show signs of growth, when it must be removed. They are very pretty objects in the spring, if the frost does not injure them; or they can be potted and kept in a cold frame, and flowered in the conservatory, which will be the best plan to ensure the safety of the flowers. With the exception of *Europæum*, which blooms in August, they all flower early in the spring. The following species are hardy, with the exception of *Persicum* and *Macrophyllum*: *C. Atkinsii* is a very beautiful cross between *Coum* and *Persicum*: the lovely white flowers have a deep crimson centre, and are produced very profusely, and the leaves are nicely marbled; *Atkinsii*, unlike others of the genus, requires covering an inch or so with soil. *C. europæum* has small reddish purple sweet-scented flowers, and leaves marked with an irregular band. *C. hederæfolium* is a fine species; large flower, white changing to rose, and nicely scented. *C. ibericum*: flowers rosy purple, with dark centre and prettily marbled foliage. *C. macrophyllum*: this is a fine Algerian species, with beautiful flesh-coloured flowers. *C. persicum*: the flowers of this magnificent species vary from the purest white to deep purple, with innumerable intermediate shades; some of the white flowers have beautiful rosy, and some red centres, whilst others are entirely selfs. *C. vernum* is a very good kind; nicely marked foliage, and bright red flowers.

GEORGE GORDON.

THIS WORLD.—They take very unprofitable pains who endeavour to persuade men that they are obliged wholly to despise this world and all that is in it, even whilst they themselves live here. God hath not taken all that pains in forming, framing, furnishing, and adorning this world, that they who were made by him to live in it should despise it; it will be well enough if they do not love it so immoderately as to prefer it before Him who made it.—*Clarendon*.

JOSEPH BILLINGS is of opinion that "There is no such thing as flattery. If commendation is deserved it is not flattery, but truth; if commendation is not deserved, it is not flattery, but slander."—"The luxury of grief!"—this, I take it, means to have your old unkle die and leave you 9,000 dollars, and you cry.

THE DIFFERENCES AND RESEMBLANCES BETWEEN PLANTS AND ANIMALS.

Substance of a Lecture delivered at the Russell Literary and Scientific Institution, By Dr. MICHAEL FOSTER.

The lecturer showed that while the distinctions between the higher order of animals and plants were apparent to the simplest understanding, and there was no difficulty in referring, say a dog to one class, and a forest oak to the other, the points of resemblance between the two organisations became so numerous as we descended to the lower orders of both, that it was indeed difficult to establish any positive distinction between them.

Plants and animals are alike in the absence of any fixed outline common to each class. From the mammal, with brains, heart, lungs, and complete nervous system, we pass through numerous forms of animal creation in which some or all of these organs are absent, until we come to a microscopic animal lacking even a stomach, the last organ to disappear, and presenting no other form than a minute drop of living jelly. Yet this tiny living being has powers of locomotion, and evidences its animal life by devouring a vegetable nearly as large as itself. Its mode of accomplishing this gastronomic feat is curious: it spreads itself out something like a mass of dough prepared for an apple dumpling, and then enveloping the plant as though it were the apple, absorbs its nutritious properties, subsequently expelling the remainder.

As the lower orders of animals dispense with brain, heart, and lungs, and nervous system, so the lower orders of plants show that flowers, leaves, and roots are not essential to their existence. The microscope shows the difference between the smallest portion of muscular tissue or woody fibre taken from the higher orders of animals or plants, but even the microscope fails to detect differences between the structure in the lower forms of life. Chemical analysis had formerly been relied on, and while albumen and fibrine were believed peculiar to animals, starch and cellulose were thought to be possessed by plants alone. Closer research has shown that these constituents are common to both orders of life.

The definition of Linnæus was: Plants live; animals live, move, and feel. Microscopic research has shown that many plants possess a power of independent motion. In the protoplasm from the hair of the nettle symptoms of this movement can be discovered, while many plants, by means of ciliary action, exercise independent locomotion.

The evidence of feeling in animals devoid of speech is shown by a muscular contraction complex in proportion to the movements of which the animal is capable, but always out of proportion to the force employed. The prick of a pin, for instance, causes a greater movement than the mere amount of pressure would warrant; this is occasioned by muscular contraction, and in the absence of any other sign we accept it as proof of the animal feeling. But a similar contractile movement is observable in many plants, and the one known as "Venus's fly-trap" is an example of a spring set by molecular forces, and let loose when stimulated by touch.

All plants begin life as animals, the earliest visible form of both is alike, consisting in each of a primordial cell subsequently enlarged and subdivided.

One of the principal differences between plants and animals is the nature of the nutrition they require. To the former the simple elements of earth, air, and water form all they require, but the latter must live on something vegetable or animal that has before had life. Again, the great difference is that discovered by Dr. Priestley, that while plants give out oxygen and absorb carbon, animals perform a reverse operation.

The beneficial operation of this law of nature was eloquently described by the lecturer, who dwelt on the true force stored up in the world's fuel, and showed that while it is the function of animals to use, waste, and destroy this force, it is the property of plants to concentrate and hoard it for the world's use.

The points of resemblance between plants and animals are many and intimate; their absolute distinction hard to be defined. One is the web, the other the wool, and their connection is one of deep interest and importance.

FIELD MICE.

At my home, in Otterndorf, the northern part of Hanover, my father's barn and others are overrun with what are called ground mice, and they are so numerous as to have eaten all the last season's crop and the autumn sown wheat and rape. Can you, and if so, will you, obligingly give me any information you may possess as to the best mode of destroying them? I make this request on behalf of the Agricultural Society at Otterndorf, who have already tried to destroy them by poison, but cannot succeed. Some of the members of the society are under the impression that at one time these mice were very numerous in England, and destroyed by some other means. *H. v. Seht*.—[We can only recommend you to encourage all the natural correctives—owls, hawks, &c.]—*Agricultural Gazette*.—[Those who nail up owls and other mice-eating "vermin" birds upon barn doors should think of the plague of mice, which is as surely coming to England as the gamekeeper is eradicating sparrows, hawks, owls, ravens, jays, magpies, &c.]—*Worcester Herald*. I have the pleasure to state that your Foreign Correspondent may in a few months get rid of the mice, if he will just follow my plan. I recommend the old figure-four trap, which is the very best trap for mice, whether indoor or out, but I do not recommend the old style of having a brick, but get slates about 1 foot long, not longer, as large heavy slates or bricks will not go off so easy. Now, first of all, let *H. v. Seht* get these slates and place them at the hedge sides, as these mice sleep in holes generally in the fences, and often from twenty or more in one hole. I always use two slates, one for the fall, and the other under, as if only one slate is used the mice will sometimes creep from under. The bait I recommend is to get about equal parts of cheese, oatmeal, lard or fat, also chopped tow. Mix these up together into a paste, so when finished this bait is so handy that it can be spread on the end of a stick without string; and if held for a time before the fire, so much the better, as it sets fast when becoming cold. This bait can be carried in the pocket when the trapper takes his rounds; but I find that one bait will last sometimes for twenty mice. I am sure if he will set twelve to eighteen traps to an acre he will clear his farm in two months. I have caught 170 mice with six traps in six days, and I warrant if he will visit his traps three times after sunset he will soon thin their numbers. There is nothing like traps for mice, it beats owls, hawks, or cats. Cats are not of much use to clear a country; they do not catch them quick enough. Now is the best time to commence, as they begin to breed in March and April.—*R. H. D., Agricultural Gazette*.

THE LANGUAGE OF FLOWERS; OR, HOW JONES LOST HIS SWEETHEART.

A WARNING TO YOUNG AMATEURS.

There is something highly romantic in the idea of a language, silent but expressive, capable of revealing the most tender sentiments and impassioned thoughts through so beautiful a medium as that of flowers. This language has in all times and places commended itself to the young, particularly to those of ardent affections but of timid, irresolute hearts. So thought our friend young Mr. Jones, and so, no doubt, also thought his young lady neighbours, with many others at the gushing period of life. Mr. Timotheus Jones, called by his more intimate acquaintance Timothy or Tim, was a fair young man of the interesting age of twenty-four. He abode with his widowed mother, a kindly, well-preserved old lady, of comfortable means, who always made it a point of ceremony to appear in a silk dress to receive her son when he came home to dinner from the Office, which he usually did with great regularity about half-past five. They resided in one of those genteel semi-detached villas which adorn the suburbs, in the once rural and still pretty locality of Islington. Timothy was an only son, and his mother's idol, whose chief wish in her declining years was to see him blest with a wife, and to superintend and nurse a numerous progeny of grandchildren. Nor did there appear to be any insuperable obstacle to this desirable result. Jones was a well-looking, smishle young gentlemou enough, of a temperament eminently calculated for domestic bliss, and in circumstances equally propitious for matrimonial engagements, holding, as he did, a comfortably salaried government appointment, which demanded no very overpowering sacrifice of time and labour, besides maternal expectations of a substantial character. He was therefore much sought after by the mammas of their acquaintance; nor did the marriageable daughters of such look upon him with unfavourable eyes. There was only one drawback to his becoming a complete lady's man,—a character in his secret soul he ardently aspired to,—which was his incurable nervousness and hashfulness in feminine society. The spirit truly was willing, but the tongue was weak—a calamity of magnitude to a young man of such a romantic disposition as that of Jones. Often when inspired by the presence of some fair young Islingtonian, as he escorted her round the family garden after tea, he would wind himself up to the delivery of some flowery and poetical compliment, which he had concocted with much pains; but no sooner did he attempt to utter it than his tongue clave to the roof of his mouth, and the speech evaporated in a hesitating commonplace remark. At length a bright idea flashed across his mind—"The Language of Flowers." How was it he had never thought of it before? It was the very thing for a youth of his idiosyncrasy; and he determined immediately to carry it out. He set to work and purchased all the treatises he could discover upon the subject, and committed to memory their contents. He rummaged the neighbouring nurseries, driving their proprietors half frantic by pertinacious inquiries after obsolete and recondite plants and flowers of symbolical meaning, under names unknown to science and the trade. He hought such, regardless of expense, whenever he could obtain them. He, moreover, became a subscriber to the GARDENER'S MAGAZINE, and possessed himself of the "Rose Book," and took to rose-growing, which, by means of the aforesaid excellent instructor, much to the admiration of his mamma's acquaintance, he succeeded in doing very well. His flowers became a talk; and in the study of their silent and eloquent language, it was a labour of love to Timothy to produce the most tender combinations to express his feelings towards his gentle acquaintance, which he delivered to them at divers opportunities, even wearing them at them in his button-hole at the chapel which he and his venerable parent were accustomed to frequent. He moreover ingeniously extended the metaphorical language to esculent roots, vegetables, and fruits; so that an amatory correspondence could be carried on at meals under the very parental eye. In this code the glowing hued carrot typified "passionate adoration;" the pale parsnip "fraternal or sisterly regard." Mashed potatoes indicated "crushed affections," while the same esteemed vegetable in its plain state simply meant "benevolent feelings." By the offer of a pear "affection" was denoted; a peach signified "your charms are unequalled;" celery "coolness;" asparagus "an offer of marriage," and so on through the various productions of the garden.

Among the fair visitors who frequented Jones's maternal dwelling, there was one whom his mamma looked upon with especial and hopeful regard; nor was he himself insensible to the young lady's manifold attractions. Arabella T— was decidedly a charming little personage; very pretty, somewhat shy, highly domesticated, and exactly suited to the youthful Timothy. What an excellent match it would be! mentally soliloquised the old lady, in which opinion her son coincided, though his constitutional infirmity had hitherto prevented a declaration of his passion—that is, in words. Many an ardent communication had been made in tender bouquets, passed to the hands of the fair Arabella over the wall; but poor Jones could never muster up courage to confess his affection in speech. Many were the appealing, lovelorn strains, emulating those of "the widowed nightingale," which he poured forth upon his flute as he paraded the garden, as near his charmer's window as he could get, beneath an Islington moon. The Rubicon of Timothy's stream of love remained unforded; but a crisis was at hand.

In the language of flowers the rose is the especial emblem of love, and is prized accordingly by the practitioners of the mute, sweet tongue. The season of roses drew on, and, as the sap rose in the branches of his trees, so an access of nervous resolution rose with it in Jones's heart. He determined that that season should seal his fate. He resolved to bring the matter about by the presentation of one of his choicest specimens. "If she accepts it," exclaimed he, in tones of rapture, "it will show she 'loves' me; if not, my hopes are lighted, and I will become a Ritualist." Now it has already been said that our young friend was great in roses, and one of the most beautiful and forward among the collection he selected to be the ambassador of his feelings when the auspicious moment should arrive. He watched it, he watered it, he liquid-manured it after the most approved recipes; he shaded it from the sun; never Juno cherished and protected her beloved Carthage with more persevering assiduity than was lavished on this flower. At last the period of its greatest perfection arrived; it was of surpassing bigness—quite a show-flower; fit for an enamoured prince to offer to a queen. Arabella was invited to tea; and in the evening, with palpitating heart, Jones conducted his enslaver to an inspection of the rose. In the midst of her admiration at its beauty, with desperate resolution he cut the flower, and, with hand on heart, presented it to the charm-

ing Arabella, who, almost as blushing as her adorer, accepted it, exclaiming with an enchanting smile, "Oh, Mr. Jones, how very ke-kind of you!" and proceeded to place it in the bosom of her dress. But, alas! for the hopes of the luckless Timothy, during the performance of this operation, a whole colony of earwigs that had sheltered in the bottom of the flower, being disturbed, rushed suddenly forth, and dispersed themselves over her dress in all directions with the celerity of light. This alarming invasion demanded more fortitude than was possessed by poor Arabella, who ran about, frantically screaming for them to be taken off; while Jones stood stupefied with dismay, not knowing what to do. At last she was borne indoors, half fainting and hysterical, to undergo a strict search after the unwelcome intruders through the piercing spectacles of the venerable Mrs. Jones.

After this unfortunate occurrence, Jones made many attempts to obtain a reconciliation with his offended mistress, but in vain. At first, she believed it to have been a cruel joke, but was soon convinced of that mistake. Nevertheless, the fright had made her very ill, and she firmly rejected any renewal of his addresses, replying that, however she might esteem and respect him as a friend, &c., &c., she could never think of uniting her destiny to a gentleman who would always remind her with a shudder of those horrid earwigs.

For a time Timotheus was inconsolable. He wore a sprig of cypress and dead leaves in his button-hole. He let his hair and beard grow long, and cultivated a woe-begone appearance, much to the distress of his affectionate mother, painful to behold in one formerly so debonaire, intended to indicate to his friends and connections that his feelings had undergone an overwhelming shock. His flute, in the garden, wounded the ear of night with melancholy strains. Time, however, the great physician for human afflictions, began to pour his assuaging balsam into the lacerated heart of Jones. His flute by degrees became more cheerful; he once more visited the establishment where hair is brushed by machinery; flowers began again to blossom in the wonted button-hole, and, the last time we saw him, he was presenting a huge bouquet of flowers, among which orange blossoms bore a conspicuous part, with an "empressment" speaking volumes, to a very neat pork-pie hat and a pair of irreproachable Balmorals that did not pertain to the charming Arabella.

Clapton.

W. D. PRIOR.

GARDEN CULTURE OF THE POTATO.

A Lecture by ALFRED GOSSET, Esq., of Abbotsham, delivered before the Bideford Farmers' Club, Feb. 5, 1867.

The few observations I am about to make have reference only to the "Garden Culture of the Potato," for I am well aware that what is feasible on a small scale may be impracticable on a larger one. Potato cultivation is a subject which I have no doubt is well understood by many of the members of this club, and I should not have acceded to the request which was made to me to open the question for your discussion, had it not been that I hope in no small measure to reap benefit from the remarks and observations which I trust will be called forth from the many able and practical men who are members of the Bideford Farmers' Club. I believe that by a more careful attention to the culture of the potato, we may to a great extent lessen, if we do not altogether get rid of, the disease which has more or less injured the potato plant during the last twenty years, and render the crop a much more certain one. Mr. Shirley Hibberd, writing on the subject in the GARDENER'S MAGAZINE of the 20th of January, 1866, says: "I live in hope that I shall see the potato murrain swept out of our fields, and the potato so brought under the command of the cultivator that disease shall be the result of bad management solely, and as certainly kept away by good management as we can keep cattle out of our gardens by means of good fences." I should mention that Mr. Shirley Hibberd is one of the best authorities on horticulture of the present day.

In most gardens one-fourth of the ground is taken up with permanent crops, such as strawberries, seakale, asparagus, &c., leaving three-fourths to be cropped. I would suggest that one-third of this ground be appropriated to potato culture, and the rest so managed that the same piece of ground be cropped with potatoes only every third year. Garden ground ought to be rich enough to bear potatoes without any manure, that part of the garden being chosen that was most heavily dressed with stable dung the year before. If the ground is not in good heart, a small quantity of guano or potato manure should be sown in the drill just before planting. I have had excellent crops from ground so treated. When stable dung is used, it should be placed at the bottom of the trench; in wet ground it acts most beneficially as drainage. Fresh dung of any kind is not a proper manure; it is stimulating, and the plant is rendered more liable to disease. The varieties of potatoes are endless, and one of the great benefits derivable from this is the increased facilities given for cultivation in a variety of soils, since some sorts are suitable to a light and sandy soil, and others are better when grown in stronger land; hence it is that we find particular varieties in favour in some districts, and a variety that may prove but indifferent in this part of the country may bear an excellent character elsewhere. In our damp climate, with its average of forty inches of rainfall, warm dry ground should be selected, if possible. I need hardly say that potatoes will not thrive in the shade, or under trees. The potato plant requires an abundance of solar light and heat. For garden culture only, early or secondary sorts should be planted—the earliest being fit to dig at the end of May or early in June, and the latest ought to be out of the ground by the middle of August. The time for planting depends entirely on the state of the weather and the nature of the soil; if possible, they should be planted in February or early in March, but it is essential that the weather be dry and the ground in good working order; otherwise, the operation must be put off. The drills should be from 4 to 5 inches deep, and 2 feet 6 inches apart for dwarf growers, and 3 feet apart for medium growers, and the sets planted 1 foot or 15 inches apart in the drill. Strong growers require at least 4 feet between the drills.

A point to which I would call attention is the practice of soiling or earthing-up the stems; this I believe to be injurious, besides which it has been proved beyond doubt that it throws back the crop a fortnight. I would suggest that the intervals between the rows be well dug with a spade, and the earth broken as fine as possible; this should be done in dry weather, and as soon as the plants are sufficiently through the ground to be distinguished in the rows. I dig up my potatoes as soon as the leaves begin to look ye low. I believe many a good crop of potatoes is lost by unnecessary delay in taking them up, and it is now that the fortnight's time saved by not earthing-up tells, especially if the weather sets in wet at the end of July.

An important point is the treatment of the seed. I will give you a brief outline of the plan I adopt. At the time of digging the crop, I select well-

ripened tubers of the size of a hen's egg, or rather larger. I put them in shallow boxes, each box containing about a peck; these boxes I stow away in a cool dry place. Till the potatoes begin sprouting, the box may be kept in the dark: but as soon as sprouting begins, which I find is usually about the middle of December, they should be removed to some spot where they can be exposed to the light. It is most injurious to allow them to sprout in the dark, as the sprouts become long, white, and very brittle, and the potatoes are rendered quite unfit for planting. With regard to changing the seed, last year I had a proof of the advantage of doing so. I obtained from Mr. Myatt a peck of his Ashleaf Kidney, and planted in the same plot of ground some of the same variety which I had saved myself. To all appearance the two samples were equally good. I found, however, that the crop from the new seed was superior to that obtained from my own,—probably one-fourth better. Potatoes intended for seed should not be kept in a great bulk, as the fermentation they undergo will often destroy their vegetating power. Picking off the blossoms has been proved to increase the weight of the crop, but most of the early varieties have no blossom. A very interesting experiment was made some years ago by Mr. Knight, the president of the Horticultural Society. Wishing to obtain seed from some early varieties which had never blossomed, he carefully removed the soil round the plants and picked off all the tubers; by thus preventing the plant from increasing its underground stems or tubers, it was stimulated to throw out leaves and flowers, producing seed in abundance.*

I shall not allude to that much disputed subject, the potato disease, further than to say that what I have observed of it leads me to the conclusion that the mischief begins underground. The main points are, I believe, to give the potatoes an abundance of room; to dig between the rows, instead of earthing-up the stems; to use care in selecting and preparing the sets for planting, and to dig up the crops as soon as the leaves begin to look yellow. I have followed the system I have endeavoured to describe to you for the last four years, and have had good crops, and entirely free of disease.

When I think of my former mode of cultivating this ill-used and most long-suffering vegetable, the miserable shrivelled sets which had probably undergone the operation of disbudging once, if not twice, before being planted in ground full of fresh rank stable dung, with only six or eight inches between the sets, in drills one and a-half or two feet apart; then the smothering process of earthing up, and this often done twice—my only wonder is that they produced any crop at all. It is only five years since I first took an interest in the subject of reform (potato reform). I know the little bill I have laid before you is a very imperfect measure, but I believe, if its provisions were carried into effect, our gardens would be delivered from a vast amount of corruption.

A discussion followed the reading of the paper, in which several members took part, and considerable interest was taken in the question of potato disease. It was asked whether it was not coincident with the use of artificial manure, and also whether it did not result from the atmosphere which was generated in their growth, and which might possibly be vitiated from various causes. To this, however, no satisfactory answer could be given. Allusion was also made to the different growths, and the following were recommended by the lecturer: Requiring two and a-half feet between the rows: Myatt's Ashleaf, Walnut-leaf, Royal Ashleaf, Early Frame, and Sutton's Racehorse. Requiring three feet: Daintree's Early, Mona's Pride (kidney), Flour-ball, Lemon Kidney, Dalmahoy, Early Oxford, Wheeler's Milky White, Paterson's Victoria, Paterson's Early, and Lapstone Kidney. Requiring four feet: Webb's Imperial and Paterson's Regent.

Calendar.

WORK FOR WEEK COMMENCING MARCH 23.

Kitchen Garden and Frame Ground.

ASPARAGUS AND SEAKALE.—This is the best time in the whole year to sow, and the best beds are raised from seed, without any transplanting. The ground should have been prepared long since, and be now in a friable mellow condition. Dress asparagus beds with manure, and make all ready for the crop of the season. Seakale that has been forced should now be allowed to grow, to gather strength for next season. Remove all the coverings from the stools, lightly fork between the rows, and dress with strong manure.

BEANS AND PEAS.—Sow for succession as required. The marrow peas are the kinds which answer best for present sowing. If any accidents have happened to early sowings, get in a few rows of *Early Emperor* and *Advancer* at once; they will come in usefully between the first earlies and the later marrows. Dress the roots of beans and peas with wood-ashes or soot before moulding up.

SWEET HERBS to be sown and planted. The majority of these do best on raised banks of sandy earth in the full sun.

MARROWS AND GOURDS.—Between this time and the 10th of April, intending growers should determine their plans, and sow the seeds of the varieties intended to be grown for show. The first object will be to secure vigorous plants for planting out in May under hand-lights or in frames, and for this purpose the growth should be slow and steady; no check by cold draughts or injudicious watering, and no hurrying by excessive heat. The customary way of raising marrows and cucumbers is objectionable, because it tends to debilitate the plants, so that when put out they are a considerable time recovering. The first error is in sowing several seeds in the same pot, the separation of the plants causing damage to the roots; the second error is in allowing the seedlings to remain together too long, so that they get drawn, weak, spindling, and unmanageable. We would advise intending competitors to sow the seeds in 60-sized pots, two seeds in each pot. The strongest plant of the two should be allowed to fill the pot with roots, the weakest should be removed as soon as any difference as to strength is perceptible; the plants removed may be potted into 60's to have a chance, but those that remain untouched until they fill their pots with roots will prove the best in the end. Before shifting these, separate the ornamental from the edible kinds; allow the edible kinds, which are required to furnish the largest fruits, to grow as they please; but the ornamental kinds should be stopped, and allowed to break before being shifted. As in growing large fruits it is essential to have the plants in the fullest possible vigour, with plenty of large healthy leaves, care must be taken at every stage in their growth that they never get pot-bound, and never suffer through lack of air or moisture. For the seedlings, a light rich fuchsia compost will be

most suitable, as it will promote the formation of an abundance of roots. After that, good, sound, turfy loam should predominate.

CELERY.—For all general purposes, where there is no intention to snatch an early supply by a half-forcing process, the middle of March is soon enough to sow the seed. It should be sown in pans or boxes, in light rich earth, the seed to be scattered thinly on the surface, and be very lightly covered with very fine soil. If the soil is of a proper degree of moisture in the first instance, no water will be needed till the plants are up; the retention of moisture and the germination of the seed may be promoted by laying a sheet of paper over the seed-pan, or a board or tile may be laid on it, care being taken to remove it the instant the seed begins to sprout. A gentle heat is needful to bring up the plants nicely; but a strong heat is not required, and in fact is injurious. But if there are no means of starting it with heat, it will come on very well kept in a frame or greenhouse, in the full sun, but screened to prevent evaporation. It is one of the advantages of sowing the seed later than is generally done, that there is less need of artificial heat to start it into growth. When the plants have two rough leaves each, it is advisable to draw out a few with the aid of a bit of stick, and pot them singly in thumb-pots, in a mixture of equal parts friable loam, dung rotted to powder, and with an addition of sharp sand. These may be placed in a frame, and must, of course, be shaded, and rather tenderly cared for during the first few weeks. A hundred or more plants may be potted in an hour, and, if carefully treated, these will give an early supply of fine heads. The object of the cultivator should be, by good cultivation, to make these selected plants overtake other people's that were sown early, and afterwards kept starving in the seed-pans. The remainder must be pricked out as soon as they are as large in the head as the head of a young radish—say having four or five leaves each. The way to prick them out is to prepare first a frame, next tread the ground hard where it is to stand. On the hard surface lay turfs, grass side downwards, and on the turfs spread three inches of quite rotten dung and fine loam, equal parts, well mixed together. On this bed plant them in rows carefully; water, put on the light, keep shaded and rather close till they begin to grow; then take the light off during the day as much as possible, taking care to put it on in case of cold rains, or snow, or frost, all of which are possible even up to the middle of May. The plants that were potted will have to be dealt with according to the weather, and other circumstances. They will soon fill their pots with roots, and when they do so—better, indeed, before they do so—shift them into 60-size, with one rather flat crock only in the pot, the soil half dung and half loam, and keep them in a frame, giving plenty of air and water, and exposing them fully to sunshine. By the time they fill these pots with roots, the season will be sufficiently advanced to allow of planting out; and this, like all other processes, must be done with care. As for the general crop, where there is a large demand, potting is out of the question; but it is a great gain to prick out the young plants on a bed of rotten manure in a frame.

Flower Garden.

ROCKERY.—This is a good time to buy in alpine and succulent plants for raised banks and rockeries, as their character can be seen in the foliage, and many will now be in flower. The majority prefer a sandy loam; but places should be prepared for such as love chalk or peat, so that several distinct features may be presented in various parts of the construction. For small gardens, the Saxifrages, variegated and other kinds of Thyme, *Andrietta*, smaller *Potentillas*, and *Sedum*, are the most useful. Choice kinds of alpine should be grown in duplicate, in pots, in case of losses, by which means they can be replaced.

ROSES.—During the next six weeks, and longer if damp weather, is the best time to plant dwarf roses from pots. Plants from last year's cuttings may now be had in 54-size pots full of roots, and the *Chinas* and *Hybrid Perpetuals* will be sure to bloom freely in autumn if planted in a well manured loamy soil. If the plants come to hand in a very fresh growing state, keep them in airy pits or frames for at least three weeks, to harden before planting.

ORNAMENTAL GRASSES.—The following dozen are among the very best: *Agrostis nebulosa*, exquisitely slender and elegant when looked at raised above the eye, above which it is sometimes necessary to raise it from the stems being nearly as fine as a hair. From this cause also a healthy patch of the plant in flower looks like a little cloud lying upon the ground. You can see the dense inflorescence, but not the stems which support it, and the whole has a fairy-like aspect. *Agrostis pulchella* is not so elegant, but quite as desirable from its prettiness and distinct bushy habit. *Stipa pennata*, a well-known and elegant feather grass. *Papilatherum*, or *Milium multiflorum*, the most gracefully drooping, slender flowering grass. *Briza gracilis* and *maxima*, well-known, popular, and good, but not so good as others mentioned here less seen in cultivation, but quite as cheap as the *Brizas*. *Lagurus ovalis*, the soft and pretty hare's-tail grass, quite indispensable from its distinctness. *Setaria macrochata* and *germanica*, handsome, free-growing, and noble grasses, very useful and striking for vase decoration. *Eragrostis elegans*, second to no grass in existence for beauty when the inflorescence is springing from the ligule, or indeed at any time; it, like other grasses, may be cut with advantage in two or three stages; the first cutting will be quite distinct from the last. *Hordeum jubatum*, the most elegant of the barleys, but which must be cut in a very young state, or it will fall to pieces in drying. *Sorghum bicolor*, with a pendulous and elegant inflorescence; the *Pampas grass* cut when in its prime, and *Bromus briziformis*, somewhat like, but larger and far prettier than a briza, but with a peculiarly elegant habit, drooping and arching in a singularly graceful manner. The seed of these may be had from most respectable seedsmen, and should be sown in the open border about the end of April, or better still in pots in a cold frame in March, and then divided and planted out about the end of April. In this way they would escape being mingled with the common grasses, the seeds of which are always plentiful in the ground. They might be planted here and there in vacancies in the mixed border, and would delightfully vary it. But to grow them specially for cutting, not an unwise plan, the best way would be to give them a little bed to themselves in the kitchen-garden or nursery, or any such place. They would then be more under the eye, and more likely to get cut at the proper time, *i. e.*, when fresh, and young, and perfect.

TRITOMA UVARIA FROM SEED.—The best way of raising them from seed is to sow on a warm bed about the beginning of March, or as late as the month of April, if found most convenient. They should not be sown on a hotbed, as too much heat is not good for them, but a nice warm bed, say one that is nearly spent, will exactly suit all their requirements. At the end of June, take out the seedlings with a ball, and plant them in the open ground; during winter cover with straw. In the following spring divide and plant

* This experiment shows clearly the connection between the tuber and the blossom, and that, conversely, the growth of the tuber may be promoted by preventing the development of the blossom.

them separately, where they may be left to take care of themselves for the remainder of their natural lives, the only protection requisite during the winter months being a conical heap of straw. The easiest way, however, of multiplying them is from the strong side-suckers from old plants in the spring; the end of February to the end of March is the best time for amateurs to divide them, and the divisions should then be planted immediately in a rich sandy soil, where they are sure to do well without much attention.

RANUNCULUS BED.—As soon as the plants begin to push through, the bed should be carefully trod over between the rows, firmness of the soil being a prime element of success in the general cultivation. If the weather is dry, they may be watered night and morning, and if the soil has not been so liberally manured as it ought, weak manure water may be used. The ranunculus likes a moist and generous soil, but nevertheless it is a mistaken notion to water it either frequently or copiously. Artificial watering never does as much good as is expected of it, and if it can be dispensed with it will be better for the plants. It is a good plan to mulch the bed with moss or old tan, or even ancient and well-sweetened manure, placing the dressing neatly along the rows. Such a procedure will frequently obviate the necessity for watering, and carry the plants through till the rain falls.

FORMING GRASS LAWNS.—When properly managed, and allowing plenty of time, the best turf is obtained from seed; but the seed should be obtained from a first-rate house, known for its care in selecting and sowing grass seeds, or a worse result may happen than by the use of turf from a fat meadow. The grass seeds sent out by the leading houses in the trade are all that can be desired; they are selected so as to be adaptable to every variety of soil and position, so that the purchaser only need to specify whether he wishes for a lawn under trees, on a bleak hill, or on a damp loam, and a mixture of seeds will be sent for the purpose. In fact, seed is invariably used now in laying down lawns in grand gardens; and at the Crystal Palace, Kew, Kensington, and Aldershot, those who rejoice in good turf may have examples of what may be done in this way, for all these swards were sown down with mixtures of seeds. The laying-down of turf, however, is not only a great saving of time over producing turf from seed, for the fact is, the moment the work of laying the turf is completed, the lawn is made; but with seed we must wait a year before we can say that we have a really good turf. A deep sandy loam produces the finest turf, but the more sandy, the more apt it is to get burnt in summer-time. Fat lawns carry good swards if care is taken to keep down daisies, docks, and dandelions; these should all be spudded out, and if the extremities of the roots cannot be removed, they should be covered with an inch of salt before the holes are filled in; this will kill the fragments of roots that remain in the ground, and the turf will soon join over the places whence the weeds were removed. On clays and rich loams the grasses always show a tendency to become coarse, and whatever dressing is applied should be of poor sandy stuff, with an admixture of old mortar, road-sand, or other gritty material free of stones or brickbats. Manure should never be applied to grass on sound loams and clays; as such water as you please when it is needed, but manure will cause a rankness of growth that is very objectionable. On the other hand, poor sandy and peaty soils will produce a closer and richer turf, if annually manured. Rotten dung spread over the surface and broken up, and scattered an inch deep during March, will bring the grass forward, and if well rolled when quite dry, its appearance will not be unsightly, and in a very short time the grass will rise through it and justify the act. But superphosphate of lime, at the rate of three hundredweight per acre, is the best dressing for grass on poor soils, as it encourages the growth of clover, without which there cannot be a good turf. Before grass seed is sown the ground should be drained, if needful, then dug deep, and the bottom spit mixed with the top, if the staple is good, then raked quite level, all stones and hard rubbish, dead roots, &c., removed, and the whole rolled smooth and firm. On a fine day, when the ground is pretty dry, and no wind stirring, proceed to sow. The proportion of seed required is one gallon to every six rods. Have ready a sufficient quantity of fine dry earth to sprinkle the whole surface half an inch deep. Scatter the seed rather thickly, and throw over it the fine earth, and roll several times to render the whole firm and smooth; and if sparrows abound in the neighbourhood, stretch some white threads across the ground about three yards asunder, and they will be scared long enough for the seed to germinate. Old lawns that have bare patches may be renovated without disturbing those parts that are in good trim. Strip off the grass, or dig it in over the spots that are poor, rake smooth, and sow as just described. But generally turf that is poor in grass is rich in weeds, and to dig them in is to make sure of their coming up again; therefore the removal of the turf is the safest course, as when rotted it is valuable for potting, and the loss can be made good with soil brought to the spot. Grass that is merely thin, and not weedy, may, if the soil is not sour and exhausted, be greatly improved by sowing over it now a good lawn mixture, and then covering with fine soil and rolling in. Turf that is smooth and bearing an even plant, but rather thin from having been many years mown without aid of manure, may be restored to a fine condition by means of occasional thin sprinklings of nitrate of soda in the months of April, May, and June.

Greenhouse and Conservatory.

BALSAMS AND COCKSCOMBS must be shifted on and kept warm. Any check by getting pot-bound, or for want of water, will spoil the bloom. In repotting have the soil and pots warm; let the shift be made quickly, and without leaving the plants about to be chilled, and water with tepid water. We believe many of the failures in growing these annuals arise through neglect of these small matters.

CALCEOLARIAS of the shrubby kind to be shifted on as soon as they fill their pots with roots. A liberal use of chopped moss in the compost is a great help to the roots, and if peat is plentiful in the district, use one-third part in the mixture. Herbaceous Calceolarias must have no check, no artificial heat now, and must be kept clear of fly by smoking when required. In shifting these, put them lower in the next size pot than they were previously, to shorten the stem and promote new roots from the collar. These must be kept airy, or they will run up too high, and bloom weak.

CAMELLIAS, AZALEAS, AND RHODODENDRONS going out of bloom in the conservatory to have all the remaining flowers clipped off, all seeds removed, and after being well syringed to be shut up close and warm, to promote a vigorous growth. Camellias inclined to be leggy, remove the top buds, or shorten back.

CONSERVATORY to be kept moderately close while east winds prevail, or the plants in flower will suffer. No need for fire-heat now unless there

are many newly-introduced stove plants. Water the borders liberally; stop climbers.

FUCHSIAS for exhibition must now have large shifts. Pot off cuttings as soon as rooted; never suffer them to starve in the cutting pans, and place them in moist heat to have a good start.

LILIUMS.—If these are growing freely in good turfy peat, a top-dressing of half rotten cow-dung will now be beneficial. Give plenty of water, and take care the pots are not exposed to hot sun.

Forcing Pit.

CAPSICUMS AND TOMATOES to be potted off and put in a moderate heat to encourage new roots. Use light rich soil. Tomatoes wanted early may be thrown into a blooming state by allowing them to get pot-bound in small sashes; as soon as they show for bloom, shift to forty-eights; and when they fill those pots with roots, shift into six or eight-inch pots. By this method a very early crop of fine fruit may be secured in pots, and there is generally plenty of room to ripen them under glass after the end of May. In shifting, none of the crocks should be taken from the roots, but the ball should be lifted without damaging a fibre into the pots they are shifted to, and the compost filled firmly round it. As the fruits swell, use strong manure-water, and give plenty of it.

CUCUMBERS.—Newly-established beds should be carefully aired every morning, to let off rank steam and prevent damping. Stop regularly before the fruit; never allow any runner to go away neglected, or the distribution of the sap will be unequal, and the fruiting unsatisfactory. Plants that are worn-out should be destroyed; it is a folly at this time of the year to attempt to renew their vigour by cutting back. If there is a great demand for cucumbers, and the supply runs short, it is worth remembering that half a fruit may be cut and the other half left to grow. In fact, a large cucumber may be taken at three cuttings, and furnish three dishes in succession instead of one.

FRENCH BEANS must be kept near the glass, have as much air as possible, and while bearing have regular supplies of manure water. We find that passing a dry brush over the flowers when the sun shines promotes the setting of the pods.

PINES, VINES, PEACHES, and other subjects in the forcing-house, see notices of the last few weeks. Vines will require special attention now, as they are in full vigour: those colouring their bunches to have plenty of air and a brisk heat. Those newly started to be frequently syringed, and the borders kept warm and moist. Newly-set bunches to be thinned with great care; the less handling the better. Remove useless growths, and stop laterals.

MELONS that have suffered a check will now be showing fruit, which must be removed, unless the plants are evidently sufficiently vigorous to bring it to maturity. If a few fruits of any small variety are wanted early, the plants may be thrown into a fruiting state by letting them get a little pot-bound in six-inch pots on a warm tank or flue. Melons newly planted to have a generous heat, and as much moisture as cucumbers; but those established and in vigorous growth to be kept drier than young plants, and to have all the sunshine. Night temperature, 65°; day, 70° to 75°. Sow now for a good crop to fruit late in the summer.

Fruit Garden and Orchard House.

ORCHARD HOUSE.—Trees in bloom to have air in abundance. Some slight agitation amongst the blossoms will help to set them. Keep the air as dry as possible till the fruit is set, and while stoning be very careful not to let them get either too wet or too dry at the root. Trees swelling their fruit in the early house to be assisted with manure-water.

WALL-TREES must have protection of some kind in all except the most favoured districts. If any pruning or nailing has been neglected, see to it at once.

Stove and Orchid House.

ORCHID HOUSE will require an abundance of atmospheric moisture now and general attention to plants newly potted and those coming into seasonal growth. Give water cautiously to such as are yet dormant; but encourage growth by sprinkling water about the floors, and keep an average day-heat of 80°. Increase the temperature and the amount of atmospheric moisture to encourage growth. Be careful to water so that there is no lodgment of moisture about the crowns of plants that have not yet started. Every plant in the house should be looked at now; those on blocks require fresh dressing with moss; those in pots with peat. On bright mornings raise a good steam by sprinkling the pipes. Plants to be increased should have a sharp knife passed through the stool, so as to separate one or two dormant pseudo-bulbs farthest removed from the parts that are throwing up leaves or flowers. When these partially separated bulbs begin to grow, remove them completely; pot in small pots with chopped moss, peat, and sand, and place on a moist heat to encourage roots. Vermin will be active now, and must be destroyed, or there will be great injury done to the rising blooms. Shading must be ready in case of sudden outbursts of hot sunshine, but it is not to be used more than can be avoided at present.

STOVE CLIMBERS must be encouraged to grow fast, and training must be delayed as long as it is safe to do so, as training checks the growth. A large shift, and the use of rich soil, then to put on a good bottom-heat of 70° to 80°, and have plenty of moisture, are the conditions under which specimen stove plants will best progress. Shade after shifting. There must now be abundance of atmospheric moisture in the stove, and this with proper shifting, good rich soil, and a regular temperature, will do more to keep down fly and red spider than all the nostrums in the world. Begonias, Caladiums, and other quick-growing soft-wooded plants, will do best on tan, which should be frequently sprinkled with diluted drainings from a dung-heap, to enrich the atmosphere with ammoniacal vapours. Economise sun-heat to save fuel.

Correspondence.

DAMPING OFF, TO ARREST.—As you have received my observation upon stocks so well, perhaps you will permit me to make another communication which has proved to me most valuable, and may to other amateurs. I am in the habit of raising a large number of seedling geraniums, zonals and pelargoniums so-called. I adopt your method of sowing on the 20th of February, and find a great many (zonals) flower the first year. I am plagued, as other amateurs doubtless are, with the young plants, not only of geraniums, but stocks and other things, damping-off. The plan I adopt is,

when the first one has damped-off, although the plants have only their seed-leaves, to transplant them into pans an inch apart every way. The little plants are raised with the point of a knife, retaining as much earth as possible; and by taking the plants carefully up with a knife sufficient earth can be retained not to check the plant. And in planting them into the seed-pans, first making the holes into which they are to go, I plunge the tiny plants nearly up to the seed-leaves. By this method I find I get rid of my plague, and lose few, if any; whereas, if I leave them in the seed-pans, the damping goes on, and then good-bye to my stock. I have noted and tried the various methods pointed out in your journal to remedy this evil, but owing perhaps to my clumsiness, or other causes, I have found the evil has not abated. I then hit upon the method above suggested, which I have found to answer most admirably. I am aware professed gardeners have other means of ridding themselves of the nuisance, but it must be recollected that nine-tenths of amateurs have not the gardener's appliances. One house must serve for all their purposes—and often only a sunny southern window. My hint, if you think well of it, is only intended for amateurs; for I should not pretend to instruct a gardener. With these remarks, as with the others I made, I say, do as you please.

SORGHUM TARTARICUM.—A paragraph in your paper of the 9th instant assumes that the above-named grass is identical with *Sorghum* (*Holcus*) *saccharatum*, respecting which a good deal was said and written a few years ago; but which, notwithstanding its doubtless excellent qualities, fell gradually into disrepute through its tardiness in ripening its grain in our climate. A similar statement has also been made more than once, in a leading gardening journal, consequent upon the popularizing of the *S. tartaricum* by J. Hullett, Esq., of Cosham. As the same opinion seems to be also prevalent amongst the trade as well as private individuals, for the better information of your numerous readers we venture to correct this error, and beg to inform you, that though nearly allied plants they are quite distinct from one another. In order to give you an immediate and self-evident proof of their distinctness, we enclose you a few grains of the seed of each, in which particular you will perceive that they differ as black differs from white, *S. saccharatum* being black and *S. tartaricum* (?) white seeds. Whether or not the *Sorghum tartaricum* (?) will ever become, in the usually accepted sense of the term, a "cereal" in this country remains to be proved. That it has excellent properties, and that its seeds would make a very fair kind of bread, we are not disposed to doubt; and the abundance with which they are produced, in common with the habit of the whole family, will be a great recommendation, provided it is found to ripen its seeds in all summers in this climate. This is the chief question concerning it. There is, however, another *Sorghum* which we believe will be found to ripen its seeds more readily in northern climates than any, and we should strongly recommend those who are disposed to attempt their cultivation to try it. As regards its habit and culture, it does not differ from *S. tartaricum* (?), and should be sown out of doors in April—or March, if the weather change to more genial temperature. This species is known as *Andropogon sorghum*. Its seeds externally are of a red-brown colour, white within, and are produced in wonderful profusion. We have thought so well of this plant as to consider it worth while to bring it into prominence, as possessing qualities more favourable to our climate than *S. tartaricum* (?). We have therefore been induced to offer seed of it by public advertisement. It may be well to mention that we have seen this species (*Andropogon sorghum*) catalogued as synonymous with *A. rubens*, though it is certainly not identical with that kind. In conclusion, having in some measure shared the anxiety which our esteemed correspondent Mr. Hullett has had, respecting the supplying of his 20,000 applicants for seed of *S. tartaricum* (?), we think it will not be out of place that the public should be informed that it has not been without some considerable expense to himself that Mr. Hullett has been able to satisfy their claims.

Covent Garden, London.

HOOPER & Co.

Replies to Queries.

Orchids for Cool Houses.—S. B., Walton.—The following are good and well adapted for cool treatment; they are, moreover, comparatively cheap: *Cypripedium insigne*, *Disa grandiflora*, *Epidendrum vitellinum*, *Odontoglossum grande*, *Limatodes rosea*, *Bletia campanulata*, *Miltonia spectabilis*, *Lycaste Skinneri*, *Lycaste Deppei*, *Oncidium flexuosum*, *Renanthera coccinea*, *Phajus grandifolius*. We find, on reference to a trade catalogue, that one small plant each of these twelve (save and except *Disa grandiflora*, which is not entered at a price) may be obtained for £10. Probably the finest cool orchid known is *Oncidium phalænopsis*, but it is far too costly to be entered in this list, as a good bit of it would fetch £20 or £30, and a moderately good specimen £100. If the directions on cultivation given in the "Garden Oracle" for 1865 are followed by S. B., there will be experienced but little difficulty in the management of the above.

Pillar Plants for Greenhouse.—S. B.—One of the best plants for a pillar is the variegated *Cobea scandens*, but it must be allowed to ramble over the roof; in fact, it needs plenty of room. *Fuchsia corallina* makes a grand pillar plant. *Lapageria rosea* is superb. *Jasminum grandiflorum*, *Tropaeolum Lobbianum Eclipse*, and *Cooper's Defiance* are also useful in their way, but there are hundreds of equally good things, and we suppose the names of a few to be preferable to the names of many.

Acacias.—S. B.—There is no difficulty in growing any number of greenhouse acacias, but the best way to deal with them is to plant them out in conservatory borders, in a mixture of good turfy peat, leaf-mould, and loam, and let them grow almost as they like. You then have the natural grace that belongs to them. Cuttings of young shoots, taken off with a heel, strike readily under hand-lights in sandy peat during the summer, and should be grown on in pots till large enough to turn out. They may also be propagated from pieces of the large roots. The greenhouse kinds require a temperature averaging 40° all winter—it should never be lower than 35°—and at the turn of the season, when they begin to push for bloom, more heat and moisture. The most useful kinds are to be had at all respectable nurseries. The following are the best for amateurs: *affinis*, *amœna*, *armata*, *dealbata*, *decurrens*, *dolabriformis*, *Drummondii*, *emarginata*, *floribunda*, *grandis*, *juniperina*, *rotundifolia*, *lophantha*, and *taxifolia*.

Water-Lilies.—Robert.—You must give up the idea of having the red and blue flowered water-lilies in your open-air aquarium. The beautiful *Nymphaea corulea*; *Devoniensis gigantea*, *rubra*, *stellata*, *versicolor*, and

others, insist on having the water hot; and if you make a scrutiny of the basins at the Crystal Palace, where these lilies have charmed you, you will see the pipes by which the water is heated, and it will be easy to discover by the species and their degrees of luxuriance where the water is warmest and where coolest. There are five hardy *Nymphaeas* in general cultivation, and about fifty more that invite the attention of wealthy horticulturists.

Salvia gesneriflora.—R. J. T.—This should be showing its bloom spikes now, and should therefore not be shifted, but give it plenty of liquid manure, or put a spoonful of genuine Peruvian guano on the surface of the mould every three days, and wash it in with water. If not now showing bloom it may be shifted, and you will have to wait for bloom till next season. Shorten the shoots of *Justicia carnea* to five or six inches in length, shake it out and repot in rich compost, plunge in bottom-heat, shift again as the plant advances, syringe frequently, and by the middle of July it should be a handsome specimen, with from fifteen to twenty fine heads of bloom. The tops now cut off, if placed in bottom-heat—say, a cucumber frame at work—would soon make fine young plants. *Gaillardias*, *heliotropes*, *lobelias*, and *gazanias* will all bloom this season if sown immediately, and pushed on in heat; but you ought to have set them to work on the 1st of February. The scarlet *Linum* we have always advised to sow where it is to bloom, and to give it no artificial heat at all. *Campanula pyramidalis* is a biennial. *Tacsonia ignea* will not flower the first season.

Cydonia Japonica.—J. Thomas.—The *Pyrus Japonica*, more correctly known as *Cydonia Japonica*, is increased by layers. It may also be worked on thorn-stocks. The layers are put down in September in the usual way, and are allowed to remain till the September following, when they are taken off and planted in nursery rows until strong enough to be removed to the places they are to decorate. It will grow in any good loamy soil or clay, and makes a very beautiful bush or standard. But the best place for it is a dwarf wall.

Veetis.—We saw the plant you inquire about in Messrs. Low and Co.'s nursery, Upper Clapton, last summer. We cannot afford any further clue to it.

Stocks.—Reader need not be startled to find that one account does not quite agree with another. Our business is to progress, not to hold fast to any system when we have discovered a better. The "incendiary advice" will be followed by some thousands of cultivators this season, and we shall hear from some of them that it embodies a golden rule. It is not our mission to bolster up anybody's book, and severe impartiality and the love of truth and science may compel us frequently to run counter to the most reputable of authorities, no matter who they are. We are not at all surprised to hear that in your district (Newry) broccoli, cabbage, wallflowers, rockets, antirrhinums, &c., after standing the winter and surviving the great frost, are now perishing fast. The mild weather that followed the frost started them into growth, and put them in condition to be quite ruined by the return of cold weather. We saw a fine gathering of rhubarb made on the 20th of February from open quarters in a very exposed district, but not a stick can be got now, even with the help of straw, &c. Those who pruned their roses early will catch it awfully.

Plant Case.—Miss Maling's indoor plant case, as made by Mr. Gray, of Danvers-street, Chelsea, is an admirable contrivance in which to grow ferns and a few of the smaller orchids, with the aid of hot-water, and also to display forced flowers and fine foliage plants for a time; but we do not think you can do much with it for forcing roses, because of the necessary scarcity of light. Nor should we expect to do much in the way of propagating in it, though cuttings of plants may be struck almost anywhere in damp and shade. We know of nothing better in the way of plant cases, and for ferns especially it is admirable. On this point we speak from knowledge, having had cases of this make in use ever since they were first introduced to public notice.

Small Greenhouse.—Broom.—Your little house, 10 feet by 8 feet, need not have so high a wall as you propose; 2½ feet will be plenty. Otherwise your plan is good. It would be well to have a small ventilator at each end, and none in the roof; when extra air is wanted, the door can be set open. You could not do better for keeping frost out than have Hays's constant stove, which is cheap, elegant, and effective, and when out of use can be taken away for the season.

C. B. Wollaston.—We really have not time to make the search you desire.

Oranges and Pomegranates.—Reader.—These fail in private gardens more through being starved than through want of heat. The soil in the pots and boxes is allowed to get sour and effete, whereas it should be renewed every year by the removal of some of the old stuff round the sides, as deep as can be without injury to the roots. The new soil should be lumps of turfy loam and cakes of old cow-manure rammed in hard, and during the few hot months liquid manure should be given once a week. By thus insuring free summer growth, bloom and fruit will result in their season. They may be wintered at an average temperature of 40°, nay, we have kept them in cool houses without fire-heat, except to just keep frost out, giving them a steady rise of temperature in the spring to start them nicely.

Covering a Porch.—B. B. B.—The quickest, safest, and cheapest covering would be *Virginia creeper*. A little less quick would be *sempervirens* roses, very beautiful, fast growing and abundant bloomers, one only to each pillar. These would require plenty of water, and the ground heavily manured before planting, as the chalky substratum will try them. Less quick than the last, but in such a hot place very suitable, *Ceanothus papillosus*, which would require some good turf chopped over with rotten cow-dung. *Hedera regneriana*, a grand ivy with huge leaves, would run up quick, and be rich and shady. *Clematis cerulea* would rejoice in that hot, dry, chalky bottom, and go to the top of the pillars at a rapid pace. Be content with only one kind of plant, have no mixtures. You are in time now to plant any of them from pots.

Celostia pyramidalis.—W. Wilson.—It is best to make three sowings, one in February, another in March, and the third in April, and these give a good succession of bloom to Christmas, or even into the new year. To start the seeds strongly and well a bottom-heat of 80° to 90° is necessary; sow the seed thinly, but directly the plants are up place them close to the glass, and give air freely to keep them dwarf. As soon as the plants are sufficiently strong, pot them off into "thumbs," and give them a bottom-heat of 80° at the least, a moist atmosphere, and as much air night and day as the heat of the frame, pit, or house, will admit of, always bearing in mind that the night temperature should not fall much below 60°, while in the daytime a brisk moist heat rising to 80° or 90°, with sun-heat and moisture, will not be too much. As the pots fill with roots, shift into those of a larger size. Fine plants may be grown in 11-inch pots, but if you wish to attain the fullest perfection, 13 or 15-inch pots will be necessary.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun rise.	Sun sets.	Moon rise.	Moon sets.	WEATHER NEAR LONDON, 1865.			M. temp. av. of 43 yrs. Gravh	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D			
							Barometer.	Thermometer.					Rain		
1867			h. m.	h. m.	h. m.	h. m.	MX.	MIN	MX.	MM.	MM.		1867		
31	S	4th Sunday in Lent	5 41	6 36	3 35 p.m.	1 29 a.m.	29.93	29.07	65	29	42.0	.04	43.6	Bolbophyllum saltatorum Africa	31
1	M	Day breaks at 1h. 37m.	5 34	6 31	4 6	"	29.91	29.40	63	28	46.5	.06	44.1	Saccobolium minutum, 1... Java	1
2	T	Richard Cobden died, 1865	5 30	6 33	4 35	"	29.41	29.30	60	35	42.5	.00	44.5	Vanda insignis, 1 Java	2
3	W	Admiral Ross died, 1862	5 34	6 35	5 2	"	29.62	29.40	60	26	38.0	.04	44.8	V. suavis, 1 Java	3
4	Th	East London Flower Show, Bow	5 32	6 37	5 29	"	29.07	29.00	64	28	41.0	.01	45.1	Atrophylloides gignensium, 2 Guatemala	4
5	F	Length of day, 13h. 12m.	5 29	6 38	5 18	"	2 95	29.78	64	37	45.5	.03	45.4	Burlingtonia fragrans, 1 ... Israel	5
6	S	Old Lady Day	5 27	6 40	6 28	"	30.09	29.97	65	38	46.5	.01	45.5	Leptotes serrulata, 2 "	6

The Gardener's Magazine.

SATURDAY, MARCH 30, 1867.

CABBAGES ARE IGNOBLE SUBJECTS FOR HORTICULTURAL SCRIBES, but they dare not be ignored because of their ignobility. The fact is, the time has come for the sowing of cabbage-seed, and very much of the profit of the business must depend on the proper doing of it; and when profit is in consideration, we agree to forget the meanness of the subject in view simply of its utility. So in the matter of cabbage, the meanest of vegetables claims a certain degree of respect, and in every good garden now the prudent cultivator is preparing his seed-plots, and hopes for a fine day soon that he may sow the seed. At this juncture, then, we propound the question—Do you, good reader, know a good cabbage from a bad one? The boldness of the query will, we trust, be pardoned because of its importance, and the more so that we wish to make an observation on cabbages in general. A considerable number of the best esteemed varieties form large, compact, white hearts, that are as solid as stale bread. The judges at shows take hold of a cabbage and press the heart with their thumbs, and (perhaps) award the best prize to the hardest hearts they can discover. Now we venture the doctrine that hard-heartedness in a cabbage is fully as objectionable as in a man or woman, and that people who go for compactness, solidity, and whiteness in the hearts of cabbages, go for qualities that are altogether objectionable. As a rule, there is comparatively little flavour in a white-hearted cabbage; if there is the smallest tinge of pink added, the flavour is decidedly rank and objectionable. Then, in common with all blanched vegetables, the white cabbage is comparatively innutritious. This would not matter if—as in the case of seakale, lettuces, endive, and some other things that are blanched—delicacy were obtained by the sacrifice of colour; but that it is not so in the case of cabbage may any day be determined by placing on the table two dishes equally well cooked, one to consist of the compactest white heart that can be found of Sugar Loaf, Enfield, or Battersea, and the other of little Collards or Brussels sprouts, or small loose plants of any of the larger kinds that have not hearted well. If we look at the matter as one of economy only, the green vegetable will supersede the white, for it is better flavoured and more nutritious; moreover, it takes less from the soil and more from the atmosphere than the other for the construction of its fabric. To be sure, blanched vegetables of all kinds consist in great part of water, yet whatever of fibre and secretions they contain must be gathered up from the roots, for not having seen the daylight they can have obtained but a small proportion of their substance from the atmosphere.

But, to avoid making a scientific question of the subject, we are content to recommend the cultivation of small, quick-growing, loose-hearted cabbages, where the object of the cultivator is to place an elegant and salubrious dish of vegetables on the table. There is perhaps not a more useful variety of cabbage in cultivation than the true Rosette Colewort, though, like many other good things, it requires a considerable space of ground, as compared with larger-growing sorts, to furnish a given quantity for table use. It is no wonder that trade growers are perpetually on the look-out for improved varieties of cabbage; for in the garden of the peer, no less than in the plot of the ploughman, some kinds must be grown, and on every day throughout the year cabbages should be visible in some form or other. Having in view to promote the cultivation of the best varieties of this useful vegetable, we say, give the preference to kinds that do not form huge, compact, flint-like hearts, and let all cabbages be cut in a younger state than they are usually taken; for while they are green throughout they are all that we require, but every degree of whiteness is objectionable. Such quick-growing kinds as *Veitch's Improved Atkins's Matchless*, *Early Barnes*, *Early Dwarf York*, *Little Pixie*, and *Shilling's Queen*, with the true *Rosette* or *London Colewort* added, are far to be preferred to the Battersea, Enfield Market, and Large York, which have been generally accepted as the perfection of cabbages. But all these large kinds are good if taken when the hearting process begins, instead of waiting till it ends, and the hearts look ready to burst. Even the *Drumhead*, or cattle cabbage, makes as sweet and tender a dish to accompany a hot joint as any cabbage in cultivation, if used when small, and so on all through. But, as a rule, it is better to grow the small varieties in gardens, and as they may be planted pretty close together, the total produce will in the end be not se-

riously deficient, as compared with the large-growing kinds; but if it is a question of weight for weight we give up the argument, for the large cabbages will carry the day—indeed, the total dead weight of their produce is something astonishing.

The great desideratum of kitchen garden practice is to ensure green vegetables in the months of February, March, and April. How is it to be done? Probably, in ninety-nine of every hundred gardens throughout the country, there is not now a scrap of anything green fit for use. It must be among the Brassicas we should find the materials to tide over until the first supplies of round spinach are obtainable; seakale, asparagus, and roots are the staple products during the three months named, but in some places late Broccolis, and everywhere Sprouting Broccoli, assist in some degree, and then to fill in there must be some kind of cabbage. The terrible frost of January last put to a severe test the various forms of cabbage commonly grown to keep over winter. The destruction of Brassicas has been universal, but some kinds have escaped. First, we must observe that small plants from sowings made rather late last autumn are but little the worse for the weather, and this irrespective of sorts. In a small state all the sorts are hardier than when their growth is completed. But especially hardy, when planted out from sowings made late in August, are *Nonpariel Improved*, *Enfield Market*, and *Fearnought*: these are true cabbages. Amongst the intermediate forms, partaking more or less of the characters of the Brussels sprouts and the cabbage, we must give first place to the *Dalmeny Sprouts* and the *Albert Sprouts*, which were a few years since introduced to public notice by Messrs. Stuart and Mein. These have passed through the frosts of 1867 with but little harm, while other sorts fully grown and on the same plots of ground have been destroyed entirely. The true *Cottager's Kale*, sent out a few years since by Mr. Turner, has proved to be one of the most valuable winter greens known. Another excellent variety, for which we are indebted to Messrs. Stuart and Mein, is the *Feather-stemmed Savoy*. This, like the *Dalmeny* and the *Albert Sprouts*, is a hybrid, and the result of carefully crossing with the Brussels sprouts.

To provide for autumn supplies, when peas and beans and other summer vegetables are gone, there should be a few small sowings of the small-growing kinds made during March, April, and May. But very early in April a beginning should be made in the sowing of the large-growing varieties of late autumn and winter greens. All the sprouting greens require a long period and a good soil to acquire perfection in time to be of use, but it would be well to sow a few small patches of these for succession in May, with a view to the month of March following, when green vegetables will be scarce. In the far north it is found desirable to make sowings of winter greens in frames about the middle of March, in order to have them forward enough to take fullest advantage of their comparatively short summer, but in southern and midland districts there is no need for such haste. At the beginning of April is early enough; and when the work is once begun it must be carried on with spirit, and there must be no starving in seed-beds until the summer is half gone. Let the stuff be planted out early in well prepared and abundantly manured soil, and the labour bestowed will be well repaid by the greater abundance and superior quality of the produce.

Looking once more to the months of February, March, and April, we repeat that the hardier kinds of cabbage should be sown pretty plentifully in July and August, and be got out on clean land as soon as they are large enough to handle; and thence to the end of the year, and indeed throughout the winter, while weather permits, there may yet be some to plant, and always some to use. Bunch greens are now realizing 6s. per dozen bunches in Covent Garden market, a capital price for those farsighted growers who made preparations for the supply in July and August last.

LIVE FOR SOMETHING.—Thousands of men breathe, move, and live, pass off the stage of life, and are heard of no more. Why? None were blessed by them; none could point to them as the means of their redemption; not a line they wrote, not a word they spoke, could be recalled, and so they perished; their light went out in darkness, and they were not remembered more than the insects of yesterday. Will you thus live and die? O man, immortal, live for something. Do good, and leave behind you a monument of virtue that the storms of time can never destroy. Write your name by kindness, love, and mercy, on the hearts of thousands you come in contact with year by year, and you will never be forgotten. No; your name, your deeds, will be as legible on the hearts you leave behind as the stars on the brow of evening. Good deeds will shine as brightly on the earth as the stars of heaven.—*Dr. Chalmers*.

ROYAL BOTANIC SOCIETY.

FIRST SPRING SHOW, MARCH 23.

The season of Flower Shows has opened auspiciously, though the elements have been most unkind. If ever an exhibition deserved good weather, and an appreciative crowd of spectators, it was that held at Regent's Park on Saturday last, when the wind changed from east to west, and in place of snow and frost, to which one had become painfully accustomed, gave drizzle instead. The contrast between the gay conservatory and the dull garden without was far greater than usually occurs on the 23rd of March, when in average seasons there is much new leafage visible, and sometimes a fair sprinkling of flowers. Whether we have any right to complain of the weather is a question; it is very certain that the horticulturists who contributed to this beautiful display deserve the highest praise for their skill, taste, public spirit, and disregard of many circumstances unfavourable to the opening of the season. The usual small tent was put up and in part occupied, but the exhibition was really held in the conservatory, which is admirably adapted for the purpose up to a certain moment, and that is when the tide of visitors is at its highest, when the place becomes inconveniently hot and crowded. All round the building were banks of plants and flowers, and across the centre was a double stage, one side of which was wholly occupied by Mr. William Paul, with hyacinths, tulips, and narcissus, and the other side with pot-roses from the same exhibitor. These two banks, and a great batch of Cyclamen persicum, were the principal features of the display; but in the tent there were eleven boxes of cut roses, from Messrs. Paul and Son and Mr. William Paul, a display of miscellaneous plants, a fine lot of fruit, and some interesting miscellanies.

HYACINTHS, TULIPS, AND OTHER BULBOUS FLOWERS.—We must be always on our guard against that stereotyped form of speech on the occasion of a surprise, in which we declare we have never seen the like before. We might say of Mr. William Paul's hyacinths that they surpassed all former exhibitions of the same kind; but perhaps that would not be true, and we have no record of measurements of spikes and travels to afford a standard for comparison. So, avoiding all possible extravagance of language, I shall affirm that these hyacinths appeared to me to surpass by some sensible degrees all hyacinths hitherto shown in my time, and they establish for Mr. Paul the fame that properly belongs to a man who takes first rank in an important branch of horticulture. It is in a good competition that one can best judge of the merits of such productions; and there they stood apart from all others by their noble excellence, though competing with them were several superb collections. One of the best of the secondary groups was a grand twelve from Mr. Kirtland, of Albion Nursery, Stock Newington. Other groups came from Mr. W. Cutbush, junior, of Barnet; M. G. Wheeler, of Regent's Park; and Mr. Bartlett, of Hammersmith. Conspicuous amongst these, both by their fine qualities and distinct colours, were the following: Princess Mary of Cambridge, Charles Dickens, Van Speyke, Vunxhaak, Sir Henry Havelock, Grandeur à Merveille, Feruck Khan, Blondin, Baron Von Tuyl, Koh-i-noor (the samples of this were well coloured), Snowball, Mont Blanc, Grand Lilas, Queen of the Netherlands, Ida (the best yellow, and very good this season), Princess Helena (a fine white), Orondates, Mimosa, Hady, Duc de Malakoff, Macaulay, Robert Seiger, Lady Sale (the last two remarkably rich in colour), Florence Nightingale, Von Seiller, La Grandesse, La Dame du Lac (superb when it has been out some time), Solfaterre, Lord Wellington, Norma, Alba supersissima (one of the best whites, and not much known), Blocksberg, Reine Blanche, Honneur d'Overveen. Tulips were largely and finely shown by Mr. Paul, and there were contributions from Mr. Kirtland, who was 1st in the class for eighteen, Mr. Cutbush, of Barnet, 2nd eighteen, and Mr. Burley, of Albert Nursery, Pembridge Place, Bayswater. The last-named exhibitor had in his collection some new varieties of considerable merit, and about which some remarks will be made shortly. Very conspicuous in the collection of tulips were the following: Vermilion Brilliant, Thomas Moore, Archduch d'Autriche, Couleur Cardinal, Bride of Haarlem, Canary Brd, White and Yellow Pottebakker, Duchesse de Parma, Jagt Van Delft, La Majestueuse, Molière, Proserpine, Queen of Violets, Queen Victoria, Brutus, Drapeau de France, Golden Prince, La Laitière, Luna, Paul Moreelse, Imperator Rubrorum. All the foregoing are good in form and habit, and eminently effective in colouring. As for the doubles, very few of course were shown; the fact is, they are not fit for show, but nevertheless are tremendously showy. The best were yellow and red Tournsol and double Duc Van Tol. In Mr. Paul's grand group of eighteen, the following were noticeable for their fine characters: Keizer Kroon, Vermilion Brilliant, Fabiola, Couleur Cardinal, Globe de Rigaut, White Pottebakker, Roi Pepin, Van der Neer, Proserpine. Perhaps a more select nine cannot be found in the catalogues. In the tent there was a delightful bank of Lilies of the Valley, and the usual difference of character amongst them. Mr. Wm. Paul put up a great lot, which were at once remarkable for profusion of flowers and paucity of leaves. Mr. Cutbush, of Barnet, put up a nice six, which were nearly in the style of Mr. Paul's, but rather better as to leaves, and perhaps the flowers fewer. Another half-dozen came from Mr. Todman, who never exhibits a second-rate thing. These were quite leafy, and certainly were less abundant in flowers than those from Mr. Paul and Mr. Cutbush. I did not notice the decision of the judges; but I am quite sure, if I had judged them, I should have placed Todman first in the six class, for lilies of the valley consisting of flowers only have really a starved and hink appearance; every fruss of flowers should have its half-embracing leaf to give it the charm that in this plant, is, when fully developed, without equal for grace and purity. Of course you are all aware that hard forcing will bring up the flowers before the leaves; I conclude, from the aspects of these three collections, that Mr. Paul potted his bulbs late, and made up for lost time by pushing them quickly. To force the lily of the valley requires about as much judgment as diplomatizing with King Theodora the Shiny Abyssinian, who clings to the obsolete idea that nature makes ambassadors that kings may cut their heads off. I had no time to make notes on the Narcissus, but I remember that Mr. Paul very nearly spoilt his glorious bank of flowers by putting them in the rear of the tulips, for the two classes of yellows seen from the end of the bank of hyacinths were somewhat of a muddle, and I remember also that Queen of the Yellows was the most defective of them all, and one that we shall have to grow a lot of next year for the plunging system.

ROSES.—The bank of roses from Mr. William Paul was quite on a par with his hyacinths. In taking to a new love he has not discarded an old one, though, to speak the sober truth, there is no such thing as an old

love, for while love lasts the subjects and objects of it are ever new and ever young. Witness these roses; why, they were worth seeing for their foliage, to say nothing of the flowers. They were, in fact, as good examples of forcing as I can call to mind in connection with exhibitions any time for fifteen years past; for what a season has this been! The following were amongst them: Niphotos, Parmentier, Maurice Bernardin, Celine Forestier (colour this time primrose and buff), Alba Rosea, Achille Gonod, Le Rhone (very fine and admirably done), Maréchal Niel (pale primrose), Dr. Andry, President, Sénateur Vaisse, Elizabeth Vigneron (one of the most effective in the group), Rev. H. Dombraïn (not out, and looking as if forcing was not good for it), *Cœur de Léon* (extra fine, and being new worth special notice for its bold appearance and fine quality; in shape it is first-rate, and as double as need be; the colour is crimson, shaded with purple approximating to magenta colour; the foliage is wax-like, dark green, large and handsome), Madame Villermoz, Madame Damaizin, Madame de Stella, Madame Victor Verdier, Glory of Waltham, Madame Herman Stenger, Kate-Hausberg, Madame Alfred de Rougemont (not quite out), Paul de la Meilleray, Comtesse Ouvaroff, Souvenir d'un Ami, Marguerite St. Amand (not quite out).

MISCELLANEOUS FLOWERS.—There were some fine specimen azaleas, camellias, and other hard-wooded plants; but the most attractive feature after hyacinths, tulips, and roses, was the bank of Cyclamens. And here Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, put up such a dozen as are but rarely seen. They were of all colours, from rich silky carmine to the purest white; but their grand excellences were in the richness of the leafage spreading over the sides of the pots, and the peculiar attitude of the flowers, standing up on stiff foot-stalks with peculiar distinctness and nobility. We have had Mr. Gordon's practice laid before us; we ought now to hear from Mr. Wiggins how he managed to hit the mark so wonderfully with these cyclamens. For these our able friend of Isleworth took deservedly the small silver medal. Messrs. E. G. Henderson had the bronze medal for twelve, and they exhibited also a collection according to good use and wont; Mr. Todman had the small bronze medal for a nice twelve. Close beside these was a fine lot of Primula prenitens, and there again Mr. Wiggins led the way with a glorious lot. I found that a silver crown-piece was only like a spot when put upon the face of one of these flowers, though as a rule a crown-piece is a good standard for size. The colours were pure white and deep rich crimson. The silver medal was awarded them most justly; and the exhibitor appended a card to inform all whom it might concern, that the seed was obtained of Mr. B. S. Williams. Mr. Todman put up a nice twelve, and Mr. G. Wheeler ditto. Cinerarias were scarce. Messrs. Dobson and Son, of Isleworth, put up a pretty group of eight, comprising Lady Theodore Grosvenor (the finest blue-edged flower yet shown), Duke of Cambridge, John Spencer (a fine crimson self), and Admiration. A pretty group of six Azaleas from Mr. G. Wheeler were admirable models of the style of plants amateurs should aim at obtaining for conservatory decoration: they were about two feet high and the same through, not severely trained, rich in colour, yet with some bits of green visible. The varieties were Rutherfordii, Roi Léopold, Cheloni, Admiration, Madame A. Verschaefelt, Extrane. Mr. William Paul put up twelve Camellias, all good. The names were Prince de Canino, Il 22 maize, Eximia, Archduchesse Maria, Lavinia Maggi, Vicomte de Nieupert, Ochroleuca, Belle Jeanette, Rubescens, Fimbriata, Mathotiana, Princess Clothilde. Mr. Bartlett, of Shaftesbury Road, Hammersmith, presented a beautiful group of miscellaneous plants, and some well-furnished baskets of flowers. The principal subjects were Cinerarias, Tulips, Spirea Japonica (admirably done), Kalmia latifolia, Azaleas, Deutzas, Primulas, Azalea obtusa. Mr. Cutbush, of Barnet, presented a superb group of pyramid Mignonettes with a standard mignonette in the midst. The pyramids were two feet high and about the same through at the base; the standard was two and a half feet high, and not so full of flowers as the pyramids. From the same, beautiful little trees of Prunus sinensis alba fl. pl., covered with white rosettes, and plenty of green leaves. Mr. Bull, of King's Road, Chelsea, put up a group of the very showy Imantophyllum miniatum, which deserves to be more generally diffused than it is, for it is easy to do, and makes a delightful change from the ordinary run of flowers obtainable at this time of year. From the same, an extra large and well-berried Aucuba of the common variegated sort, the tree about five feet high and as much through. Mr. B. S. Williams, of Victoria Nursery, Holloway, presented a group of noble plants, comprising Yucca aloifolia variegata, Dracæna australis latifolia, Azalea Triumphans (gorgeously rich in colour); Cordyline indivisa, Eriostemon pulchellum, Genetyllis fuchsoides, Chamærops humilis. But we are getting away from flowers now, and therefore must close the paragraph. The best specimen orchid in the show was a piece of Dendrobium from Mr. Burley, of Bayswater.

NOVELTIES were contributed in considerable numbers for so early a period of the year. Mr. B. S. Williams, of Holloway, presented *Pandanus Porteusii*: the habit of this plant is slender, the leaves are sharply serrated, and there is a row of spines on the midrib. *Amaryllis Ixion*: fine deep vermilion, with crimson streaks. *Philodendron bipinnatifidum*: the leaf small for the genus, and elegantly but less deeply cut than usual, in fact, looking much like the leaf of an aralia. *Caladium Duc Adolphe de Nassau*: the leaves small, centre dull red, with rich crimson veins; the margin green, with white spots. *Ananassa Porteusii*: the leaves elegantly striped, but inferior to the variegated pine commonly cultivated. *Odontoglossum maculatum*: a very curious flower, the petals set out like a pair of wings; the colour indeterminate yellow, with dull indeterminate brown spots at the base of the petals and on the deltoid lip. Also a new Gymnogramma, with a not very prepossessing appearance, much covered with gray meal. From Mr. W. Bull, King's Road, Chelsea, *Aralia crassifolia picta*: a fish-bone aralia, the leaves very long and narrow, and set on the stem at an angle of 45°, like the ribs of an umbrella slightly expanded; these leaves are dark green, with brown stripe up the centre, and a bright green spot at the base of every one of the triangular teeth which beset them on the edges. *Aralia spatulata*: like the last, but minus stripe and spots. *Agave macrocartha*: a good small greenhouse kind, the leaves glaucous and formidably armed. *Rogeria hybrida*: a good example of this beautiful but scarce shrub, with a pretty panicle of its pink flowers. *Phajus grandifolius, fol. var.*: a veritable variegated-leaved orchid, one of the oldest in cultivation in the newest imaginable dress: the variegation consists of bands and lines of sulphur cream in two or three shades; it is as good in respect of variegation as the variegated Aspidistra lurida. A standard male Aneuba from the same attracted the attention of practical men, causing water in the mouth to some who had counted on it twelve heads of flower-buds, only two or three of which were open: pollen enough there to fertilize a hundred

big trees if economically disposed of. *Cypripedium concolor*, *Cypripedium Dayanum*, *Cypripedium hirsutissimum*, *Cypripedium Lowii*, *Odontoglossum gloriosa*: these new and scarce orchids were well shown. We need not describe them, as it is but recently they have been before us as new plants. But for the lovely *Odontoglossum Alexandra* a word must be said. It is of miniature growth, specimens in 51 sized pots producing flowers freely, and in a batch of a dozen plants not two were alike. The two best were a pure white, the flowers of which are a trifle larger than the average, and a white with curious spots, looking as if stencilled in a most artful and pretty manner. This is pre-eminently a lady's orchid. From Messrs. E. G. Henderson and Son, St. John's Wood, examples of the new bedding plant *Pyrethrum Golden Feather*, the leafage of which is a clear sulphur-yellow shading to a sulphur green. This must prove valuable. Of course the flowers are white, and perhaps they may have to be picked off. How valuable it would be if the flowers were the same colour as the leaves, or even a gold yellow! but to hope for such a thing is foolish. From the same a few new tricolor-leaved geraniums. *Ingham Beauty* has some leaves dark green, with narrow amber-brown zigzag zone; others clear bright yellow, with green disc and zigzag zone, varying from chestnut to vermilion: the highly coloured leaves are so highly coloured that probably they have not in that respect their equals. *Timworth Pet* has a very broad chestnut and pink-red zone and yellow edge; in quality middling. *Emma Cheere* has a bright green disc, lemon-yellow edge, and a fine chestnut and vermilion zone; first rate. *Ada Mann*: small leaves, the zone wholly red, margin sulphur-colour, disc divided into rays of pale green and pale yellow. *Annie Paget*: zone varying from brightest vermilion to dull red, margin sulphur, disc barred green and sulphur. From Mr. Watson, of St. Alban's, a few tricolors. *Mrs. Dix*: yellow edge, olive and bronze zone, breaking into bold bars of clear brick-red (the red of wet bricks), the disc dull green: this is superb in every respect, the leaves round and flat, the plant compact, dwarf, and dense, covering a large extent of surface; the best new tricolor in the show. *Annie Merry*: diminutive and pretty, edge creamy, with faint wash of pink, zone varying from dark amber to fiery red, disc dull green: the young leaves are wholly sulphur-colour, with bright red zones. *Miss Watson*: a robust habited plant, apparently not shown in proper condition, as the old leaves were pale and washy as if much the worse for the winter; the new growth superbly coloured with deep red and chestnut zone, and sulphur edge; the leaves are rather too convex to show their colours well. Messrs. Jackson and Son, of Kingston, sent a new *Cattleya*, with flowers of a clear lilac blush, the lip tipped clear buff; the plant has ugly elongated pseudo-bulbs. Mr. Wiggins of Isleworth had a superb *Cattleya*, with clear pale lilac sepals and petals, the lip richly coloured in front intense velvety purplish carmine. From Mr. R. Marcham, gardener to E. Oates, Esq., Hanwell, *Cineraria Madame de Bernus*, a fine, large, flat flower, with broad margin of violet-blue, shading inwards to strong rosy purple, pure white ring, and dark disc; first-rate. Also *Cineraria A. de Bernus*, a good pure purple self. From Mr. Cruikshank, gardener to J. Lloyd, Esq., Langlebury, *Verbena Beauty of Langlebury*, a very superior flower, of the striped class. The flower and truss are of good size, the ground white, each petal has a broad stripe of clear lilac. If this does not become famous in some way or other, perhaps as a better, I shall question if I know how to distinguish a good verbena from a bad one.

FRUIT.—Remark was made above on a collection of fruit in the tent. It consisted of apples and pears only, in an admirable state of preservation, and in some instances remarkable for size and colour. These came from Mr. Ford, gardener to W. E. Hubbard, Esq., St. Leonard's Lodge, Horsham. As a list of these fruits shown in good condition at this time of year must be valuable, I here present it: Of apples there were Green Pearmain, Holland Pippin, Blenheim Orange, Claygate Pearmain, Norfolk Beefing, remarkable in colour; French Crah, Ashbridge's Pine, Wadhurst Pippin very handsome; Leppard's Seedling, small, round, lemon yellow; Red Pearmain, Scarlet Nonpariel, No. 3, medium, conical, yellow, pale crimson on cheek; No. 2, neat, round, yellow streaked red; Yellow Newtown, almost egg-shaped, clear yellow; Adams's Pearmain, Farm Gardens, small, round, richly striped deep red, very showy, and well adapted for decorative purposes; Poor Man's Profit, Gilliflower, not a good sample, being under-sized, but the colour good; No. 1, a small yellow rather pretty fruit; Minchall Crah, Royal Russet, London Pippin, Ribston Pippin, so highly coloured that all the fruit-growers who caught sight of the ticket took care to handle the fruit to satisfy themselves, but they found it was the true Ribston; Hangdown, medium sized, oval, yellow, with a few red streaks; Treadcroft's Seedling, medium, round, yellow; St. Leonard's Seedling, small, dull green and dull red with much dull russet, an ugly fruit—it ought to be first-rate to the palate to make amends for its offence to the eye; Edmund Jupp, small yellow; ReINETTE Grise, Cockle Pippin, First and Last, a nice small round apple, like Scarlet Nonpariel; Forge. Of pears the sorts were March Bergamot, Easter Beurré, and Uvedale's St. Germain. Though it is not the rule to class potatoes with fruits, we may do so for once, and add here that Mr. Ford showed good samples of Ford's Red Robin, a good white-fleshed late-keeping potato; Pink Eye Kidney, Late Red, very ugly, keeps well; Prince of Wales, a good productive potato; Maiden's Blush, large irregular semi-kidney, the colour drab, with bars and patches of pale red; Red Regent, a bad-flavoured but highly productive sort. S. H.

MESSRS. CUTBUSH & SON'S EXHIBITION OF SPRING FLOWERS IN THE CRYSTAL PALACE.

Messrs. Cutbush and Son, of the Highgate Nurseries, are repeating the experiment of last year by an exhibition of spring flowers in the Crystal Palace. And a very pretty exhibition this is, occupying the northern end of the nave beyond the great orchestra, where a long table, divided by a green baize partition, is occupied on one side with hyacinths and tulips, and on the other with a mixture of all the most attractive subjects proper to the season. We shall present some collective notes on hyacinths and tulips shortly, the result of recent inspections at various exhibitions; so for the present we may say that Messrs. Cutbush ably sustain their well-earned fame as cultivators of the hyacinth in the display at the Crystal Palace. Lovers of this flower will find it an agreeable pastime to visit the Palace early in the day, and make up their books for next autumn's purchases according to their own likings and estimates of merit. The exhibition will continue till April 6th (Saturday next), and there is therefore plenty of time at command for it. Now we beg of those of our readers who pay a visit to this exhibition to notice the great difference between the two sides of the long table. Take the hyacinth side

first; it is charming. There are fine spikes, fine colours: all are as fresh as if carved out of auroras and the splendour of dying dolphins (you know the fable). Now go to the other side, and the mixture beats the hyacinths as effectually as a bird of paradise in beauty beats a London sparrow. How is it? The answer is *variety*, which should be sung in the style of Herr von Joel. In the mixture there are azaleas, dielytras, cyclamens, cyclamens, deutzias, camellias, primulas, Gammet pelargoniums, heaths, epacrises, roses, violets, narcissus—everything in fact that can be thought of in connection with spring flowers, with the exception of tree peonies and crown imperials; and these last are fine things for pots, as could be proved in a certain garden at the present moment. The two sides of the table are as different as they can be, and rightly so; but the difference is all in favour of the mixture, which offers a new charm at every step, whereas the hyacinths and tulips, with all their beauty, pall by their sameness before we can traverse their length. Judge for yourselves, friends, and learn therefrom how to arrange a show, and how to decorate a conservatory. S. H.

CALLS AT NURSERIES.

MR. B. S. WILLIAMS'S, HOLLOWAY.—The great conservatory is now very gay with azaleas, deutzias, hyacinths, early tulips, and other spring flowers. One advantage of a call at this nursery is that we cannot fail to become convinced that noble forms of vegetation have far higher claims on our regard than plants destitute of beauty of form, however splendid their colours. Compare a hyacinth with a palm, for example; but let it pass for no one can do it. Let it suffice that the bits of colour used in this beautiful house show with tenfold effect as illuminating agents to palms, ferns, cycads, and dracenas, of which there are here some glorious examples. In the orchid houses several good things are in bloom, and the fern houses offer a few nuts to crack to ardent petridologists.

MR. JOHN FRASER'S, LEA-BRIDGE ROAD.—The show-house is delightfully fresh and fragrant with heaths, epacrises, camellias, azaleas, hyacinths, primulas, and other spring flowers, judiciously mixed with fine foliage plants and little lively batches of such things as Tetrathecas, Chorozemas, Hedaromas, Leschenbaultias, and other hard-wooded plants that are in constant demand. In the houses devoted to forced roses there are fine blooms of President, Maréchal Niel, Souvenir d'un Ami, Canary, Niphotos, and many of the highly-coloured hybrid perennials.

MR. OUBRIDGE'S, STOKE NEWINGTON.—Enormous stocks of bulbs have lately been cleared out from the houses and pits, and the celebrated house of gauntlets, which have been supplying myriads of cut flowers since October last, is now quite gay with colour. Cinerarias are here well done, as are also fuchsias, deutzias, camellias, and all the round of popular bedders. A number of Ghent azaleas have been forced this season, and have turned out remarkably well, their colours being most acceptable to contrast with the prevailing colours of Azalea Indica, and of camellias, &c.

MESSRS. E. G. HENDERSON AND SON, ST. JOHN'S WOOD.—The great collection of hardy herbaceous plants, comprising some six thousand species and varieties, is now recovering from the deadness of its winter aspect, and offers us many of the bright colours of spring. A considerable number of good things are in flower, and collectors may quickly determine what are the best subjects for a good display in the months of March and April. There is here a good collection of Aquilegias, which are as the humming-birds of the flower world, so beautiful that it is absurd to attempt to describe them. Let the visitor ask for *A.erulea* or *A.spectabilis*, and then judge if any man ought to dare attempt to describe them. In the houses you may find everything from the rarest orchid to sixpenny bedding plants, and in the majority of instances more stock than there would appear to be any market for; but there is a market, and the cartloads that go out explain the vast activity within. The glory of the place is the tricolor geranium house. It is a favour to be admitted to this, and visitors desirous of entry must ask at the office for permission. Whether permission is worth seeking may be best considered after a careful perusal of the "Arabian Nights;" for all the pavements of gems and gorgeous designs in mosaic and jewellery therein described or alluded to are outdone in the leaves of the tricolors. Go and see, and having seen, believe. S. H.

COTTAGE GARDEN EXHIBITIONS.

Vegetable and flower shows for the poor are by no means uncommon in this country, and there can be no doubt if they were still more general, and more generously patronised by the wealthy, they would do much towards improving both morally and intellectually the condition of the artisan and the agricultural labourer. However, so satisfied am I, from what I have seen of the working of such institutions, that it would do so, that I cannot let an opportunity which now presents itself pass by without giving my testimony in favour of their more general adoption, whether in populous manufacturing towns or those smaller towns, villages, and hamlets that are more favourably situated for carrying on the work of a garden. In every case a suitable set of rules is easily compiled by those who are acquainted with the local requirements of the place and the people; and in respect of other matters, there are few preliminary difficulties. In any district where there is anything like a labouring population, the thing is to be done, if a few intelligent gardeners can be induced to undertake the task, with the sanction and support of their employers, the clergy, and such other persons of influence as can be induced to help. There is no reason why every small town should not have its annual show; and the combination of two or three (or more) adjoining villages might do the same. Under circumstances similar to the last it was, when holding a situation in the county of Sussex, that I was called upon by my then worthy and now lamented employer to take an active part in the management of a cottagers' show, and the impressions of utility it made upon my mind have never left me. Supported as we were by a generous public, and a perfect unanimity of opinion amongst the workers, we lived to see our efforts to do good appreciated both by those who supported us and those for whose benefit we laboured.

But my object now is to give the reader the benefit of my experience, as gathered from having taken a part in the management of a cottagers' show. Not that I have much to relate, but what little I know may be the means of preventing others from committing mistakes generally made when inexperienced people set to work without anything to guide them. And first let me say, in framing a set of rules, do not be guided in any way by the rules of another society; the only safe guide is to frame them according to local circumstances and influences, as what may be applicable

in one instance will be totally unsuitable in another. Take as an instance two of the villages in the county in which I laboured, under the famous Southdown Hills. Many of the cottagers living close under the hills could compete in the point of earliness with a nobleman's walled garden, when those living a mile or two miles farther out from the hills would be quite a fortnight later, and consequently would have no chance when competing by the side of their neighbours. The cottagers knew all about this, and until a provision was made for those favoured by their sheltered position apart from the others there was a general discontent. The cottagers of the late districts complained that they were not fairly dealt with; that as regards the competition there was nothing to stimulate them to take a pride in the produce of their gardens, and there was a gradual falling off of entries, until the two districts had distinct classes to exhibit in. I have merely mentioned this circumstance to support me in the assertion, that it is unwise to be guided by the rules of any other society, and similar circumstances will very possibly happen to other places, if not in the same way, in some other details. Care too should be exercised in awarding prizes to such subjects as are most generally grown in the neighbourhood, not forgetting that they should be useful subjects either for sale or for the consumption of the cottager's family; and prizes should be only given to such vegetables as may be considered in season in a cottager's garden. For instance, the offering of prizes for celery in June is a mistake. The offering of such unseasonable prizes is all very well if you want to try the skill of the exhibitors; but my idea is that they should devote their time and skill to the production of more profitable subjects, that would be likely to fill the pot and assuage the hunger of a toiling family. Not that I would deprive even the common labourer of such relishable subjects; but I do not like to see them devoting time to crops that are not necessary for their own table, or that are out of season; for the time and manure, &c., spent in growing a bit of early celery for a show would suffice to produce a sack of good potatoes. In framing rules, specific information should be given as to quantities and numbers. Such terms as "dish of peas," and "bunch of turnips," are too vague for the comprehension of the majority of cottagers; and if they have nothing to refer to to guide them, the chances are that on the morning of the show the committee will find they are glutted with double the quantity required to enable the judges to form their opinions. It is also very essential to state distinctly whether the roots of such vegetables as carrots and turnips should be washed previous to being shown, or the neglect of this will probably cause a disfigurement in the various lots, as some will bring them cleanly washed and trimmed, while others do neither. As a matter of course, I am in favour of washing—in fact, in favour of showing everything clean and perfect, so that it can be handled by the judges, and be seen by the visitors in its true colour as if already on the table.

From what I have learnt from personal contact with the subject, as regards the amount to be given in prizes, I feel satisfied that it is not strictly necessary for the good of the cause to give high prizes at all; I would rather increase the number, as a couple of pounds distributed in six prizes will give more satisfaction to the majority of exhibitors (for whom alone we labour) than when only divided into four. In this matter I am partly assuming that the funds at disposal are not large, which unfortunately is too often the case. But as a point to better illustrate my meaning, I will say that we have £2 to devote to early kidney potatoes. Now the satisfaction amongst those who exhibit will be greater if there are six prize-takers instead of four, even if the lowest should only get half-a-crown. The same remarks will apply to such things as cabbage, peas, and beans, in fact, to anything that is universally grown in the cottager's garden. It is simply absurd to commend anything or any one of them; they don't understand commendations unless they are explained and illustrated by the coin of the realm, or something equivalent thereto.

In offering a piece of advice to those who may be called upon to act as judges at these shows, I hope I shall not be thought presumptuous, as the remark I have to make might at least be useful to some one. It is this: in certain classes, such as potatoes for instance, where there are, or ought to be, six prizes at their disposal, and competition rather strong, there is no better way to overcome any difficulty that may arise as to the best than to fix a certain figure as the standard, say ten. Well, ten being the standard, that number should be placed upon the best lot, and the next best should be nine, and so on through the whole lot, affixing the figure to each, until all the prizes are awarded. After trying various means to make the work of judging as simple as possible, I have found this the best.

An important matter in connection with cottagers' shows is the giving of prizes for the best cultivated gardens. This is an essential feature in all country places, but very few, if any, that have not taken part in their management can understand its correct value. Having seen the beneficial effect of the annual inspection, and the industrious habits it creates, and the sort of manly pride it engenders in the minds of those who enter the list of competitors, I can speak of its utility with the greatest confidence, to say nothing of the pleasure with which I used to look forward to and enjoy it when going with a neighbour the yearly round of inspection. It was a pleasure to visit these honest country people, and to listen to minute details of how this crop had succeeded beyond their expectations, and how they had failed in another direction notwithstanding the care they had bestowed, and how they found ample amusement in their gardens on moonlight nights, which formerly they used to spend at the beerhouse. Not infrequently such conversations would lead them to detail their sorrows and their pleasures as connected with their every-day life, and when a willing ear is given, and some interest shown in their welfare, it is astonishing how soon confidence is inspired, and a degree of truthful innocence shown, that can only be met with where the general class of inhabitants do not mix up with the more advanced portion of the world. But be it remembered, to secure their confidence they must know something of you and your whereabouts, or they will be found about the most reserved class of people upon this earth. This shows, then, that if any attempt is made to improve the condition of the English labourer (or rather, I ought to say, the agricultural part of them), the first step should be to win their confidence and to learn from them their views of their lot in life, and their relations to things and persons around them. This done, and a willingness displayed on the part of those whose duty it should be to assist them, as a proof that they are in earnest, we shall find that the agricultural labourer is not exactly so stolid and unimpressible a being as the public are taught to regard him. Nay, some acquaintance with the class will enable us to single out many a bright example of intellectual skill, combined with a strong mind, industrious habits, and the strict observance of a pure morality. Such men as those I have heard complain bitterly of the

agricultural labourer being considered low in the scale of social life, and well they may, for whoever speaks to them assumes a tone that must be painful to an independent mind. That there are some of an opposite turn of mind I do not pretend to deny, but I have never yet met with any class of men, of whatever calling, but there were some black sheep amongst them.

To improve the condition of the agricultural labourer, the establishment of cottagers' shows is a step in the right direction. But there are certain individuals who are dissatisfied because they do not effect at once a complete reformation in the habits of all those for whose benefit they are intended. But that is expecting too much, especially when we consider the small amount of influence brought to bear upon the work. For remember, the sum of fifteen shillings or a pound, which is the highest prize generally given for the best kept garden, is not much to induce a man to give up old practices and associates. In my estimation, it is good work if only a few can be induced to do so, and the example of these few will do a great deal of good in the conduct of others, if only a moderate amount of patience is exercised, and time given for them to learn the advantages that are to be derived by following in the footsteps of those who set them a good example. But my space is running out, and I must proceed to more practical details that yet remain to be spoken of.

I would enlist the reader's attention while I advocate that both cut flowers and plants in pots should be added to vegetables and roots, and liberal prizes given, as plants and flowers constitute a grand feature in a cottagers' show. The amount of jocular rivalry exhibited amongst the fair sex is somewhat amusing at these shows, as the words "I will beat you next year" are often heard amongst them. It was a feature of the rules of the society I have above alluded to, that when inspecting the gardens we were also to inspect the lower rooms of the different cottages comprised in the competition. This proved to be of some assistance in determining the real merits of the case, as it gave the inspectors an opportunity to judge of the habits of both man and wife; and generally speaking, where there was a well-kept garden the house was equally well ordered, and in many cases scrupulously clean, an allowance always being made where there was a young family. We can all understand the humanizing influence of a clean well-ordered cottage when a man returns from his daily labour—how it gives a fresh stimulus to increased activity, and makes him doubly anxious that nothing on his part should be wanting to maintain the same harmony of action. Understanding this, then, is it not surprising that more extended efforts are not made to see these men better housed and altogether better paid? No wonder that in every county there is a scarcity of farm labourers; and this state of things must last until dire necessity compels the employers to check the continual stream of young men who are leaving the plough and the sickle because the wages are not sufficient to induce them to stay. There is much, very much, to be done to improve the moral and social condition of these people, by instituting societies similar to that I am now advocating. But all those who make an effort to do so should remember that they are Englishmen, and therefore very susceptible of being driven to undertake anything that does not bear upon the face of it pretty strong evidence that it will ultimately be the means of benefiting them. Therefore, in any attempt that is made to assist them, they should be given to understand for whose benefit the thing is started, and he left to take their own course of action; for the better informed amongst them will undoubtedly embrace it. Seeing this, the less hopeful ones will soon follow, and as they begin to understand its purpose they will appreciate in a grateful manner all that is done for them.

Such is my experience of the working of a cottagers' society, and if these remarks should prove interesting to only a few readers, I shall be abundantly rewarded, as it is a subject about which I feel some interest.

J. C. CLARKE.

VENTILATION OF VINERY BORDERS.

The instructions usually given for the formation of vinery borders never include the means of providing a supply of pure air to the roots. You will not find one vinery in fifty with any provision whatever made for an element so essential in producing richly coloured, highly flavoured fruit; and as the mode of applying it is extremely simple, let me attempt to explain a cheap plan for the consideration of any of your readers who may be altering their borders or forming new ones. I will suppose that the space has been excavated to the required depth, and, as the first thing to be attended to in our uncertain climate, drained in the most thorough manner. Whether hotted with concrete or not, before any stones are put down, let 4-inch fireclay pipes (or anything better about their diameter) be placed upright close to the outer edge along the front of the border, say at distances of 5 ft., fitting into others with a "knee" or bend. With the latter will be connected common field pipes, running towards the vinery, and at right angles from the joints over the whole border, communicating with the interior border of the house, through which bring up neat pipes to correspond with those in front outside. The upright ones (outside and in) should project slightly above the level of the border, and be fitted with valves or a simple cap, to be opened or shut at pleasure. If done in this way the cost is very trifling. A bed of clean stones broken small is next laid down, then the previously prepared soil, and the border is complete. With such a simple contrivance an abundant supply of pure air can as often as required be furnished to the roots, a thing as necessary to the health of fruit-bearing plants as water itself. But beside this, when the sun shines and the upper sashes of the houses are opened, in two minutes the caps are taken off, and a gentle stream of warm air passes at once under all parts of the border. Before sunset the whole are again shut, and the heat thus imparted to the soil is kept there, thus raising the temperature of the border by ten or twelve degrees for whole months together. Of the effects on vines, peaches, and figs I saw the best possible proof last season at a place in the south of Scotland, where with ordinary care and attention, Muscats and other fine grapes are grown, as I was informed, "as easily as potatoes;" and certainly for regularity, size of bunch and berry, and delicious flavour, the heavy crops there were matchless. The intelligent head of the establishment just remarked, "there is no secret about it; utilize what Providence provides, and let every grower of grapes take advantage of this by a thoroughly ventilated border."—*Field*.

The literary style of asking for a slice of ham at dinner is, "I'll thank you for an elegant extract from Bacon." The author has been exiled to Ham, and wishes he had, by silence, saved his bacon.

COLLECTING AND SELECTING.

Amateur cultivators, who are not bound hand and foot to the delusions of the bedding system, find exhaustless amusement in collecting representatives of various families of plants adapted to the means at their command for keeping and cultivating them. Where the bedding system reigns in its full severity, this is impossible, for greenhouses, frames, and nursery beds are all filled to overflowing with the monotonous round of subjects that are to be planted in May, that are to bloom in July, that are to be ragged in September, and that are to be housed in October, leaving the places they occupied empty and cold till May returns again. Collecting allies horticultural recreation with botanical science, affords scope for the exercise of thought, and occasionally quickens inquiry and research; it instils into the mind a larger knowledge, and into the heart a warmer love of plants than is possible where the garden is kept as a place for a mere display of colour during three or four months of the whole year. It is next to impossible to avoid collecting when an interest has been created for certain forms of vegetation. The lover of ferns is always in want of certain species and varieties; the cultivator of succulents, of bulbs, of hardy herbaceous plants, of choice trees and shrubs, finds that his possessions are so many keys to the vegetable kingdom, and at every advance of knowledge accomplished by their aid, he learns how many more interesting and beautiful plants there are in the world which he has not yet obtained, and which he would rejoice to possess. Collecting is, in fact, an exciting pursuit, and we could sooner forgive a man for wasting his substance in riotous gardening, when this passion had seized him, than if he were under a geranium or verberna spell, revolving only amid half-a-dozen species of plants, and deriving no higher pleasure from his garden than repeating upon its surface the designs he is already tired of in carpets, chintzes, and wall-papers. For the public promenade, as for the great garden, where there is room for everything, and ample means to boot, good bedding is one of the necessities of the decorative part of horticulture; but in the small garden, which is like an extension of the drawing-room, or a sort of outdoor parlour, something more is wanted than daubs of yellow and red, which,

"Like the borealis race,
Flit ere you can point their place."

We want entertainment the whole year round, beauty for the eye, and with it fragrance, agreeable associations, variety, and something to engage and interest the mental faculty. In place of the scrubby evergreens that are tolerated—because the bedding, like the Dragon of Wantley, swallows up everything but itself—we ought to see in private gardens a considerable variety of the most beautiful shrubs and trees, deciduous and evergreen; the first so various in form and leafage, and many of them so magnificent when in flower; the second warm and rich in the depth of winter, making the place look like home, so that a glance from the windows neither chills nor repels, as must be the case when a person of any taste looks out upon a dreary parterre that is known to be of use only in the height of summer, when mere colour is least wanted, and when, in many cases, the family are away, and see nothing of it. And in the borders in advance of the trees and shrubs we should see mixtures of all kinds, spring flowers in abundance, and in all the delightful variety in which they may be obtained, the gems of the vegetable creation that appeal to the pleasantest memories, and in their subdued and refined colorings seem to be almost musical in their speaking prettiness. And for summer and autumn, and even for winter, the hardy plants comprise myriads of fine subjects, some showy enough even for a vulgar taste, but many more beautiful in the true sense of the word, with grace of form and delicate harmonies of tintings, and characters so individual, that every one deserves to have a history, and to have that history told to all admirers. And when winter comes again, the variegated-leaved and berry-bearing shrubs that are within the reach of English cultivators would suffice to effect an apparent change of climate. It is enough for us to be frozen to-day and roasted to-morrow in this wayward, changeable, ungenial, unfriendly clime; we need not make our gardens lugubrious to increase the horror; yet this we do, and only at rare intervals do we meet with examples of what English gardens might be in warmth, cheerfulness, richness, and variety, even in the very depth of such winters as make havoc of human lives. Our ten years' repetitions of such arguments as these may, for all we know, have somewhere produced an effect by this time; but whether there be results or not, we shall probably continue, as occasions offer, to direct the attention of our readers to the undeveloped resources of ornamental gardening in this country, and do our best to point out the several subjects that are best fitted to make our gardens worthy of the spirit and the means and intelligence of the English people.

We begun with remarks for collecting, yet we should hope that very few of our readers are devoted to the profitless task of indiscriminate gathering together of the members of any family of plants. It is not every member of the vegetable kingdom that is adapted for cultivation in gardens, and amongst the most beautiful and useful species and varieties some are better than others, and the wise man will, if possible, select the best and leave the rest to nature. As for ugly plants—and there are such—they are generally relegated to the botanists, which is a form of sarcasm founded on the too often professed admiration of would-be botanists for things that persons of taste find nothing in to admire. Far better than collecting is selecting, and in this amusement we are constantly endeavouring to assist our readers, by directing attention to the best species and varieties in the several classes of plants that are adapted for the embellishment of our gardens. Hardy plants would never perhaps have been at a discount, as they have been for many years past, if cultivators of them had taken care to sift out the best and toss the rest to limbo. No one, for example, amongst the uninitiated, would care to grow Michaelmas daisies, after having seen an ordinary mixture of them in an old-fashioned border, for a considerable proportion of the immense number of species entered in the books are rubbish, their ragged weedy look is completely matched by their miserable flowers; so of many other families, yet the true collector can pick out a few that perhaps are unparalleled for beauty, and if amateurs would grow only what is good, they might serve the cause of art in this direction; for good herbaceous plants, and indeed good shrubs, good bedders, recommend themselves when seen, and bring into good repute the classes they belong to. Those who grow ugly plants do harm to horticulture, and the very many ugly things that have been tolerated and that are tolerated in English gardens make it appear to the passing crowd that in geraniums, calceolarias, and verbenas alone are beauty and interest to be found.—*Floral World.*

AMONG THE TOMBS.

I have had a thorough treat this afternoon. Have you? What, have you been to a flower-show? No. Have you had a long ride with the missus, ay? No! Had a botanizing stroll along the hedges and ditches somewhere? No! Well, come then, Chitty, tell us what it is. Very well, I will in as few words as I can. I took the 1.13 train from Ludgate Hill to Bromley, expecting when I got there to find a conveyance to take me on to Knockholt. Not finding the conveyance ready, and learning further that I should have three hours to wait before I could go on, I took a stroll into Bromley churchyard in preference to walking about the town, for there is a great resemblance among fishmongers' shops, and bakers' shops, and linen-draper's shops, and shops of all sorts, in every part of the country, and it is rare that any new feature of interest presents itself in that style. But a churchyard anywhere, especially an old churchyard in the country, has at all times many features of interest. Not the least is the certainty that from these repositories of the dead the Great Redeemer will win for Himself immeasurable glory by the reclamation from decay and destruction every human body which has here been committed to the keeping of mother earth. Then, again, one often gathers from a single sentence inscribed upon the gravestone the whole history of the life, death, and character, making it a very interesting thought that one is walking among the remains of many who have occupied important and influential positions among their fellows while living. And, to my taste, a very interesting feature, more especially in old churchyards, is that one meets with mossy lichened stones, surpassing in the beautiful arrangement of the various mosses, and the exquisite tracery of the innumerable touches (so to speak) of the first growths of lichen, anything that the most finished skill of man can produce. Well, but what has all this to do with the treat you so thoroughly enjoyed? I'll tell you. Strolling round the churchyard, among other interesting monuments, the contemplation of which gave me much pleasure, I came upon two flat stones which presented a very startling and novel appearance. The inscriptions upon these two stones were all cut in Roman letters about an inch and a half in length, and every letter upon one stone, and the upper portion of the second, was beautifully embossed with moss of the brightest and liveliest green imaginable. For some yards before I came to them, I perceived every letter clearly defined, and standing up about three-sixteenths of an inch above the surface of the stone, like so many bright green velvet cushions. These cushions are the growth of several years, as you will perceive by the dates (I enclose an exact copy of each inscription), and are most favourably situated under the dense foliage of a horse-chesnut, which completely covers them, so that in the summer time I should think they hardly ever dry up, because, in addition to the close shelter of the umbrageous foliage, a close fence runs near to them, and in consequence they are not exposed to such draughts as would wither and dry up the beauty and greenness of their exquisite colouring and outline. Fortunately, there was not a single flaw in the tracery of either of them. Some sacrilegious foot had slightly scratched the slime of the un-inscribed part of the lowest stone, but not the slightest damage had been inflicted upon the integrity of the letters. Once more, for I really cannot get these moss letters out of my eye, let me say that they were as clearly defined as though they had been shaped in a mould, and turned out plump upon the surface of the stones. They were quite unique, and gave me more real pleasure than anything of the sort I have ever looked upon.

Another very old tombstone, on the opposite side of the ground, beautifully wrought, and having a skull at each corner, was mossed on three sides with the cushion moss, the moss intruding itself into those cavities in the skulls representing the eyes, ears, &c. The fourth side was nearly covered with sphagnum, the upper growths of which resembled miniature groups of Lombardy poplars, pushing their way upwards, and promising in a few years to occupy every portion of the surface. Isn't it a pity that you are banishing such sources of interest from your churchyards in the city of London? I entirely endorse the sentiments of "Passer-by," inserted in your widely circulated and useful magazine some time since, and I hope they will not be without their use, in connection with some similar remarks I have seen in the leading journal, in staying the progress of such abominable desecration.

MATTHEW THOMSON, ESQ.,
Of Maningham Lodge,
Yorkshire.
Died at Hastings, the 23rd
Day of September, 1847,
In the sixty-seventh
Year of his age,
And was buried beneath this stone.

ELIZABETH SARAH,
Widow of Matthew Thomson,
And daughter of the
Rev. William and Mary Atkinson,
Of Thorparch, Yorkshire.
Died in Dorset Place, London,
The 20th of June, 1859,
And was buried here.

Sacred
To the memory of
THOMAS CAREY PALMER,
Of Clay Hill, Beckenham,
And late of this Parish.
He died 24th of March, 1835,
Aged 57.
And of
ELIZABETH REBECCA PALMER,
His wife.
She died 9th February, 1856,
Aged 74.

The latter part of this inscription was not filled up cushion fashion, not having been cut so long as the first part, there has not been sufficient time; but every letter was beautifully inlaid with a perfect covering of the loveliest green, and if undisturbed will in a few more years present the same embossed appearance as the first part.

WILLIAM CHITTY.

ROSES AND ROSES.—No. IV.

I promised my friend to say a few words about some pot-roses he saw in my place two years ago, and which were brought forward in the "plunging system," and made a very beautiful display some time in advance of the flowering of roses in the open ground. Before I have done with roses this season, I hope to say something about pot-culture in general; but I intend now only to speak of these roses in particular. Two years previous to the said roses being potted, they were budded on short briars in a nursery piece, and were regularly pinched in their early growth, after the same rule that we pinch pear-trees, &c. As they were in strong soil, and the briars were young and established, they made a very great growth the first season. The next year they required but little pruning. They were in fact only slightly shortened in; but again they were pinched several times during the season. We used to go into the piece, and while a man worked with the fork to prick the ground over and throw out weeds, I went on with a knife to cut out suckers, and slightly shorten in strong growths, and pinch out flower-buds to get shoots instead. In the autumn of that year the best proportioned were taken up carefully, and potted in a mixture consisting of the top crust (crumbs) of a great heap of clay, good turfy loam, and hotbed manure not quite rotted to powder—rather fat in fact. The roots were slightly shortened, and the heads trimmed a little, but not hard pruned; and they were potted in pots of 8, 9, and 10 inches diameter, according to their size; and sometimes, owing to the roots being (nursery fashion) one-sided, we had to put the stems close to the sides of the pots. Well, they were all plunged to the rim in a bed of leaves, and taken very little notice of till the middle of April the next year. Then a great bed of long dung was made up *in the open air*; the bed two feet deep in a sheltered spot, in fact on the south side of an old hedge, consisting of plum, privet, and a mixture of such stuff, about fifteen feet high. When the bed was nicely warm, but at what precise temperature I cannot say (perhaps 60°), the pots were plunged in it nearly to their rims, and every night a few cans of water were plunged as well, and out of these cans those that wanted water were supplied next morning. They were never searched for maggot, they were never washed or dusted for fly, they were bright as new waxwork from the first leaves they pushed, and the young wood came thick as lead-pencils, with thumping flower-buds in plenty. As soon as the buds were showing fairly we began to help them with guano, but in a very rough way. I used to take a little out of the bag, and put about a tablespoonful into a two-gallon can every night when the cans were filled and placed on the plunge-bed. As soon as a few flowers were open the guano was discontinued, but plenty of water was given, and a few of the rather wiry-growing kinds were assisted by means of twigs and ties to carry their blooms nicely, but as a rule they held their flowers nobly, and took care of themselves. A few frosts occurred late in the season, but they were untouched; the hedge sheltered them, and the constantly-escaping warmth of the bed preserved about them a genial atmosphere. At the end of May there was a good show of flowers, and the bed was cold. They were then transferred to a sheltered fore-court, where a display of some sort is always required, and were there plunged to the rim; and they flowered freely till the end of June, and were then beginning to lose their looks through being under the shade of trees.

The next process consisted in removing them back to the plunge-bed, but before they were placed upon it they were slightly pruned and pinched, then plunged as before, without the aid of artificial heat, but with all the assistance of a cool and constantly-moist condition of their roots. Now guano was used again, and as fast as flower-buds appeared they were nipped out. By the end of September they were quite at rest, and were lifted out, and only just in time to prevent a second growth, for the roots were pushing into the plunge material, and a warm autumn would have renewed their activities. They were now carefully pruned with a view to the formation of handsome round heads. They were next shaken out, the roots moderately shortened in and repotted—some in the same pots they came out of, some in pots a size larger, and in every case an endeavour was made to get the stems in the centre, as they were now to be considered pot roses in the properest sense of the word. They were housed in a cool, clean, light pit, were fully exposed to the weather till Christmas, and were then placed in a large light pit on a bed of warm leaves, and they began to push nicely. About the middle of February they were placed in a



Pot Rose Coupe d'Hebé.

house with a low-span roof, the pots standing on a wooden floor over which was strewed a couple of inches of rotten hops. A service of 4-inch pipes kept this house at an average of 45° by night and 50° to 60° by day, according to weather. Very little air was given for some time, but as the season advanced air was admitted freely on fine days. A temperature of 70° was allowed sometimes, when the wind was in the east and the sun shone brightly, and syringing was practised daily. Once more, as soon as the flower-buds appeared, a pinch of guano was put in the water-can as before. In the month of April the house was as rich in leaves and flowers as any rose garden in July—richer, in fact, for roses properly forced are ten times more lovely in both leaf and bloom than the best that can be grown in the open air. The sorts included Teas, Perpetuals, and Bourbons; and I subjoin a picture of one of them, from a sketch made at the time they were at their best—several of them were sketched, in fact, because of their great beauty and the very simple manner in which they had been produced. If O P Q is

inclined to do this sort of thing, his first care should be to buy-in potted plants that have been kept in pits, and have never tasted heat, and as soon as they come home set to work to make up a bed to plunge them in. He may take his choice of plunging in the open air or under glass. If the most perfect beauty be desired, we must use glass for roses, for this rude elime smites their delicate cheeks too sharply, and it is only when sheltered that they become bright and fine in leaf and flower, without a stain or blemish.

S. H.

MY ORCHID HOUSE.—No. XII.

THE MILTONIA.

I do not intend, in the few words of praise that I shall bestow upon this truly magnificent genus, to assert that it should obtain a predominance over and above all the other orchidæ; but I think it ought to be more extensively cultivated, for it is worth the attention of the most fastidious. Upon questions of floral excellences, it certainly is by no means so easy to grow as some others, neither will it bear such rough-and-ready usage as some of the

commoner species and varieties of *Oncidiums*, *Stanhopeas*, and other orchidaceous plants that I could enumerate, were it either necessary or desirable to do so. What I mean by rough usage is, the species cannot be grown with the same degree of success in a low temperature, or in make-shift places—such as vineries or cucumber-houses, where they would have to submit more or less to the treatment required by the other occupants of the house—as they can in a house and temperature expressly devoted to the culture of these and other orchids. I should not recommend their culture being attempted without the advantages of a proper orchid-house, as it would in all probability only lead to disappointment. I do not say that the *Miltonia* cannot be grown anywhere but in an orchid-house, for I have grown some of the species in the pine-house, for that bears a very close approximation; but it is uphill work, and much best to confine the collection to hardier kinds; but when there are suitable places for growing them in, the extreme richness and beauty of the flowers are more than sufficient to repay every item of care that could be bestowed upon them. They have a remarkably dwarf and compact habit, and the flowers are thrown just sufficiently high above the foliage to show them off to the best advantage; and they are not flimsy with a washy appearance, like a common out-door annual—like some species grown in the orchid-house—and, moreover, are thought very grand, and considered of vast importance in the world comprised under the heading of these papers. To a novice I should say (and I care not who questions the soundness of the advice), get a good stock of *Miltonias*, bestow a little pains upon them, so that they receive suitable treatment, and there will be no disappointment in the amount of beauty they will furnish, and at the same time afford a pretty clear indication as to what stage of refinement as regards these matters the proprietor's mind has arrived at. The species comprising this genus grow capably in shallow baskets, for they do not require a great depth for the roots; but they are not suitable for suspending from the roof—they grow too close and compact for that purpose. The flowers could not be so readily seen as it is desirable they should be; they could, of course, be taken down from the roof, and put on the stage during the time the plants are in bloom. If grown in the ordinary flower-pot, which is as good a way as any, the pots should be filled to within a few inches of the level of the rim with large pieces of crock and a layer of small ones on the top, and the plant must be kept several inches above the level, say from three inches upwards, proportionate to the size of the pot and plant. I cannot too strongly urge the importance and necessity which exist for the base of the bulbs to be well elevated above the rim of the pot, to prevent the possibility of the least amount of stagnant moisture accumulating about them. A neglect of this precaution in potting the *Miltonia* is likely to result in a loss of a great part of the plants. I have tried several things for growing this genus in, and I find sphagnum suits it best. It favours the free development of the roots, which are rather fine and unable to penetrate a closer material so readily as the thick fleshy roots of some genera. In potting, the sphagnum should be pressed firmly about the roots, and as the plants have a very strong tendency to push out all the young growths in the same direction, this must be counterbalanced in each shift, or the plant will in a very few years get to one side of the pot, instead of the centre of the plant being in the middle. The only thing necessary is to bring the old part of the plant to the side, and thus keep the growing portion in the centre. As regards watering, great carefulness is required. Very little will satisfy its want through the winter; enough to keep the bulbs from shrivelling is all that is necessary, and sufficient only to keep the mass in a nice healthy condition, even when in full growth, will be enough. It should never through the summer get thoroughly dry or saturated; either extreme is decidedly injurious to the welfare of the plants. Syringing overhead should be avoided as much as possible, at all times. It is impossible to prevent a little water going over them when syringing the other plants, and it is not desirable to consider any one particular genus that requires rather peculiar treatment to the exclusion of all the others. The *Miltonias*, like the majority of orchidaceous plants, are propagated by division. The best time to do this is in the spring, immediately the young growth begins to push, but before they get too far advanced. A mean temperature of 65° through the resting season, and 75° to 85° through the like period of growth, will suit them. I think I have now said all that is necessary upon the culture of this beautiful genus, and at the same time I feel assured that the undermentioned species and varieties will, if they receive the treatment I have advised, thoroughly satisfy the cultivator that the amount of praise I have now meted out to it is by no means too much or undeserved.

M. candida is a splendid kind; the sepals and petals are yellow brown, with a pure white lip finely marked with pink. *M. Clowesii* is another fine species. *M. Morelli atrovirens* is a grand thing; sepals and petals purple, with a fine dark lip. *M. spectabilis* is a very good species; the sepals and petals are beautiful cream colour, with a large purple lip. There are also a few very good varieties of

Spectabilis that would be an acquisition to an extensive collection, but the four I have named would be enough for a small one.

GEORGE GORDON.

BEAUTY OF FORM IN THE FLOWER GARDEN.

Some of the best flower gardens in existence are annually embellished by plants of graceful and ornamental leafage, of which not one was to be seen in like positions half a dozen years ago. Of course everybody remembers when a flat-series of beds, with nothing more graceful or elegant in them than a mass of geraniums or verbenas, was considered the climax of successful flower-gardening; indeed, it is impossible to forget it, because that is the style that yet prevails in thousands of places to which a trace of this commendable taste for arranging verdant and graceful forms of leafage among the low-lying and brilliant flowers has not yet penetrated. The system of using plants distinguished by beauty of form (a higher beauty than that of colour, by the way) was first developed in continental gardens, and was much in vogue in Paris before we knew anything about it here. We were so much attached to loud colours, that nobody thought of introducing the system till Mr. Gibson first took it in hand at Battersea Park, and with a result with which most of our readers are probably familiar. And those who have not seen this display at Battersea cannot do better than pay it a visit some time during the coming summer or autumn, and they will probably confess that of all the garden scenes they have ever witnessed it is the most beautiful.

We may briefly describe it as a flower garden laid out in the irregular or gardenesque style, well sheltered and surrounded by a rising grove of trees, with many snug and receding bays here and there, where shade-loving subjects may find their wants supplied, and here and there sweeps of grass, dotted over with beds of the most diversified character, both as to shape and planting. There is an abundance of brilliant flowers of all kinds to be seen; but these are everywhere "set off" by a profusion of green and noble leafage: the eye, after being gladdened with colour, is soothed with the elegant verdure of arching Palm-leaves, and dwells with satisfaction on tropical foliage of all kinds, from large metallic-leaved *Caladiums* to tall *Castor-oils* and *Ferdinandias*, which have leaves of enormous size, and, growing to a considerable height, carry the eye up to the surrounding and intermingled trees. From the whole an impression is obtained which we might look for in vain from any flower garden of the ordinary type in which naught is to be seen but a spread of colour, as a rule, displayed in a tawdry and glaring way.

It needs but little consideration to discover the cause of the success of this mode of planting a flower garden. It is an approximation to nature's own plan of arranging vegetable beauty, whereas the ordinary one is in violent opposition to it. Among plants in a wild or untrammelled state the beauty of their colour is usually set in abundant green, and, even in the case of mountain and meadow plants of one kind that produce a wide blaze of purple or golden colour at one season, there is intermingled a spray of pointed grass and other leaves which tone down the mass, and quite separate it from the rude style of gardening that we deprecate.

But if we come to examine the most charming examples of our own indigenous or any other wild vegetation, we find that they are founded on flower and fern, trailer, shrub, and tree, sheltering, supporting, relieving, and beautifying each other, so that the whole array has an indefinite tone, and the mind is satisfied and delighted with the refreshing mystery of the arrangement. We may be attracted by the wide spread of purple on a heath or mountain, but if we go near and examine it in detail, we find that its most exquisite effect is by the side of a brook, where the long moss cushions itself beside it and the *Polypody* fronds peer forth from around the mass of heather. Everywhere we see nature judicious in the arrangement of her highest effects, setting them in clouds of verdant leafage, so that the eye is never palled, and monotony never produced—a state of things that it is highly desirable to attain as far as possible in the garden. It would not be wise to attempt its attainment by a literal copying of wild nature: that would not be creditable to the horticultural designer, and far from convenient. But the artist, while avoiding all literal rendering as base and useless in his compositions (which would not be compositions at all were they mere literal imitations), is still more careful not to outrage nature, and that too should be our plan. We may enjoy all the grace and verdure of the grove without making our gardens any the less manageable or convenient; but we may not with impunity, or with any hope of giving pleasure to the tasteful or educated eye, extract, so to speak, all the colour from our flowers and lay it down in unmitigated daubs. Such a course is too well calculated to give us all our pleasure at once, and make the garden as monotonous and unchangeable during its best season as the house-carpet; for, depend upon it, the first flush of flower on those beds is the highest beauty we shall see from them, and, no matter how long the months they continue in the selfsame state, there is none of the true and refreshing interest of the garden to be had from them. How are we to enjoy it then? By the culture of a tenfold greater number of plants in the first place (at present many flower gardens present but very few kinds), and by a tasteful arrangement and combination of the finer flowering plants with those of graceful habit, fine leafage, interesting associations, or distinct beauty, and by so arranging the garden and its plants that there may be a continuity of beauty and interest from the dawn of spring till the close of autumn. But in this essay we have only to deal with a portion of what is called the summer garden, and we will therefore glance through our catalogue and see what plants of fine foliage, graceful or peculiar leafage, may be used for the flower garden with good effect, taking hardy, tender, annual, biennial, or perennial plants as they come, and indicating the best way of raising each kind from seed.—*Carter's Vade Mecum*, 1867, Part I.

A CHEAP BAROMETER.—A countryman in the neighbourhood of York has discovered a natural barometer, being no other than a spider's web. When it is about to rain and he windy, the spider shortens considerably the last thread to which his web is suspended, and leaves it in this state while the weather remains variable. If the insect lengthens its thread, it will be fine, and the fineness may be guessed by the length they attain to. If the spider remains inactive, it is a sign of rain; if, on the contrary, it begins to work while it rains, it betokens a speedy change for the better. The spider alters his web every twenty-four hours, and if these alterations are made a little before sunset the night will be fine.

What is the difference between a tunnel and a speaking trumpet?—Why, the one is hollowed out, and the other is hollowed in.

Calendar.

WORK FOR WEEK COMMENCING MARCH 30.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—There cannot be too much vigilance now in keeping down weeds, hoeing between crops, earthing up peas and beans, and promoting growth by any other means that suggest themselves, such as top-dressings of soot and guano, &c. Our climate affords us but a short season, and it is our duty to make the very most of it.

BROCCOLIS to be sown in variety and quantity for use in autumn, winter, and next spring. Sow *Walcheren*, *Snow's Winter*, *Knight's Protecting*, *Dilcock's Bride*, and *Wilcove Late*. Others if needful, but these are first-rate.

CAULIFLOWERS may be planted out in southern and western districts, but in cold or damp places it is as yet too early, as if cold weather occurs many will be destroyed, and the rest will be crippled. Plants pretty strong in seed-pans will be greatly benefited by planting them out in frames on a slight heat, or they will do without it if in light rich soil, and carefully managed as to giving air, &c.

CELERY standing out will now begin to bolt, so to save some as late as possible, take up the remainder of the crop, and lay it in by the heels in a shady corner, or pack it in dry sand in a shed till wanted. Plants in seed-pans in a forward state to be pricked out on a bed over fermenting material giving a gentle heat; the surface soil to be light and rich. In the absence of any source of heat, make a bed of dung and leaf-mould on a hard foundation; put a frame over, and prick out the plants in it.

LETTUCE to be pricked out from seed-pans as advised for celery and cauliflower. The winter bed may now be thinned out, putting the plants on well-manured ground, but leaving some in the bed to supply a few small hearts earlier than those planted out will do.

ONIONS.—Sow main crop.

PEAS.—Sow succession crops, and earth up and stake any that are ready.

BEANS to be earthed up; successions to be sown. Sow none but *Windsor* now, if quality is of any consequence.

Flower Garden.

CHRYSANTHEMUMS struck from cuttings now will make fine plants, and growers are advised to prepare at once for raising the whole of the stock required for bedding and other purposes.

CLEAR UP everywhere and everything that has a touch of untidiness about it. At the first break of genuine sunshine the ladies will be exploring the garden, and there ought not to be a withered leaf, or a broken flower-pot, or a scrap of stick, or cast-off tally anywhere visible. Make all bright and firm with broom and roller, and thin out dead wood from all trees and shrubs. This is a time to edge off lawns, and give beds and borders a final pointing over.

EVERGREENS.—This is a capital time to move them, and to plant beds, borders, and edges. If the weather is dry, water freely, or, better still, mulch heavily; after planting, give no water at the root, but syringe overhead two or three times a day while they are making new growth.

AURICULAS to have abundance of air; shade during strong sunshine; water enough to promote healthy growth and free bloom.

BEDDING PLANTS to be shifted if needful, but generally speaking the business of importance now is to get them hardened off by transference to pits, cradles, &c. Some who have to deal with large quantities, put them into trenches dug as for celery, and lay boards, old lights, or mats over at night.

IVY on walls and fences should now be stripped of its leaves and loose shoots; any gaps to be filled up if possible by nailing in, and the whole to be left as a close feltwork of bare stems. It is a good time to put in cuttings.

CHRYSANTHEMUMS are growing freely, and must be shifted on and stopped as required without any delay beyond the proper time. It is the securing an *early* growth that is the key to success in forming fine specimens and obtaining an abundance of bloom.

ROSES to be pruned if not yet done; no danger now in any part of Britain, and trees may be pruned with the rest; the young shoots are the most valuable, and these must be left a sufficient distance apart to allow light and air to benefit them equally.

CARNATIONS AND PICOTEES FROM SEED.—The best mode of raising seedlings is by sowing the seed in pans in April in good sandy soil. Let it be sown half an inch deep. No heat should be used, as it is the cause of their damping off. Too much moisture must not be given, and shading from the midday sun must be afforded. Keep clear from weeds, slugs, and green-fly. The latter are easily destroyed by dusting strong snuff over the plants. They may be planted out about the first week in August, in rows about ten inches apart, in good soil. Water them carefully until they have become established.

IVY BORDER.—To make a nice ivy border is a very easy affair, and this is the best time of year to do it. The ground should be dug and well broken, and some manure added. The breadth of ground broken and manured for the purpose should be at least a foot wide, better if eighteen inches. Procure a supply of pot plants of Irish ivy three to five feet high. These may be obtained from almost any nursery at from one to two shillings per plant. Cut them all to three feet in length, and plant them three feet apart. When planted, train them all one way, and peg them down, placing the branches six inches apart; they must be planted firm, and have plenty of water when the weather is dry all through the first season, after which they will never want watering. When they begin to grow, have all the old leaves cut off, but without damage to the young shoots. Let them grow as they like all the season, but assiduously peg the new shoots so as to cover the ground regularly. The after management is a matter of clipping and pegging to taste. Common English ivy makes nice edging, but is not so quick or luxurious as the Irish. Where expense is no object, we should prefer for a green ivy edging *Hedera helix taurica*, a beautiful small-leaved ivy; and for a silvery edging *Hedera helix argentea*, the most showy and free-growing of the variegated kinds. But for all ordinary purposes the Irish ivy is the best, and a well-made edging of it is beautiful after having been planted three years. In districts where manure is not easily obtainable, it may be dispensed with, for the fact is ivy will grow in any soil; moreover, if variegated ivies are planted manure is not wanted, as it might weaken the variegation. Nevertheless, for a fine rich growth of any of the green-leaved kinds, deep digging and manuring are the *proper* steps to take.

Fruit Garden and Orchard House.

FRUITS IN SEASON DURING APRIL.—*Apples*: Alfriston, K; Ashmead's Kernel, D; Boston Russet, D; Brabant Bellefleur, K D; Brownlee's Russet, K D; White Calville, K; Cockle Pippin, D; Coe's Golden Drop, D; Cornish Gillyflower, D; Court Penduplat, D; Dutch Mignonne, K D; Forman's Crew, D; Golden Harvey, D; Gooseberry Pippin, K; Hambleton deux Ans, K D; Holbert's Victoria, D; Hubbard's Pearmain, D; Lamb Abbey Pearmain, D; Lemon Pippin, K; Minier's Dumpling, K; Newtown Pippin, D; Nonpareil, D; Norfolk Beefing, K; Northern Greening, K; Northern Spy, K D; Ord's, D; Pile's Russet, D; Pinner Seedling, D; Reinette du Canada, K D; Reinette Grise, D; Reinette Van Mons, D; Ribston Pippin, D; Ross Nonpareil, D; Royal Russet, K; Screveton Golden Pippin, D; Spring Ribston, D; Striped Beefing, K; Sturmer Pippin, D; Sweeny Nonpareil, K; Tulip, D; Wheeler's Russet, D; Winter Pearmain, D; Winter Quoining, K D; Wyken Pippin, D.

Pears.—Angélique de Bordeaux, D'Avril, Bellissime d'Hiver, Bergamotte d'Espere, Bergamotte d'Holland, Beurré Bretonneau, Beurré de Rance, Bezi de Bretagne, Bezi Goubault, Cassante de Mars, Easter Bergamot, Josephine de Malines, Morel, Prevost, Uvedale's St. Germain, K; Van de Weyer Bates, Zephirin Louis Gregoire, Inconnue, Easter Beurré, Ne plus Meuris, Commissaire Delmotte, Aglaé Gregoire, Colmar Delabaut, Prince Albert, Madame Millet, Doyenné d'Alençon, Bezi Mai.

Grapes.—Of last year's crop there may still be good bunches of Lady Downe's Seedling, Kempsey Alicante, Trebbiano, and Trentham Black. The earlyinery may now supply one or all of the following: Chasselas Musqué,* Muscat Hamburg,* Purple Constantia, Red Frontignan, White Frontignan,* Black Champion, Black Hamburg,* Black Prince, Trentbam Black, Early Black Bordeaux,* Grove End Sweetwater, Early Chasselas, Muscat Lierval,* Early Auvergne Frontignan, Early Smyrna Frontignan,* Golden Hamburg, Royal Muscadine,* White Sweetwater. As this is a good time for planting vines (the very best months are March and June), we have attached an asterisk to a few that are particularly well adapted for early forcing.

Straubberries.—The first batch of forced plants may supply ripe samples of Black Prince, Keen's Seedling, British Queen (seldom good before May), Prolific Hautbois, Prince of Wales, Sir Harry, Victoria, Cutkill's Princess Royal.

Peaches from the forcing-house may now be looked for; the first supplies will probably be any or all of the following: Red Nutmeg, Small Mignonne, Early Grosse Mignonne, Early York, Abec.

Nectarines.—Fairchild's (second-rate, but early), Elruge, Rivers's White, Bowden.

Gooseberries.—The following may, in early districts, supply green berries for culinary purposes: Early Sulpbur, Early White, Keen's Seedling, Miss Bold, Wilmot's Early.

Figs.—Though it is early yet for supplies of ripe figs, the following varieties may furnish the table towards the end of the month: Angelique, Black Provence, Early Violet, Marseilles, White Ischia.

GRAFTING to be proceeded with, and any lately done to be looked up; as if the clay cracks, and is neglected, the grafts will probably fail as soon as they begin to start.

Greenhouse and Conservatory.

GREENHOUSE.—A general clearance may now be made of all such plants as can be removed to turf pits, frames, and other cool receptacles. This will make more room for spring flowers, and give a better chance to Pelargoniums and other specimen plants now growing into shape and size. The best shading for plants in flower is tiffany hung inside in large bag-like festoons. Hitherto shading has not been wanted, but it will be henceforth, and should be got up while the house is in process of re-arrangement.

CAMELIAS require careful attention now. As soon as the new growth begins there is an end of bloom, and any unopened buds that may remain may as well be removed. The temperature for growing plants is 65° by day and 55° by night; the atmosphere moist, and the position shady. But there must be no coddling; give air at all favourable opportunities, or the new growth will be long and weak, and the next season's bloom of necessity inferior.

HEATHS AND NEW HOLLAND PLANTS.—Repot as required, using fibry peat and plenty of drainage. Newly-potted plants to be carefully watered until they begin to make new growth, which is always a sign they have taken hold of the new soil.

CACTI and succulents generally require attention now if they have not yet been dressed up for spring. It is a mistake to suppose that, like the chameleon, they can live on air, or like some fishes on water only. The fact is they want liberal feeding, and as long as sunshine is abundant ought to be grown freely, and then be rested perfectly, and the result will be they will bloom abundantly. Those that are pot-bound may have a small shift; some of the old soil to be picked out from the roots; the potting to be done with care, plenty of drainage, the soil equal parts broken brick and chalk of the size of walnuts, good turfy loam, and rotten cow-dung. Those not in need of a shift should have a little of the old soil removed and replaced with mixture; give plenty of water while they are growing in earnest, and as much light as possible.

BALSAMS to be kept growing freely; if starved they are spoiled. Let the soil be sweet, light, and rich, with plenty of fibre and thoroughly decayed manure. Keep the plants near the glass, and let them have plenty of water.

DAHLIAS may now be struck in quantities with the greatest ease, and they will root quickly. It is a good plan to put the cuttings into pots in which there is a small empty pot inverted, then fill up with light stuff, and put an inch of sand on the top. From this they may be removed with nice bundles of roots.

HERBACEOUS CALCEOLARIAS will be smothered with green-fly now that the weather is mild, unless they are well looked after. The best preventive is to keep them growing freely; and if any need to fumigate, do it promptly and effectually. Tobacco tissue answers admirably for soft plants of all kinds, as it delivers a killing cloud of pure tobacco smoke, and there is no danger of the nitrous gas, which tobacco paper so often contains too much of, and the operator need not make himself sick, as all he has to do is to set the stuff going with a few hot cinders, and then shut up the house and go away.

FUCHSIAS are growing freely, and must be shifted as they need it. Over-potting, usually to be avoided, is not an evil with Fuchsias, if they are warm and are not soddened at the root. A moist atmosphere is needed

to make good specimens. Put in a few more outtings to make small plants for late bloom, and pot off any newly-rooted cuttings as soon as possible.

PLANTS IN FLOWER IN APRIL.—*Cinerarias*, *Cytisus*, *Primulas*, and *Azaleas* are now in their full splendour, in houses that have only fire enough to keep the frost out. In mixed collections of first-class character, we expect during the month to see some of the following in bloom: *Chorozema augustifolia*, *Hagelii*, *Henschmannii macrophylla*; *Acaëus conferta*, *Dillwyniifolia*, *rotundifolia*, and several others; *Abutilon striatum*, *Anthocercis viscosa*, *Berkheya obovata*, *Cantua bicolor*, *Aotus inoana*, *Cytisus nubigenus laniger*; *Actinotus helianthi*, *Athanasia tomentosa*, *Kohium patrum*, *giganteum*; *Hindia alba*, *violacea*; *Daviesia angulata*, *polyphylla*, *genistoides*; *Datura Waymannii*, *Echoveria secunda*.—*Frame*: *Narcissus bulbocodium*, *nanum*, *poeticus*; *Dielysia spectabilis*, *Russian* and *Neapolitan violets*, *Scilla siberica*, *Ornithogalum umbellatum*, *Arabium*, *pyramidalis*, *Leucojum vernalum*.—*Ericas*: *dilecta*, *Banksiana*, *Cliffordiana*, *arborosa*, *echiniflora*, *fuscularis*, *metuliflora*, *nivea*, *persolata*, *perspicua nana*, *costata*, *racemosa*, *Smithiana*, *triflora*, *campanulata*, *trossula*, *nivea*, *Cistifolia*, *daphnoides*, *sulphurea*, *moschata*, *hybrida*, *mirabilis*, *obovata*, *Patersoniana*, *quadriflora*, *expansa*, *princeps carnea*.

ORCHIDS IN BLOOM IN APRIL.—*Saccolabium miniatum*, *Vanda insignis*, *V. suavis*, *Arpophyllum giganteum*, *Burlingtonia fragrans*, *Leptotes serrulata*, *Cattleya Skinneri*, *Phalenopsis Schillioriana*, *Ærides Fieldingi*, *Dendrobium aduncum*, *D. anosum*, *D. chrysanthemum*, *D. clavatum*, *D. eripidatum*, *D. Dalhousianum*, *D. densiflorum album*, *D. fimbriatum*, *D. fimbriatum oculatum*, *D. lituiflorum*, *D. Pierardii latifolium*, *D. primum*, *D. triadenium*, *D. Wallibianum*, *Epidendrum bicornutum*, *E. macrochilum*, *E. macrochilum roseum*, *Odontoglossum Poscatorei*, *Oncidium ampliatum majus*, *O. sarcoodes*, *O. sessile*.

SOLANUM CAPSICASTRUM.—The cultivation of the scarlet-berried *Solanum* is so exceedingly simple that any one with ordinary appliances and ordinary skill may have a grand display of them in the autumn in the conservatory. There are several species and varieties which produce red berries; the one commonly grown hitherto has been *S. capsicastrum*; but far better, because it makes a bolder bush and bears larger berries, is *S. pseudocapsicastrum*. To get up a stock of this proceed as follows: Place an old plant in a warm house, and frequently syringe it. When the young shoots are two inches in length, take them off and dip them into sand in a heat of 60 to 70 degrees. When rooted, pot them in light sandy compost, and give them a moderate heat until they begin to grow; or sow the seeds in light soil, and place in a steady heat. The present is the proper time to begin with either seeds or cuttings. From that time gradually inure them to ordinary greenhouse temperature and to fresh air, so as by degrees to get them quite hardy by the middle of May. Then plant them out in a piece of rich light soil, in the full sun, fifteen inches apart; give plenty of water all the summer, and slightly train them out, so as to form open heads. They will require to be twice stopped by nipping off the points of all the shoots in June, and after that must grow as they please. About the middle of September take them up very carefully and pot them. In this process the roots must be preserved from injury, and as much earth kept about them as possible. When potted, stake them out neatly; shade for a week, and after that keep them in the sunniest part of the greenhouse. If you follow this prescription, their appearance in November ought to be that of neat shrubs, two feet high and eighteen inches through, completely smothered with bright scarlet berries, full double the size of holly-berries.

Stove and Orchid House.

STOVE PLANTS should have free ventilation early in the day, when the weather is bright, with westerly winds, which will allow of shutting up early, to reduce the firing. Plants that have flowered, and are not yet cut down, must have immediate attention, for the tendency of everything now is to grow, and the growth from the first should be as we wish it; far better than allowing growth at the tops of shoots that are to be cut off, for that compels the plant to make a second start from buds lower down, which is debilitating. Plants cut down need a bottom-heat of 75° to 80° to start them into growth, and when growth has commenced they must be shaken out and re-potted.

ACHIMENES started into growth may now be put into pans for flowering, and have a little bottom-heat to give them an impetus to extend their roots.

ORCHIDS demand an increase of heat, with more syringe, and the atmosphere some degrees more moist. Beware, however, of overdoing the watering where succulent spikes are rising, and, as far as possible, do not allow water to lodge in the hearts of the plants. All kinds of vermin are now active, and must be trapped, or the mischief they will do to the new growths will be disastrous. Shade from the midday sun.

Forcing &c.

CUCUMBERS will be greatly benefited by judicious ventilation in the morning when the sun shines. Stop the principal shoots as soon as they reach the sides of the frames, and then stop all laterals one joint beyond the fruit; and where two fruit show nip one away. Be careful not to break the leaves in any of these operations. An occasional thorough soaking of the bed is desirable, but it must be done when the weather is bright and warm.

CHERRIES require more water and air after the fruit is stoned, which may be known by their commencing to swell again.

MELONS advancing to a fruiting state to have a good temperature by linings or otherwise, and though they require less water and more light than cucumbers they must not be too dry, or the red-spider will get possession. Young plants lately turned out must be kept rather close, to encourage free rooting, but as soon as growing freely to have air, or they will get drawn. In thinning the shoots, endeavour to promote a regular growth, evenly spread out and rather thin, so that every leaf will be fully exposed to the light. The night temperature to be 60°, rising by day to 75° or 80° at the utmost; if beyond 75°, give air to reduce the heat. This is a good time to sow for succession, and also for those who must depend chiefly on sun-heat for their produce.

PEACHES that have got through the stoning process to have more water at the root, and occasional syringing to keep down red-spider and help the young growth. Those lately set to be thinned moderately, remembering that in the process of stoning a considerable quantity of fruit will fall.

PINES swelling their fruit will be benefited by clear soot-water; when ripening to be kept rather dry. The fruiting-house to range from 65° to 80°, the utmost day temperature to be 85°, and that only when there is a strong sun-heat. Succession stock may go down to 60° at night, and

rise to 80° by day. Plants newly potted to be watered with great care until they begin to make new roots, but dew them frequently to keep them fresh.

STRAWBERRIES must have as much light as possible in every stage of forcing, and never suffer through insufficiency of water. A good heat may now be allowed. Where the berries are acquiring colour, give less water at the root, and none overhead.

VINES in the first house may be supposed to show fine bunches changing colour. The temperature may be raised, and this will allow of freer ventilation; neglect now will cause the fruit to be badly coloured. Vines just showing fruit to have the bunches thinned as soon as possible, and with the greatest care. Tie up the shoulders carefully, and avoid all rough usage of the bunches, and do not allow the hand to touch the berries, as rust is commonly the result of such contact. Ply the scissors so as to leave plenty of room for berries to swell, and to give the bunches as fine an outline as possible. Remove useless shoots; stop laterals; see that the border is moist enough a foot below the surface.

THE POTATO DIGGER'S SONG.

(From "Poems by T. C. Irwin.")

Come, Connal, aculella, turn the clay,
And show the lumper the light, gossoon,
For we must toil this autumn day,
With Heaven's help, till rise of the moon.
Our corn is stacked, our hay secure,
Think God! and nothing, my boy, remains
But to pile the potatoes safe on the fure
Before the coming November rains.
The peasant's mine is his harvest still;
So now, my lad, let's dig with a will—
Work hand and foot,
Work spade and hand,
Through the crumb'y mould:
The blessed fruit
That grows at the root
Is the real gold
Of Ireland.

Och! I wish that Maurice and Mary dear
Were singing beside us this soft day!
Of course they're far better off than here;
But whether they're happier, who can say?
I've heard when it's morn with us it's night
With them on the far Australian shore;
Well, Heaven be about them wid visions bright,
And send them childer and money galore.
With us there's many a mouth to fill,
And eo, my boy, let's dig with a will:
Work hand and foot,
Work spade and hand,
Through the brown dry mould;
The blessed fruit
That grows at the root
Is the real gold
Of Ireland.

Ah, then, Paddy O'Reardan, you thundering Turk,
Is it coarting you are in the blessed noon?
Come over here, Katty, and mind your work,
Or I'll see if your mother can't change your tune.
Well—youth will be youth, as you know, Mick,
Sixteen and twenty for each were meant—
But, Pat, in the name of the fairies, avic,
Defer your propoals till after Lent;
And as love in this island lives mostly still
On potatoes—dig, boy, dig with a will:
Work hand and foot,
Work spade and hand,
Through the harvest mould;
The blessed fruit
That grows at the root
Is the real gold
Of Ireland.

Down the bridle-road the neighbours ride,
Through the light ash shade, by the wheaten sheaves;
And the children sing on the mountain side,
In the sweet blue smoke of the burning leaves.
As the great sun sets in glory furled,
Faith, it's grand to think, as I watch his face,
If he never sets on the English world,
He never, lad, sets on the Irish race.
In the west, in the south, New Ireland still
Grow up in his light. Come, work with a will—
Work hand and foot,
Work spade and hand,
Through the native mould;
The blessed fruit
That grows at the root
Is the real gold
Of Ireland.

But look!—the round moon, yellow as corn,
Comes up from the sea in the deep blue calm:
It scarcely seems a day since morn;
Well—the heel of the evening to you, ma'am.
God bless the moon; for many a night,
As I restless lay on a troubled bed,
When rent was due, her quieting light
Has flattered with dreams my poor old head.
But see—the baskets remain to fill!
Come, girls, be alive—boys, dig with a will:
Work hand and foot,
Work spade and hand,
Through the moonlit mould;
The blessed fruit
That grows at the root
Is the real gold
Of Ireland!

THE STRUGGLE FOR EXISTENCE.—One of the greatest pests of New Zealand (on the cultivated lands) is the common English Sheep-sorrel (*Rumex acetosella*), called by the natives the red sorrel, and said by them to be a native of Tasmania. This plant spreads with singular rapidity, its roots forming a perfect mat, and the smallest fragment throwing up a stem. Where it is present in the ground, scarcely any of the ordinary crops can be obtained. All the usual processes of cultivation, such as fallows, &c., utterly fail even to mitigate the evil, and farmers were in despair until it was found that in the "struggle for existence" even this weed could not make head against the greater vigour of the white clover. I have seen hundreds of acres of broken-up land so completely overgrown with this plant as to appear like a uniform red patch in the landscape, but upon which, at the end of two years, after it had been "laid down" with white clover and Italian rye-grass (which by itself would have done no good), scarcely a specimen of the sorrel could be found.—Travers, in *Natural History Review*.

Correspondence.

SHADING.—My lean-to greenhouse, 30 by 12 feet, used for a mixed collection of plants and four vines, is covered with 21 oz. glass, 20 by 15 inches, and shading for summer is a serious matter. I was advised to dissolve a piece of lime as big as a hen's-egg in a little hot water as possible; then take a quart of skimmed milk and put in the slaked lime, stirring well; and whitewash the glass inside "or outside," on a dry day about the middle or end of April. If put on the outside, the autumn rains will wash all clear for winter. This I tried last year; it answered very well inside, but at times the house would get hotter than I wanted. In September, a clean brush and water made the glass all right for winter work. Can you, Mr. Editor, or any of your readers, tell me of a better or cheaper shading? Mine cost me one penny for milk, and about two hours labour whitewashing.

POLLY.

Replies to Queries.

B. Pratt.—The frosted potatoes, apples, and other refuse, had best be put at the bottom of a trench in the kitchen garden.

Renovating Old Lawn.—H. W.—In sowing grass-seeds to mend an old lawn, the best mode of procedure is to have the bare places dug over and enriched with good rotten manure, and all the stones and lumps raked off preparatory to sowing. Then sprinkle the seed pretty thick, and cover with fine earth. It is a good plan, when the job is only a small one, to sift the earth over the seed; but when there is a large space to be operated on, the workmen have a few good heaps of fine soil and throw it with the spade. In a majority of cases old lawns may be revived by simply sprinkling with nitrate of soda two or three times in the season. If a growth of clover is desired, it may be obtained generally by giving a good surface-dressing with superphosphate of lime.

Seedling Hollyhocks and Picotees.—H. W.—Plant them out as soon as the weather is mild and open—the sooner the better after March is out.

Nitrate of Soda and Superphosphate for Lawns.—S. R.—We have not recommended solution of nitrate of soda for grass-lawns, but the dry salt spread upon the surface, leaving it for the rains to wash it in. The best proportion in which to apply it is at the rate of 4 lbs. to one square rod; or if another method of proportioning will better suit persons unaccustomed to land measure, say 4 lbs. to every thirty square rods. This is at the rate of about 6 cwt. to the acre. Now the usual rule of applying such a manure as saltpetre is at the rate of 2½ cwt. to 3 cwt. per acre, so that we feel bound to say we have used saltpetre at the rate of 4 lbs. per square rod with the most satisfactory results. Lawns that were flinty, patchy, and sour, became soft and springy with the abundance of fibre produced, and the sward acquired a beautiful freshness and closeness of growth. Until we had used this large quantity, and patiently waited for the result, we advised the use of only 1 lb. per square rod; and that we can say is enough to work wonders, but the dose should be repeated at least twice—say three dressings in all, in April, May, and June. On some lawns there is plenty of grass and no clover, and during very hot dry weather such lawns become burnt and unsightly, whereas clover does not quickly burn. To promote the growth of clover, any of the salts of lime may be used. Even siftings of lime core from the builders' will be good as a top-dressing, but a quicker result may be obtained by the use of superphosphate of lime in the same proportions as we recommend the use of nitrate of soda, that is, from 1 lb. to 4 lbs. per square rod, according to the state of things to be remedied.

Geraniums attacked by Grubs.—Subscriber.—It is certainly not usual for geraniums to be attacked, as yours have been, by a grub eating its way from the base of the stems upwards. Yet there is nothing novel in the event, for the most experienced cultivators are sometimes caught in this way. You have probably used some newish turf or other material in the compost in which the eggs were concealed, and your chief matter is how to get rid of them. The surest way to proceed would be to knock them all out and repot them. Preparatory to doing so, as probably all your compost is foul with the eggs or grubs, it would be prudent to prepare sufficient for the repotting, and subject it to strong heat in an oven, or by any other method most convenient. Or if you could saturate the whole with boiling water, and then spread it out on a flue, or wherever it would dry quickly, you could repot and be rid of your plague, and by a little nursing the stock would soon recover. There is a yet more simple method of dealing with plagues of this sort, which we ourselves were driven to last year to save our pot-plants of *Raphanus caudatus*; and that was to plunge them to an inch or two below the rim of the pot for several hours, by which the grubs were drowned and floated out, and the plants were none the worse for the operation. We do not recommend this course with geraniums, but it might be safely done with tepid water on a fine day, and a little common salt in the water—say at the rate of one pound to four gallons—might increase its efficacy without hurting the plants.

Altering Greenhouse, &c.—J. L.—Without a sketch we cannot understand your case. You do not say where the boiler is. If at west end of greenhouse, you can easily enough heat the propagating house alone or in conjunction with the greenhouse. Without a sketch we cannot advise with any satisfaction, but it matters not how rough the sketch is.

Mistletoe.—Ernest.—The simplest and surest way to obtain a growth of mistletoe is to squeeze the seed and pulp out of the skin of the berries, and apply it to the bark of apple-trees in the month of March. This is the way in which nature spreads the plant. The mistletoe thrush cleans his beak on the bark, and here and there leaves a seed glued on. The customary method with gardeners is to make an incision in the bark and introduce the seed, but this is a customary failure; hence much talk about how to grow mistletoe, but little mistletoe to be seen. Your letter was sent unpaid, and quite by accident was paid for, it being the rule in our office to refuse unpaid letters.

Potato Planting.—R. W., Boston.—You ought to have planted during the fine weather in the latter half of February. On your cold wet soil, it is no use to attempt to plant now. Wait for fine weather, and plant when the ground is dry enough to crumble. If potatoes are planted in mere dust, they may do well, but if stuck in paste, growth is out of the question.

Forced Vines.—W. Watson.—We do not pretend to say that giving "front air" is the cause of your grapes shanking, but the gardener who holds that opinion may be right, as he judges on the spot, and we know nothing of the shape or size of your house. If draughts of cold air blow over the bunches, their shanking may be expected, and "front air" may

be the cause of it. There is no doubt, however, that in your practice the mistake is an excess of atmospheric moisture. We fully believe you might benefit by giving less air and less water; do not for the present give air earlier than eight a.m., and shut up about two, with a temperature of at least 85°. As to the best practice in giving air, front or back, it matters not which way fresh air reaches the vines; but it does matter that it should not come as a cold blast, but should move over a warm surface on its way to the vines. Covering the border with boards to throw off snow and rain is certainly a commendable practice. The best hook on the vine is that by Mr. William Thomson of Dalkieth.

M. P. may hear of the things inquired for by applying to Mr. Cannell, Fuchsia Nursery, Woolwich.

Roses eaten.—M. P.—The holes in the stems of standard roses are probably caused by the grub of the wood-leopard moth. There is no cure for the mischief done; some of the roses so attacked will probably die. When dwarfs are attacked, the loss amounts only to the branch the grub bores; when that is cut down, it is soon replaced by another.

Pæonies and Pyrethrums.—G. B., Blackburn.—This is a good time to buy and plant, though the autumn is to be preferred. Your position, climate, &c., are all that these things require to do well; the fact is, they are first-rate flowers for the suburbs of towns. Since your ground is well drained, you may reasonably expect to grow pæonies, pyrethrums, dahlias, and hollyhocks well. For tulips it would be advisable to improve the staple by the admixture of rotten dung and sand. We cannot advise you whether to buy the cheapest or the dearest kinds of pyrethrums and pæonies; you are the best judge of your own purse; but the most expensive kinds are as hardy as the cheapest, and occasion no more trouble to grow them well.

J. H., Woolwich.—We have made inquiries for you, but without success to our own liking. Perhaps you had better advertise.

Vinegar and Water as an Insecticide.—Inquirer asks if any of our readers have tried vinegar and water as a means of preventing insects depositing their eggs on the leaves and bark of trees, &c. Some time ago we gave an extract from the minutes of the Society of Practical Horticulture of the Rhone on the subject, and have heard nothing since.

Fern-case, London Flowers.—Lilian.—It is against our rule to recommend dealers, but you may find amongst those that advertise in this work several who supply fern-cases. The following are good subjects for a London garden: *Chrysanthemums*, double white *Pyrethrum*, and the new florist's *Pyrethrums*, which Mr. Selter keeps in great variety; *Oenothera Fraseri*, *Iberis sempervirens*, *Alyssum saxatile*, common white *Lily* and *Martagon Lily*, *Solomon's Seal*, *Achillea millefolia* roses, *Achillea ptarmica*, *Spiraea filipendula*, herbaceous *Pæonies*, *Dielytra spectabilis*, *Everlasting Pea*, *Veronica spicata*, *Campanula carpatica*, *Campanula persicifolia*, *Campanula nobilis*, common *Spiderwort*, or *Tradescantia Virginia*, *Centranthus rubra*, *Hemerocallis flava*, *Helianthus angustifolius*, *Helianthus latiflorus*, *Lysimachia nummularia*, *Sedum acre*, *Sedum fabarum*, *Sempervivum montanum*. These are all good things, and will grow and flower well wherever they can get a bit of sunshine. They may all be obtained in pots or tufts from the open ground at a nursery where hardy plants in any great variety are kept. We can advise you of a few hundreds more, but perhaps these will suffice for the present. Any that you determine to have, procure and plant at once.

Ivy Leaves.—J. E.—No. 1 is *Hedera helix marginata argentea*; that is the old silver-margined. No. 2, *helix aurea maculata*, the gold-blotched English. No. 3 is *helix marginata elegantissima*, the most elegant margined English. No. 4 is *helix minor marmorata elegans*, the small elegant marbled leaved. No. 5 is Irish, or *Hedera canariensis*; the English is much smaller, less richly coloured, and more distinctly veined. No. 5 is an incomplete leaf, very much indeed like *Algeriensis*, the Algerian ivy, which is always a lighter colour than any other. Much obliged for the hint about the *Araucarias*.

CATALOGUES.

A. FORSYTH, STOKE NEWINGTON, LONDON, N.—*Catalogue of Chrysanthemums, Dahlias, Fuchsias, and Geraniums.*—This useful list is prefixed with a short paper on the Cultivation of the Chrysanthemum, of which it is well known Mr. Forsyth is a perfect master. Having but lately had Mr. Forsyth's practice before them in his own words, our readers will be prepared to find in this catalogue useful hints and advices; and they will not be disappointed.

GEORGE RAWLINGS, WATERLOO ROAD, ROMFORD, ESSEX.—*Catalogue of Dahlias for 1867.*—Being a large grower of this flower, and the raiser of a very large number of the best varieties in cultivation, purchasers may depend on Mr. Rawlings's descriptions and estimates of merit. Dahlias are cheap now to what they used to be. There are in this list only two varieties entered at anything like old-fashioned prices, namely, *Aurora*, a superbly formed flower, the colour delicate rose, and *John Sladden*, a large bold flower, nearly black, and the best dark dahlia out. These are offered at half-a-guinea each; as for the rest, they range from 3s. to 9s. per dozen; so lovers of dahlias need not go short of gratification.

AUGUSTE VAN GEERT, GHENT.—*Extract of General Catalogue of Plants.*—This contains a good selection from the general catalogue, and is prepared expressly for English customers. The subjects comprised are various, comprehending, in fact, every department of stove, greenhouse, and hardy plant growing.

JOHN SALTER, WILLIAM STREET, HAMMERSMITH, LONDON, W.—*Catalogue of Chrysanthemums, Dahlias, Pæonies, Pyrethrums, Geraniums, Variegated Plants, &c.*—This is always an interesting catalogue, and quite different from every other. In the list of novelties are all the chrysanthemums we reported on in the MAGAZINE of Dec. 1, last year, and some few others added. The lists of pyrethrums, pæonies, phloxes, and pentstemons are first-rate. The list of geraniums, though copious, omits a good many that ought to be there. The list of hardy variegated plants is the best of the kind extant.

AMBROISE VERSCHAFFELT, RUE DU CHAUME, GHENT.—*Price Current, No. 79, for Spring, 1867.*—A capital small catalogue, indicating the range of selection in the several classes of stove, greenhouse, and hardy plants. There is a long list of moulan pæonies.

SENT with a couple of ducks to a patient by the celebrated Dr. Jenner:—

"I've despatched, my dear noddam, this scrap of a letter,

To say that Miss Wilson is very much better;

A regular doctor no longer she lacks,

And therefore I've sent her a couple of quacks.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.				M. temp. avrg. of 43 yrs. Grnwh.	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D
			rises.	sets.	Eclips.	sets.	Barometer.	Thermometer.		Rain	Max.	Min.	Max.	Min.			
1867			b. m.	h. m.	b. m.	h. m.	Barometer.	Thermometer.		Rain	Max.	Min.	Max.	Min.			
7	S	5th Sunday in Lent [1616	5 24	6 41	7 4 a.m.	10 1 p.m.	29.92	29.86	43	38	43.0	-01	45.5		Cattleya Skinneri m ...	Guatemala	7
8	M	Shakspeare born, 1564; died same day in	5 22	6 43	7 44	11 12	30.01	30.00	53	46	47.5	-00	45.4		Phalenopsis Schilleriana, 1	Manilla	8
9	T	Fire Insurances due	5 20	6 41	8 32	"	29.95	29.79	40	36	40.5	-21	45.1		Aerides Flesdingi, 1	India	9
10	W	Heather burning ends	5 18	6 45	9 27	"	29.80	29.78	50	37	36.5	-00	45.0		Dendrobium aduncum 1	Manilla	10
11	Th	Bonaparte abdicated, 1814	5 15	6 46	10 31	"	29.66	29.29	57	42	40.5	-25	44.9		D. amomum, 1	"	11
12	F	Arthur Young died, 1820	5 13	6 48	11 39	"	29.78	29.07	58	48	53.0	-02	45.2		D. chrysanthemum, 1	India	12
13	S	R. B. S. Second Spring Show	5 11	6 50	"	2 40	27.85	29.61	60	30	45.0	-02	45.5		D. clavatum, 1	"	13

The Gardener's Magazine.

SATURDAY, APRIL 6, 1867.

TULIPS WITH VARIEGATED LEAVES have hitherto been scarce, but the Dutch cultivators are bestowing their attention on such eccentricities, and in the course of a few years we shall probably have at our command a quite long list of varieties so characterized. It will be seen by a report on new varieties of hyacinths and tulips, in another part of this sheet, that in inspecting a series of new varieties in the nursery of Mr. Burley of Bayswater lately, we met with several handsome varieties with well marked variegated leaves. These cannot fail to be useful when they can be placed in the hands of cultivators at moderate prices. They are, of course, at present rather costly; but tulips differ from some other bulbs in that, if we once obtain them, we never need lose them, and may, in fact, keep and increase them nearly as well as the most experienced of the Dutch growers. It happens that we are rather in want of tulips with variegated leaves, that is to say, to gratify a love which the abundance of variegated-leaved plants has created or awakened. At the time of year when early tulips are at their best, variegated-leaved plants are for the most part at their worst. It is in the summer and autumn, generally speaking, that we see variegated leaves in perfection; to few of them is it given to show their best colours in the months of January, February, and March; and to few also it is permitted that beautifully variegated leaves shall be succeeded by gorgeously painted flowers. Two good qualities, then, are offered us in the best of the variegated-leaved tulips, and we have to thank Mr. Burley for becoming the expositor of Dutch notions, and the diffuser of Dutch improvements here; for we cannot know too soon all about these novelties, which offer a quite new element for the embellishment of our conservatories in the early spring, and our gardens at the dawn of summer. Some of the varieties we have seen at Mr. Burley's are good in every respect—in leaf and flower—in form, colour, habit, readiness to comply with forcing—in all the several qualities for which early tulips are valued. Perhaps we may seek far and wide to supersede such a noble variety as *Imperator Rubrorum*, with its glaucous leaves nearly three inches across, and its finely-formed vermilion and orange-yellow flowers. But a bold sulphur or creamy stripe on the leaf is a matter of no small consequence, and if the new variegated-leaved varieties can be distributed at a rate not greatly in advance of that realised by established favourites, we can promise our Dutch friends that as fast as they can propagate them the English will buy them, and for several years to come there will be no abatement of the demand. The new hyacinths brought forward by Mr. Paul, and the new tulips brought forward by Mr. Burley, prove that the English have no monopoly of the passion for advancement in floriculture.

ANDROPOGON SORGHUM, to which Messrs Hooper and Co. directed the attention of our readers in their letter in defence of Mr. Hullett (March 23, page 130), is much more likely to become valuable as a cereal than either *Sorghum Tartaricum* (?) or *Sorghum (Holcus) saccharatum*, judging from what we know of the first and last named of these three grasses, for of the second we know nothing. Should this *Andropogon* prove to be a good corn-producing plant, Mr. Hullett will have done some good by indirectly awakening an interest in its cultivation, even though his own pet *Sorghum Tartaricum* should prove, as we still anticipate it will, to be quite incapable of ripening its seeds in any part of Britain in average seasons. We speak from knowledge of this particular plant, having frequently grown it as an ornamental grass, and as a corn-food for poultry. We have now some samples—that is to say, complete plants with their ripe fruit not shelled out—that were grown at Stoke Newington in 1859, and on examining the ears we find a sufficient amount of good grain to illustrate in a very promising manner Messrs. Hooper's recommendation. We leave *Sorghum Tartaricum* to find its level; we know nothing of it, but Messrs. Hooper have obligingly furnished us with a sample of the seed, and we hope to know all about it in due time. That it is distinct from *Sorghum saccharatum* we may infer from the difference observable in the seed, but it is a sorghum doubtless; and we can no more expect to ripen its seeds with such certainty as to become an established corn-grass in this country, than we can expect to naturalize the sago-palm or the sugar-cane. We have, in truth, scarcely any curiosity about *Sorghum Tartaricum*. If it should

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prove to be the boon it is represented, we will be among the first to give Mr. Hullett his due. The reason why we are not persuaded by his eloquence in behalf of his farinaceous protégé, is that we have got hardened to his descriptions of wonderful plants, and have never been softened by seeing any of them. But in *Andropogon sorghum* there is some hope; and we recommend those of our readers who are fond of novelties to sow a patch of it some time before the 20th of the present month, and wait patiently for the result. It is a tall robust-habited grass, producing a club-like head, the seeds in which are black and glossy. It requires a deep, rich, warm soil; and if sown in rows, they should be at least three feet apart, and the plants should be thinned to a foot apart in the rows. Whether good for bread or not, those who grow a crop need not waste it, for any animal that is partial to corn will eat it, and cattle will gladly chump every scrap of the succulent foliage, which remains green for some time after the seeds have ripened.

ENGLISH BEET-ROOT SUGAR.—The following observations on the culture of beet-root in England for the manufacture of sugar are from a daily paper: "An experiment has recently been made of growing beet-root for the manufacture of sugar in Illinois. About 400 acres of fresh prairie were planted, and 4000 tons of beet raised, which is in course of being worked up, and is expected to reach nearly 400,000lb. of refined sugar. The United States have been, like ourselves, the most important consumers of cane-grown sugar, the Continent generally having long accepted the beet as the raw material of their supply. But if the Americans and the Germans and French can grow their own sugar, why should not we do so? Beet-root is not like sugar-cane, an article only to be reared in tropical or semi-tropical countries. We raise it in England of excellent quality, and not only do we raise the crop, but of the sugar we consume about one-sixth part (according to the *Produce Markets Review*) is beet-root sugar imported from the Continent. There seems no reason why this additional branch of industry should not be added to the many enterprises of the country. While the beet has been planted for purposes of sugar-making on the prairies of the West, the cane is being vigorously cultivated in the colony of Queensland. It is estimated that upwards of a thousand miles of alluvial soil on the coast-line of that colony is in every way adapted to the cultivation of the cane. The attention of all countries seems to be directed more and more to the supply of sugar. We used to be dependent for our supply upon the West Indies, just as we were upon America for our cotton, but every day the sugar question is becoming better understood, and in spite of our scale of duties, the West Indies will be compelled to feel more and more the influence of competition, and the necessity for exerting themselves accordingly."

New Plants.

In the recent issues of the *Botanical Magazine* occur figures and descriptions of the following:—

Tapeinotes Carolinæ.—A beautiful Gesneriaceous shrub with ornamental leaves and handsome white flowers. It will be a valuable plant for the stove and for exhibition.

Angraecum citratum.—This pretty orchid is a native of Madagascar, whence it has been obtained by Messrs. Veitch. The flowers are closely set on a raceme three to five inches long; they are primrose white.

Impatiens latifolia.—An Indian perennial balsam, with large rosy purple flowers.

Clavija fulgens.—A handsome myrsinaceous plant from South America. The trunk is short, the leaves ten to fourteen inches long, and the flowers numerous on racemes four or five inches long; they are deep orange-red with yellow discs.

Mesospinidium sanguineum.—A pretty orchid, with nodding racemes in the way of *Rodriguesia secunda*, but larger and handsomer. It has been long known, but has recently been obtained and cultivated by Messrs. Backhouse of York. "It appears to be quite at home in what may conveniently be termed the Peruvian house, as meant to include the coolest and dampest section of temperate orchids, while the Mexican house would indicate a climate somewhat warmer and drier than the last, but still cool."

Barleria Gibsoni.—A pretty acanthaceous shrub from Central India; it is of neat habit, and produces handsome purple flowers.

Pteroma sarmentosa.—A superb species, well adapted for greenhouse culture; the flowers are numerous and large; the colour deep violet shading to cobalt blue.

Sarcanthus erinaceus.—An exceedingly pretty orchid, producing numerous racemes of minute flowers, which are primrose-white touched with yellow; the lip rosy pink.

Siphocampylus Humboldtianus.—An elegant plant, with bright green ovate leaves, and large tubular flowers of a bright orange-red colour.

Oncidium serratum.—A remarkable species, with fantastic flowers, which have somewhat the appearance of *O. crispum*, borne on twining scapes, which in strong plants attain a length of nine or ten feet. It is a native of Peru, and must be regarded as a moderately cool orchid.

Synadenium Grantii.—A curious euphorbiaceous shrub brought home by Captain Grant from Central Africa. It is of robust growth with thick leaves, and the inflorescence is variously coloured, green, rose, red, and brown.

Peperomia arifolia vargyreia.—A beautiful variegated-leaved stove plant, now pretty well known amongst cultivators.

Saccolabium giganteum.—This magnificent orchid has been established in this country through the energy of Messrs. Veitch, who have obtained fine plants from Rangoon. It is a stately and brilliant subject, more agreeably perfumed than *S. violaceum*, and the flowers last full three months in perfection.

Cordyline Australis.—The true *C. australis* is the commonest of four or six species that inhabit the New-Zealand group. The one formerly figured under this name, in the *Botanical Magazine* is not identical with Forster's species; the present one probably is so.

Tinnea Ethiopica.—A beautiful labiate plant from central Africa, which flowered freely in Mr. B. S. Williams's Nursery, Holloway, last winter. It is elegant in habit, with bright green ovate leaves; the flowers copiously produced in the axils or in terminal spikes; corolla dark maroon purple, showing a curious and beautiful contrast to the green of the leaves. The flowers emit a delicious violet odour.

Dictyopsis Thunbergii.—A beautiful climbing plant of slender habit, with bright green leaves, and clusters of small greenish yellow flowers.

Dombeya Mastersii.—A beautiful stove shrub, with large cordate ovate leaves, and large clusters of pearly white flowers.

In recent issues of *L'Illustration Horticole* occur figures and descriptions of the following:—

Lilium hamatochromum.—This is believed to be a hybrid. It is of Japanese origin, and is in every sense a noble plant. The flowers are of great size, the colour deep chocolate shading to black, with bright lines of cinnamon colour.

New Varieties of Gladiolus.—1. *Impératrice Eugénie*: outer segments white, with mauve stripes; inner segments mauve, with shades of pink; very beautiful. 2. *Reine Victoria*: white, with stripes of rose; inner segments white, with rosy-purple feather. 3. *John Waterer*: small, but neat and showy; orange red, with purple feather on a white base.

Rhododendron marginata punctatum.—A fine hybrid adapted for the conservatory. The flowers are of medium size, in large trusses; cream colour heavily spotted on the top petals with crimson chocolate spots; the other petals spotted on the edges only.

Larix Kämpferi.—A not very good figure of this beautiful larch, but amended is made by an able series of analytical figures by Mr. Fitch.

Gastronema sanguinea.—A superb ally of the *Hippeastrums*; the flowers elegantly formed, colour vermilion, throat yellow.

Maranta rosea-picta.—An exceedingly beautiful maranta; the leaves dark green, edged with a row of zigzag marks of a pale pink colour; the mid-rib bright carmine.

Camellia Constantin Pretiakoff.—A noble flower of large size, most beautifully finished in outline and petal; colour delicate blush deepening to delicate warm flesh.

NEW HYACINTHS AND EARLY TULIPS.

The Dutch florists appear to have lost none of their old enthusiasm and matchless skill in originating and multiplying superb varieties of certain classes of flowers. Of late they have manifested quite a revival of their historical renown, and have distributed new varieties of hyacinths, tulips, and other bulbs, with a liberality unwonted during recent years, and quite reminding readers of the history of floriculture of certain chapters that are more startling than pleasing. But there is nothing startling or dangerous in the modern revival of Dutch floriculture. The movements of the cultivators are subordinated to the demands of the market, and possibly commercial more than artistic considerations weigh heaviest in determining the course of their labours. During the season that has just closed (we mean the season of the hulk trade) the thrifty Hollanders have not met with their customary share of encouragement from English buyers. The monetary panic of 1866 had a visibly depressing effect on the hulk trade at the close of the year. Hence, possibly what we have seen in the present spring of the progress of improvement in the hyacinth and tulip rather foreshadows than fully indicates the nature of the operations that are in progress for the enriching of our collections of those most useful, most beautiful of spring flowers. But what we have seen has deeply impressed us with the fact that English cultivators are not alone in the exercise of skill in hybridizing, or of taste in selecting new varieties of florists' flowers. Mr. William Paul has brought forward a few superb new hyacinths and tulips, and a few novelties in both these classes have been shown at provincial exhibitions. But the most extensive, and at the same time most interesting, collections of novelties of this kind were some that were imported and flowered by Mr. Burley, of Albert Nursery, Pembroke Place, Bayswater, and which included several handsome early tulips with variegated leaves, varieties that we have no doubt will become extensively popular for conservatory decoration, and perhaps also as spring bedding plants. Having made notes upon these several novelties, we purpose now to enumerate and describe them, that cultivators of these things may be, through these notes, *au fait* on the progress of two most important decorative and exhibition subjects.

NEW HYACINTHS.

Lord Shaftesbury.—Single white; the spike rather loose, yet not to a fault, for on loose spikes we see all the outlines of the bells, and if they are elegant, looseness up to a certain point is a gain. In this variety the bells are of great size, and very beautifully formed, wax-like in substance, and emit a fine spicy odour. It is altogether first-rate, even when compared with the best whites in cultivation.

Blondin.—Single blue; the spike is quite full, but scarcely crowded, in size and proportion quite majestic, and borne on a stout pillar from amidst an abundance of fine bright green fleshy leaves. The bells are large, finely rounded at the base, the points elegantly recurved; the colour a most delicate shade of violet grey, at once peculiar and exquisitely beautiful. There is no variety known that can surpass this, and very few, if any, to equal it.

Prince Albert Victor.—Single red; the spike is close and solid, but finely proportioned, and of full average size. The bells are nicely formed, but in no respect remarkable for beauty, though smoother and neater than is usual with high-coloured reds. Their colour is brilliant red, with a darker stripe on each segment.

Linneus.—Single red; the spike is crowned, and the bells are small, and instead of recurving, as in the fine bells of some white and pale red varieties, the segments are incurved, and until the spike is considerably advanced they are tipped with green. Nevertheless, this is a brilliant

variety, and certain to become a favourite on account of its colour, which is brilliant crimson. It may be added to the series of richly toned varieties in which we find *Lady Sale*, *Robert Steiger*, *Von Schiller*, *Vuurbaak*, and others of the strong reds.

NEW TULIPS.

Brutus Rectifié.—This is a fine feathered variety of one of the best old bedding tulips, and well deserves attention, as vying with some of the late tulips in its splendid and tolerably correct markings. The ground is bright yellow, and the feather is hold and sharp, the colour intense crimson scarlet. This was shown by Mr. Paul at Regent's Park. All the rest that follow have been seen by us only in the nursery of Mr. Burley.

Queen Victoria.—Fine form, white ground, and rich carmine feather. There is an old white variety under this name, from which the present differs considerably.

The Bride.—Very large; petals nicely rounded at the ends; colours white with broad bold stripes of carmine.

Princess Marie.—Large; petals too long; superbly coloured; rich carmine with white base.

Beauty Supreme.—Small and neat; rich cerise, white edges.

The Circassian.—Very large and bold; rich yellow, with large, bold, fier red flame. A grand flower, and first-rate for show or decoration.

Belle Alliance.—There is a good old dwarf red variety under this name, which is largely employed for massing. The variety now before us has immense leaves that are more like the leaves of a canna than a tulip, and the flowers are small, double, dull purplish red; altogether inferior.

Maria.—Dwarf and neat; brilliant carmine red; with white stripes; first-rate.

Golden Standard Variegated.—The leaves superbly margined with pale sulphur; flowers gold yellow; a fine variety.

President Lincoln.—A grand double flower; deep red edged with orange; fine hold leafage; first-rate.

Silver Standard Variegated.—Leaves elegantly edged creamy buff; flowers rich carmine with white stripes. This is unquestionably a variegated-leaved form of the old *Silver Standard*, but in becoming variegated a new break has occurred in the flower, which is more heavily coloured than the old variety.

Golden Standard.—Grand habit of leaf and flowers; the colours are rich gold and hold red flame, heavily laid on.

Butterflower.—A most beautiful clear yellow self, quite distinctive and eminently desirable.

Edouard d'Argent.—Habit objectionably tall; leaves finely-edged creamy white; flowers double, pale lilac rose.

Feu d'Empire.—Leaves edged with clear sulphur-yellow, and the flower superb in size and form, gold base and brownish crimson flame; a very fine tulip.

Double Proserpine.—We have here the beautiful violet and rose colouring of *Proserpine* in an exceedingly double flower. It is certainly a valuable addition to the double class; but its name compels us to reflect upon the great difference in respect of grace of form between good singles and the best doubles. The first are as flowers, emblems of elegance; the second as puddings, emblems of quantity.

Lac Bonifol.—The leafage of this variety is superbly variegated with a broad margin of pale sulphur or cream-colour; the flowers single; colours purple, red, and white, in not very distinct arrangements.

Pallas.—An extra fine variety; lively yellow and gold. Quite new, and extra good in habit, form, and colour.

Duc Van Thol Rose Bonté.—Very early; yellow and crimson, striped and flaked, like the family to which it belongs; very dwarf and easy to force, and a very good addition to the already long list of sports of the "Duc." S. H.

NEW CHRYSANTHEMUMS.

The following are the names and descriptions of the new varieties offered this season by Mr. Salter, of Hammersmith:—

LARGE FLOWERS.

Ali Baba (Salter), red with golden black, very double and large, incurved show flower.

Cadie's Perfection (Cadio), bright red with orange back, very double, and finely incurved.

Countess of Warwick (Salter), sulphur white or primrose, large and finely incurved, of excellent habit and foliage, a beautiful show flower.

Dr. Lindley (Salter), large dark orange with amber centre, broad incurved petals, a first-class show flower.

Faust (Pethers), bronzed crimson purple, incurved and very full, extra fine dwarf habit and foliage, a great acquisition to the specimen class.

Fingal (Davis), large rose violet with lighter back, very double and symmetrical, petals wide and finely incurved, a noble show flower.

Isabella Bott (Pethers), delicate pearl white tinted rosy lilac, very double, large and conical, with finely incurved petals, having a wax-like appearance, which, together with fine form and habit, renders it a perfect gem.

Lady Talfourd (Salter), delicate rose lilac with silvery back, petals beautifully incurved, and of a shell-like form, very double, and of medium size, one of the most symmetrical flowers ever offered, a lovely plant equally suitable for specimens or cut blooms.

Lord Stanley (Salter), large orange amber, finely incurved.

Mrs. Heale (Heale), pure white, very large and of exquisite form, a *fac simile* (except in colour) of the beautiful and highly-prized "Princess of Wales," of which it is a white sport.

Ossian (Pethers), large rose, incurved, very double and free, an attractive conservatory plant.

Prospero (Salter), dark violet purple, very full, incurved and free.

Purpurea Elegans (Salter), rich purple violet or crimson, with half-incurved petals, of medium size, very double and free, a scarce and most attractive shade of colour, and both for specimens or the conservatory a great acquisition.

Rosa Mutabilis (Salter), delicate peach-voined rose, broad incurved petals, dwarf habit, and fine for cut blooms or specimen plants.

William Edward (Salter), canary yellow with short, stiff, and finely incurved petals, very full, and first-rate show flower.

Yolande (Salter), creamy white tinged with lilac, broad incurved petals, a very fine and choate flower.

POMPONS.

- Aglai*a (Poole), blush with very high white centre, a fine free flowering anemone.
- Christabel* (Salter), bronzed rose and fawn centre, dwarf and fine.
- Little Creole* (Salter), brown orange, very dwarf compact habit, and free.
- Little Kate* (Salter), blush with primrose centre, fine form and compact habit.
- Madge Wildfire* (Salter), vivid red and large golden tips, distinct novel colour and very attractive.
- Peri* (Salter), dark yellow and red points, very dwarf and free, flowering pyramically.
- Saint Michael* (Salter), very bright gold, equal in colour to "Jardin des Plantes," full size, dwarf habit and very fine.
- Stella* (Salter), rosy purple and high-bronzed centre, a fine full-sized anemone.
- The Countess* (Salter), blush tinted lilac, a beautiful little pompon, flowering in compact bouquets.
- Zobeide* (Salter), light rose and high centre, a fine free anemone.

NEW BEDDING POMPON.

Louise Honnoraty (H.), dark rose, small, free, and of exceedingly dwarf bushy habit, from ten to twelve inches high, quite a gem.

The following are offered by Mr. Forsyth, of Stoke Newington:—

LARGE FLOWERS.

- Mrs. Geo. Rundle* (Morgan), pure white, very high centre, close and compact; one of the most beautiful incurved flowers ever offered.
- Dr. Sharpe* (named after the raiser), fine magenta; unequalled for specimen growing (a novel colour much wanted).
- Hetty Barker* (Slade), fine pearly white, full, free, and early; a fine incurved show flower.
- Mrs. Heale* (Heale), described above.

ANEMONE.

Princass (Howe), a sport from Prince of Anemones; certainly the finest pure large white Anemone ever sent out.

POMPON.

James Forsyth (Forsyth), colour fine orange crimson; a most useful, distinct, early, and free flowering Pompon.

The following is offered by Mr. Chapman, of Crescent Road, Great Warley, Essex.

Alfred Chapman (Chapman), a neat Pompon; flowers medium, perfect in form, blush deepening to soft pink; most beautiful.

MR. CHARLES TURNER'S NURSERY, SLOUGH.

This nursery enjoys a world-wide reputation for its extensive collections of the choicest plants of all kinds, and its masterly treatment of subjects sent to exhibitions. It has been said that florists' flowers have no general home—that they are to be found only in the small gardens of a few enthusiastic amateurs, who are as archæologists in the regions of Flora—and that their day is altogether past and gone. There may be a glimmer of truth in these statements, for the bedding mania has driven many good things out of cultivation for the present; but THE GARDENER'S MAGAZINE and THE FLORAL WORLD, by their persistent and consistent advocacy of things beautiful and interesting—by their happy and faithful representations of the intellectual features of decorative gardening—will certainly keep within the pale of recognised favourites many beautiful plants that have been sadly threatened with extinction. But I reflect upon the assertion that this and that are going out of cultivation, and in the midst of my reflection I enter this nursery, and I presently begin to doubt if there is any truth at all in what I hear of the decline of florists' flowers. Moreover, I am not here many minutes ere I feel myself on charmed ground; for I am not only in the nursery of Mr. Turner of Slough, who makes a bright mark in the annals of every first-class flower show, but in the midst of florists' flowers—in the midst of collections so vast that every good flower is fully represented, and the stock appears to be enough to meet all the demand that must arise when the revival that is promised has really dawned upon the floral mind. Well, I propose to look about me, make my purchases, and carry away in my mind a few notes of what I have seen. Now I shall begin by saying that nurseries differ in many respects, and no two are alike. There are two peculiarities about this nursery. It is, in the first place, remarkable for cleanliness. Whichever way I look I see everything bright; and, to use a homely simile, one might eat one's dinner off the floor of any of the plant houses, or even off the potting benches, without being vexed with a particle of grit. I had heard people say, "What a clean place Turner's is!" but the saying conveyed to me no such idea as I derived from a sight of the place, which is like a nursery in a picture-book or pantomime, save and except that it is a real nursery—but I mean as respects the neatness, order, and finish of everything. And the word "order" reminds me of the other peculiarity, and that is the admirable arrangement of the whole scheme. Wherever you take your stand to look about you the surroundings are all of a kind. You do not go out of a steaming stove into the midst of slush, or into a confusion of broken pots and packing stuff, as in some nurseries I could name; but the whole affair is ordered like the chapters of a master treatise on any subject, and objects that are nearest to each other are always in some way related. I would beg of all our young gardeners to bear in mind that Mr. Turner is not only a hero at exhibitions, but a master of small details: he knows how a stage of pelargoniums ought to look, and he knows where the sticks and ties, and the pots and the crocks should be; he is like the general of an army—he can lead in a great advance, and he can at the same time consider the health of his troops and the care of their ammunition. We ought to learn from such examples that the study of trifles, when demanded by utility, is consistent with the working out of a lofty ambition.

Bricks and mortar are increasing at Slough, as everywhere else in the neighbourhood of London, yet there is much true rurality visible on every hand, and the atmosphere is most salubrious, which is a circumstance favourable to the extensive collections of florists' flowers, which need a pure air, especially where they have to be propagated largely as a matter of business. And it adds much to one's enjoyment of a visit to this charming place that we are removed from the din and roar of traffic that we hear so much of in London; in fact, it is but a short walk from the railway station to the nursery, and the sudden quiet and rurality are as magic. I found my way into the nursery through the seed shop, where many hands were busy in packing

seeds for customers, and it was evident at a glance that plants are not the only subjects of demand here, for an immense activity prevailed in the seed department. Mr. Turner has done quite as much for our good in this part of his business as in the growing of specimen plants, and his bold speculation in new varieties. It should be remembered that we are indebted to the good offices of the great cultivator at Slough for the valuable series of improved varieties of peas raised by Dr. Maclean of Colechester, as well as for many other most excellent things that have been distributed through the same agency. The Cottager's Kale, one of the few Brassicas that withstood the late terrible winter, was a protégé of Mr. Turner's. But let us go on and find our way amongst the plants.

One of the most interesting of the many structures is that called the "long house," now filled with a stock of young pelargoniums, which are as clean and healthy as can be imagined, and in a state and shape suitable for specimen growing or conservatory purposes, having been stopped and encouraged to break nicely, showing a free growth of side branches. Most of them were in four and five-inch pots and quite ready, when transferred to the purchaser, to be shifted into larger pots, by which means they will make unique little flowering specimens this season. From this house we pass on to the houses in which are growing the specimen plants that are to adorn our forthcoming exhibitions of 1867. The building being commodious, the plants are allowed plenty of room for light and air, with the view of equalising their growth, and as they are somewhat elevated, the spectator has an excellent opportunity of observing their general configuration and dimensions; and the mode of training pursued is such as will produce the best effect when staged at an exhibition. I owe many thanks to Mr. Frost, the manager of this department, for the courteous manner in which he replied to my inquiries respecting the various properties of the pelargonium. I found the following to be favourite varieties both for exhibition and decorative purposes, and of most of them large stocks were grown, to meet the demand which is great at this time of year: *Show*: *Alba formosa*, *Alabama*, *Atalanta*, *Ariel*, *Bacchus*, *Beadsman*, *Boniface*, *Caliban*, *Charles Turner*, *Cœur de Léon*, *Conflagration*, *Decision*, *Display*, *Elegans*, *Empress Eugénie*, *Fair Rosamond*, *Fairest of the Fair*, *Festus*, *John Hoyle*, *King Arthur*, *Lady D. Canning*, *Lilacina*, *Lord Clyde*, *Leviathan*, *Mariana*, *Mary Hoyle*, *Nabob*, *Norma*, *Osiris*, *Peacock*, *Pericles*, *Pulchra*, *Queen of the Gipsies*, *Rose Celestial*, *Sir Galahad*, *Sir Colin Campbell*, *Sanspareil*, *Talma*, *Vestal*, *Viola*, *William Hoyle*. *French*: *Achille*, *Archimidee*, *Cuvier*, *Dr. André*, *Dr. Blanchett*, *Duchesse de Morny*, *Empereur des Pelargoniums*, *General Fleury*, *Guillaume Severeys*, *Lady Franklin*, *Madame André Dreux*, *Madame Corbay*, *Madame Rendatler*, *Marquis de la Ferté*, *Neptune*, *Octavie Malet*, *Pliny*, *Rubens*, *Théophraste*, *Victor Lemoine*. *Fancy*: *Acme*, *Anne Page*, *Blair Athol*, *Carminatum*, *Cloth-of-Silver*, *Clytie*, *Crystal Beauty*, *Godfrey Turner*, *Hebe*, *Lady Boston*, *Maroon*, *Miss in her Teens*, *Modesta*, *Mrs. Ford*, *Princess Helena*, *Princess of Prussia*, *Silver Mantle*, *Venus*. This may appear to be a long list, but it does not comprise a tenth part of all the varieties that are grown here. Strange to say, although I have selected the most popular kinds, and arranged them alphabetically, a selection made from them, by taking every third or fourth or fifth name, according to the number wanted, will secure as much variety of colour as if we were to go through the lists again, and classify them in colours for selection.

From the specimen pelargonium house I went on to a range of low span-roofed houses. In these I found more pelargoniums, chiefly of the spotted kinds, most of them showing well for a fine bloom. These have been grown expressly for early flowers, and consist largely of the French varieties, which are earlier than the show kinds. In one of the houses of this range I saw a grand collection of variegated and other kinds of zonale pelargoniums, and, again, in another house a vast assortment of the nose-gay race. I was gratified to learn that large stocks are being prepared of *Duchess of Sutherland*, *Lady Constance Grosvenor*, and *International*, three of the most striking of the new varieties shown last year, and which have been described in the "Garden Oracle" as amongst the finest nosegays known.

Bedding plants are grown here in immense quantities, and they may be seen in all stages from myriads of mites, just pushing out roots into comfortable beds of silver-sand in propagating houses, to thumping plants, almost bristling into bloom, such as in the trade would be called "nice young stuff." The verbenas were particularly healthy and strong, and of geraniums the quantity was enormous. The long rows of frames and pits were all filled with hedging plants, and it being a cold day and dusk approaching, they were all covered with mats to keep them from danger. One thing I noticed as worthy of remembrance—that there were many hundred pots of the glorious *Lilium auratum* of various sizes; these were plunged beneath the stages on each side of one of the span-roofed houses. The bulbs are treated just as was described by Mr. Prosper in the Magazine a few weeks back, and as a rule they are forwarded gently, no attempt being made to force them. This is a great convenience to buyers, who during the spring months can have bulbs just started into growth, but yet not advanced beyond the production of an inch or two of the rising crown, in which state they travel safely, and there is no risk of the bulb refusing to start or proving to be dead, as may sometimes happen with bulbs that have performed a long voyage. They have here several good varieties of this liliun; indeed, in respect of sportiveness, it appears already to have taken its place amongst florists' flowers, for there are at least a dozen (probably more) distinct forms of it, some snow-white, others having red instead of yellow stripes.

We were now conducted to the early rose house, and here I spent a very pleasing and instructive half-hour in surveying the plants and conversing with the manager of this department on their respective qualities and adaptations for the purposes for which they may be required. The health and cleanliness of the plants visibly contributed to the production of the fine buds I there saw, many of which were showing colour; but as soon as they are expanded they are cut, as the firm has a great demand for cut blooms. The specimens intended for the spring exhibitions were all trained, and had their buds quite prominently developed. With them, as with the pelargoniums, plenty of open space was allowed from plant to plant. There is another house in which some large specimens are but as yet only just pushing into growth, being but little forwarder than roses in the open ground.

Having bid farewell to the roses, we now arrived at a spacious house, the inmates of which are those gigantic plants of azaleas which annually excite the wonder of the crowds who behold them at our London flower shows. With the exception of Mr. Veitch's collection at Chelsea, there are not, I believe, anywhere plants to be found to match these monsters, either in magnitude or perfection of training, in the known horticultural

world. I observed to the person who superintended their training and culture, "What would our country cousins say when informed that only two of these plants could be packed in a van measuring 14 feet by 8 feet?" The circumference of some of them was upwards of 18 feet and in height from 6 to 7 feet! In fact, they are unique for size, splendour, and perfection of cultivation. The mode of training adopted may be styled crinoline fashion, with cross bars at intervals to support the hoops in position. Although it has a very formal appearance, they say it is far more beneficial in preserving the vigour of the plant than when they had to resort to the use of numerous stakes. There is also another house devoted to the growth of lesser-sized specimens, and to the cultivation of the newer and other varieties for sale. By way of finishing my view of the nursery, I took a stroll through the conservatory or show house, which was gay with forced and early spring-flowering plants, all of them in what will be understood as in Mr. Turner's style of treatment. In thus concluding my pleasing but instructive visit to this nursery, I wish to thank the heads of the several departments for their very courteous and obliging manner; and I would only say, by way of an appendix, that it would afford the means of edification to all engaged in gardening, if they would pay a visit now and then to such nurseries as are eminent for the superior growth of certain classes of plants.

JOHN F. M'ELROY.

BEDDING GERANIUMS.—No. XXXVIII.

My friend Horatius says with a quiet sarcasm, *Curtæ nescio quid semper abest rei*; and I confess I am in dreadful want of a little batch of plants that appear to be indispensable to human happiness,—they are geraniums of the proper zonale type, with true florists' flowers; the top petals as broad as the lower ones, the outlines circular and smooth, the substance that of camellia petals, the colours good; the plants altogether emblems of vegetable nobility. I remember, to be sure, the very sage observation of the same delightful person, *Denique non omnes eadem mirantur amantque*, and it does not follow at all that any of our readers should be in precisely the same condition of longing, or wish to be directed into any such channel of exhaustless wants. But on the speculation that there may be a few interested in the same hobbies as myself, I will hastily call over the names and the qualities of the plants, just as one might toss sixpences from a carriage window at the risk of their being picked up by appreciative fingers, or as, a week ago, I threw a handful of flowers into a lady's lap all at a venture, and was rewarded by the loveliest smile of approbation ever seen on this side of heaven. To provide for every appetite and to anticipate every taste are things impossible; but to say so much is only to repeat in prosy terms that which Quintus Horatius Flaccus sets forth in his second epistle (Lib. 2) as bearing upon the whole philosophy of life:—

*Gemmas, marmor, ebur, Tyrrhena sigilla, tabellas,
Argentum, vestes Getulo murice tinctas,
Sunt qui non habeant; est qui non curat habere.
Cur alter fratrum cessare, et ludere, et ungi
Præferat Herodis palmatis pinguibus; alter
Dives et importunis, ad unbram lucis ab ortu
Sylvestrem flammis ac ferro mitiget agrum;
Scit Genius, natale comes qui temperat astrum,
Naturæ Deus humanæ, mortalis in unum—
Quodque caput, cultu mutabilis, albus et ater.*

I therefore leave every one of our friends to the enjoyment of perfect freedom, that is, if guided by genius and governed by the stars, and circumstances consistent with freedom at all, and content myself with announcing that at the head of my list of desiderata for 1867, are the three large-flowering zonales raised by Mr. Groom of Ipswich, who has entered into this hobby with an enthusiasm worthy of so good a cause. One of those three is so good that it might be offered the first season at a guinea a plant, with perfect justice to the buyer, if the raiser could be content with the figure, as I presume he might be. Let me briefly describe it. The habit is robust but compact, freely branching and leafy, so that it soon makes a plant, and there is much to look at. The leaves are of medium size, orbicular, and slightly lobed; the zone broad, sharply defined on the inner boundary; the colour nearly black, with a disc and margin of deep grass-green. The flowers of course are the main feature. They are larger than crown-pieces and quite as flat; the edges smooth and sharp as if stamped in cardboard; the petals are one full inch wide, and they overlap so freely that the circumference of a good flower does not exceed six inches, but every one will make that measure in a well-grown truss. If there is any difference in the breadth of the several petals, it is this: that the top petals are the broadest, sometimes measuring $1\frac{1}{2}$ inch from right to left, and the trusses will usually measure 5 to 6 inches in diameter. The colour is a kind of dull solid pink, it may be a reddish pink or a pure pink; it is impossible to find terms for all the shades of colour we meet with in nature, and I can perhaps best describe this as Beauté-du-Suresne colour with a slight wash of red added, and with not a trace of white in the top petals. It only remains to give the name, which is *Miss Martin*. Whoever the lady be, she never need regret having had so noble a flower associated with her name. I believe it for the present to be the best variety for 1867. Next to this in the same series we have a red: it will by some be called scarlet, by others crimson; the proper designation is, in my opinion, *Red*.

Now we have very few red geraniums: Rubens comes near it, but is not true red. The rule seems to be that nature mixes so much orange with the red as to make it scarlet, or so much indigo as to make it crimson, or subdues red and blue together into the elegant innocent-looking compound we term pink. Here is no trace that I can discover of added blue or yellow, and we have the very colour for which in former papers of this series I have uttered many expressions of longing. But let me not forget the quality: a great round flower, thick like velvet, smooth as marble, the petals an inch wide and overlapping, the truss immense, the leaves boldly marked with a brownish olive zone. The name of this is *Sir Fitzroy Kelly*. No. 3 in the series is a charming dwarf white, with flowers like White Perfection, and I am inclined to believe broader in the petal, and with a finer finish. Here, indeed, appears to be a perfect bedder, and if it has a good season to make its *début* it will become popular; but a bad season may do for it, as many a good thing has been done for—that is, do for it in the popular meaning of the term, for the success of a bedder depends very much on first impressions. The leafage is very neat and abundant, with very dark rich zone shaded black and chocolate; the flowers come in good trusses, and are pure white, without a trace of colour. Whether they will keep white during a term of six weeks' torrid weather we have yet to see—also if we shall have torrid weather any more in this country. We have tasted the cold lamb minus mint-sauce of the month of March, and while I write this the lion is roaring, and looking ridiculous, with sleet on his mane, which is now no emblem of main-force. The name of this No. 3 is *Floribunda alba nana*. The plant is better than its name, and will do credit to my recommendation.

I now turn to Mr. George Smith's list, remembering that in Chieftain, Sir Robert Peel, Great Eastern, and Christabel, last year, he stood bravely for the florists, and justified those friends of his who aver that he never sent out a bad thing. Now he offers seven zonales, and I pitch upon *Warrior* as the best of them. This is a true scarlet, of fine quality, and the outline a true circle, the petals extra broad and stout, the leaves faintly marked with olive zone, the style generally quite soldier-like, brave, and handsome. *Hector*, in the same list, is also scarlet, of a deep, heavy, rich tone; the leaves have a dull greenish zone; the habit first-rate. We shall have to call this *Smith's Hector* hereafter, to distinguish it from Bull's *Hector*, which is a charming variety with puce-coloured flowers.

The next I note as a desideratum is *Pink Globe*. This was raised by Mr. Windsor, and is not to be confounded with one bearing the same name from the seed-bed of Mr. Frost. You will find the exact truth in the "Oracle," where Frost's *Pink Globe* is described as "a commonplace pink," and Windsor's as "leaf large, zoned, large trusses of pink and white flowers; fine." I repeat the last word, FINE, and pass on to another series, but without forgetting that somewhere there is a pretty seedling of Mr. George Smith's called *Lillo*, about which I shall inquire when I next meet my worthy friend.

From Messrs. Downie, Laird, and Laing's set I should select *Fair Helen*, a very beautiful large-flowering variety, which reminds one of the prevailing muslin-like style of the fancy pelargoniums, the colour being blush-pink, and the flowers most abundantly produced. *Lord Lyon*, from the same, will make both a bedder and a pot-plant; it is not A 1 for the florists, but makes amends by peculiarly useful qualities, being a good grower, and most profuse of flower; and the flowers are as good as those of *Attraction*, which is a good type of an intermediate race—good enough for pots, yet never too good for beds. If this were put in competition with *Attraction*, it would beat it at every period of the season by its vastly more abundant flowering; so it is pre-eminently a variety for the people. *Mrs. Menzies* is first-rate in form and character, and the first of the salmon-class we have met with in this summary: the colour is clear rosy-salmon, the form is perfect, and in this respect it is especially worthy of notice, because the best salmon flowers are generally rather inclined to narrowness of petal. Last in this series, but not least in merit, is *Sambo*, a splendid thing, though it is but a scarlet. The form is in accordance with the most finished type of a florists' flower; the truss large and globular, the colour intense glossy scarlet, quite novel in tone, though the term scarlet is so commonplace in this connection.

Let us now look at Mr. Salter's lot. Here I begin with *Aurora*, a showy variety with vermilion flowers and properties nearly perfect—a fine thing for the conservatory stage. *Phœnix*: green leaves with sometimes a trace of a zone, the flowers nicely formed, top petals scarlet, lower petals scarlet shaded crimson. *Pink Pearl*, large, round, and smooth; colour a delightful shade of pink, with white spots on top petals; the leaves dull grass-green. If I had not resolved to speak of such only as are first-rate for pot-culture, I should add here *Queen of Denmark*, a capital dwarf-habited variety, which quite supersedes Madame Barró. Mr. Salter says it is without the white blotch; but did Madame Barró ever have a white blotch? If it has, or had, my memory is failing;

for the present I hold to the belief that it is the most self-coloured of all the pinks.

Next I turn to Messrs. F. and A. Smith's lot, several of which I flowered at home last year. There are some good things here in the broad-petal way, and some new things too, as, for example, *Queen of Beauties*, a painted flower, the predominating hue cerise, deepening at the base to vermilion, and then giving place to a white eye. The flowers are large and round, and in huge trusses. A well-grown specimen of this will have a remarkable appearance. *Magnificent* is grandly built, the trusses noble, the colour brilliant scarlet. *Perfection* is in a new shade of colour, a mixture of pink, cerise, and salmon; as to form and all the rest of the properties, equal to anything known. *Clio* is a lady's flower, of most chaste colouring and elegant construction: the colour is orange-salmon edged with white or blush. I think *Amelina Griseau* must at last give way before this beautifully painted flower. In form and truss first-rate. Add to these, if you are not yet satisfied, *Eclat*, a very showy scarlet of the finest form, which also answers, and is first-rate, for bedding. *Cynosure*, superbly painted, according to the prophecy in a former paper of this series, blush-white with vermilion centre. *Masterpicce*, cerise glowing up to flame-red; and *Mr. Bowley*, brilliant cerise, and all that could be desired as to form even by an auricula grower.

As no collection is complete without a few of the best of the double flowers, I must name a few for present purchase; and as many collectors of zonales have not yet, because of their high price, ventured into this region, I shall not be so strict as to the newness of the kinds brought forward. The old Roman sages had a proverb, *Ignoti nulla cupida*—"no desire is felt for that which is unknown;" but the case is altered the moment we have heard of something that is represented as affording delight to some section of humanity. So with the doubles: many country growers know nothing of them yet, but they must have felt the kindlings of desire. First then I name *Martial de Chanflour*, *Triomphe de Clermont*, and *Triomphe de Gergoviat*, as identical; and I think we cannot do better than know this variety by the name under which it was first published, that is *Martial de Chanflour*. This is a nice variety, though it varies much. When poorly grown, the flowers are chaffy and quite semi-double; when well grown, they are fashioned like a double Chinese primula, and the colour is a fine deep vermilion red. Hitherto the temptation to grow it poorly has been strong, for everybody has wished to seed it, and the likeliest way of doing that is to keep it on a hot shelf in the full sun, in a starved condition as to soil and water. But grow it in a mixture of equal parts loam, leaf, and rotten dung, with a good proportion of pounded oyster-shells and sharp grit added, and give the hottest shelf in the house all the early part of the season, and when it blooms late in the summer the flowers will be fine. *Triomphe de Thumesnil* is a remarkable geranium; the most remarkable of all the doubles, and quite essential, not only to see, but to be talked about. The flowers number fifty to seventy in a truss; the petals are as large as in the single kinds, and there are about twelve in every flower; the colour is rosy violet shaded carmine. You may now obtain a plant of this for half a guinea; can there be a cheaper floral joy? I should think not, but, as remarked above from Horatius, tastes differ, and Persius (4th satire) gives us the philosophy of the case in a most harmonious couplet:—

*Mille hominum species et rerum discolor usus
Velle suum cuique est, nec voto vivitur uno.*

Gloire de Nancy, of Lemoine's, flowered finely last year, and was gloriously double, and the best double undoubtedly of all that were sent out prior to 1866: the colour is a deep rose-red of a most pleasing shade. Still better is *Surpasse Gloire de Nancy*, which has larger flowers than its parent (for this is a seedling from *Gloire de Nancy*); the form is fine, and the colour brilliant rose carmine. This "Surpasse" you may obtain for half a guinea, so at least Mr. Salter tells me, and it is down in our list for this season's purchase. *Capitaine l'Hermitte* is another good one, the habit peculiarly dwarf, and the flowers more abundantly produced than in other doubles. The colour is rose-pink with crimson shade. I fully believe this will be a bedder—we want double bedders to obviate the nuisance of free seeding—and all who can afford to give this a trial out of doors should do so in 1867. There remains but one more, and that is *Auguste Ferriere*, one of the first of the double series, and now pretty well superseded. But there can be no harm in throwing it in at the end, for it will only cost a couple of shillings, and it is the most likely of them all to give a few seeds, every one of which will be worth a crown at least.

S. H.

SWIFT AND THE PEACHES.—Swift often coined proverbs to answer his own purposes. When he was one day walking with some friends in the garden of an avaricious old man, who was very particular about his peaches, he suddenly stopped at a standard tree, and exclaimed, "It was an old saying of my grandmother's, 'Pull a peach when it's in your reach,'" which he did, and the example was followed by all present.

ROSES AND ROSES.—No. V.

O P Q treated himself a short time since to a set of the first series of THE FLORAL WORLD, in order to read with care the series of papers on roses which I contributed to that work from 1858 to 1865. One of the first things that struck him was a suggestion for carpeting the ground with rose-blossoms, and upon this subject he asks for further advice. I dealt with him as I deal with you, in the plainest possible manner, saying that if I were to write fifty essays on carpets of rose-flowers, I could not do better for lovers of roses than I have done already in "The Floral World" and in "The Rose Book." There are people who like to hear the same story over and over again. There are some little friends of mine who beg me, every time they can fix me in an easy chair, to tell the story of Marmontel and the golden violet of Toulouse, though they have heard it a dozen times already, and actually anticipate me in some of the details, as, for example, when I say, "he saw through his tears the arms of an aged man stretched towards him," they interpose with much hurry, "That was Father Molasse." So I suppose, if I go into this matter now, some of our friends, and O P Q amongst them, will ejaculate at certain points, "The old wood you cut away, yes"—"peg down the long-rod, yes"—"like long-rod vine-growing, eh?" &c., &c. However, here goes. You require, in the first place, a broad space on which to make the display, and there is nothing so suitable as a slope, say the face of a bank, rising very gradually; a steep bank is quite unfit, because the summer rains would escape from it, but a very gentle slope will catch the summer rains. On the side of a promenade is a capital position, and I should prefer to make the rear boundary of the bank an irregular plantation of evergreens—something in the way of the subjoined arrangement, in which you must make allowance for the supposed undulating line, which is the best the printer's types will do. In the actual working out of the scheme we should draw that line in flowing curves, varied with a few bold prominences, and at those prominences some suitable specimen trees would be planted. In the front line there might be a narrow ribbon, consisting of *quiet colours*, to finish the work—such things as *Cerastium*, *Golden Balm*, *Viola cornuta*, *Viola lutea*, *Oenothera prostrata*, white *Verbena*, *Heliotrope*, and *Ageratum* would be suitable; but no scarlet or rose or purple should be allowed there.

Background of mixed shrubs.

Roses pegged down.

Ribbon planting.

Walk.

The ground for the roses should be thoroughly well prepared. To every space of 200 square feet one good load of half-rotten dung should be allowed with deep digging, and in the case of clay as much leaf-mould as the proportion of dung should be added, if possible. As to the planting, there must be a little thought before hand whether the colours are to be harmonised by rule or by accident. I never say any more than I can help on matters of taste, always desiring my friends to please themselves; but if any body wants to know how I should arrange the colours, I have to say I should not arrange them at all; I would, if in any perplexity, call in a blind man and tell him to take the roses at random, and place them all over the ground at a yard apart every way. But the sorts must be thought of, for we cannot proceed without suitable plants. Now, the more they are mixed the better, I think: we want *Teas*, *Noisettes*, *Bourbons*, *Perpetuals*, and for the front part of the planting some of the *Bengal roses*. The rule in ordering should be to give the preference to those that bloom abundantly and grow freely. At the end of this paper I will give a list of sixty that will serve for this sort of work for this season, and for at least ten years to come, no matter how many good roses may in that time be introduced. Plant them a yard apart; if they are *Manetti roses*, plant deep enough to cover the work at least two inches, and you may practise notching, as taught in "The Rose Book," to quicken the formation of roots above the work. But if you can obtain the necessary plants on their own roots, do so, even if you pay three times as much for them. Having planted them, and trod them in firmly, let them grow as they please the first season, keeping the ground clean the meanwhile; and if the piece has a poor appearance, sow in the intervals between the roses a lot of showy annuals. In the following winter, during dry weather, prune them and prepare them for the next season's work. You will find them to consist of hard wood, on which flowers were produced, and young strong rods of the previous year's growth. You are to cut away from the very base as many of the old

shoots as you can spare. If you can cut them all away the better, but you must save enough new and old to cover the ground when they are pegged down; and in some cases old rods must be kept to flower a second time, just as in the long-rod system of grape growing a rod is sometimes fruited a second time. Having removed with the knife as much of the old wood as you think you can spare, proceed to shorten the longest of the young rods. As a rule, you may take off a fourth or fifth of their length. The next thing to be done is to lay down over the whole piece full three inches depth of half rotten dung; after which there will be nothing more to do till the beginning of March following; then have ready a great heap of strong pegs. I have never had any difficulty in finding stuff for pegs amongst the prunings of trees; every peg should be a foot long, and should end in a fork. Those not used to cutting such pegs will soon learn how to do it by five minutes spent in experiments, and at the worst they may buy a few bundles of new pea-sticks, and make pegs therefrom *ad lib.*, and the leavings will still do for staking peas. With these pegs fix the long rods to the ground, bending them this way and that way, with a view solely to cover the ground equally, not with a view to spread out the branches of any particular rose, according to system; for it matters little how the branches cross each other, they will all be cut away the next year, and when the roses are in full growth, the pegs and rods will be alike hidden by leaves and flowers. I shall not dwell upon the result of all this; I leave it to your imagination, if you know nothing about it; and to your pleasures of memory, if you have ever carried out the plan in a spirited manner; it will suffice to say that the ground should be quite covered with roses and green leaves.

As the flowering season comes to an end, new rods will be rising freely. Let them rise. Some of them will attain a height of ten feet, most of them will make five to seven feet of growth. In the autumn you may find it necessary to thin out some parts of the plantation, and actually to leave the stools two yards apart. At all events, you must now cut away all the wood that flowered, bearing in mind, however, to keep it to flower a second time in cases where there is not enough of new wood to take its place. You must next lay down a coat of manure, and you must then wait till the first week in March, and peg down the long rods as before. Thus the wheel turns round. If you want to introduce new roses, you have simply to lift so many old ones to make room for them. If you want to make a great change, you can replant them in lines, curves, or clumps of separate colours. But here again we come upon matters of taste, on which, for the present, I shall say no more. I am bound to say, however, that though I have seen many examples of this mode of displaying roses, I have seen only three good examples of it, except such as I have carried out myself, both at home and in gardens that I have laid out and planted for others. I have seen it well done by Mr. Chitty, who gave an account of his mode of procedure in the third volume of "The Floral World" (p. 103). I have seen it well done in the garden of Miss Burdett Coutts at Highgate, and I have seen it well—more than well, grandly—done in the garden of Mr. C. J. Perry of Castle Bromwich. I can tell you how to do it badly. Choose poor ground, and humbug it—that is, scratch instead of dig—and manure with washed-out stuff that has been lying about for years, as the people in a certain part of Britain make their soup from

bones tied to a string, and that are lent about from house to house for years together. To complete the process, select weak wiry growers, and having done it, move away. Now for the sixty, all of them adapted for the work, and good autumnal roses.

Hybrid Perpetuals.—Admiral Nelson, Alex. Beechmeteff, Anna de Diesbach, Anna Alexieff, Baronne Prevost, Cardinal Patrizzi, Centifolia Rosea, Charles Lefebvre, Charles Margottin, Colonel de Rougemont, Deuil de Prince Albert, Duchess de Medina Cœli, Empereur de Maroe, Eugène Appert, Exposition de Brie, General Jacqueminot, General Washington, Glory of Waltham, John Hopper, John Grier, Jules Margottin, Louise Darzens, Madame Alfred de Rougemont, Madame Knorr, Madame Charles Verdier, Madame Elise Vilmorin, Madame de Cambaëcrès, Madame Gustave Bonnet, Madame Victor Verdier, Madlle. Betsy Haiman, Madlle. Berthe Levêque, Maréchal Souchet, Paul de la Meilleray, Princess Mary of Cambridge, Sénateur Vaisse, Souvenir de Lady Eardley, Victor Verdier.

Hybrid Bourbon.—Louise Odier, Modèle de Perfection, Acidalie, Gloire des Rosomenes, Queen, Sir Joseph Paxton, Souvenir de la Malmaison.

Noisette.—Celine Forestier, Desprez à Fleur Jaune (otherwise called Jaune Desprez), Maréchal Niel, Triomphe de Rennes.

Tea.—Alba Rosea, Devoniensis, Gloire de Dijon, Naresse, Niphotos, Président, Vicomte des Cazès.

Bengal (for front line).—Archduke Charles, Fabvier, Marjolin du Luxembourg, Mrs. Bosanquet. The pretty *Noisettes* Feltenberg and Aimée Vibert are also well adapted for the front line.

O P Q is always in a pretended perplexity about the proper time to plant roses. I say pretended advisedly, because no one can read a page of any respectable book upon the subject without learning something substantial under that head. As to the planting of such a bank as I have herein suggested, the month of May is the best time, or if the bank had been made ready a month ago, now would be the best time, provided the roses could be obtained in pots, and had never known the taste of artificial heat. And in an extreme case, I would as soon take up strong roses from the open ground now, or even up to the first week in May, if I wanted to gain a season in planting. My out-door roses have been cut about some-

what by the winter, and I am now having them all lifted, rearranged, and replanted, in order to get rid of the cripples, and put a new face on the matter. What I can do anybody else can do; and I will warrant there will be plenty of roses here—that is, for the space they cover—next July, more perhaps than if we had left them untouched. Our reason for doing this job so late is that there has been too much of other work to permit of its being done earlier.

I was amused last week when I opened the Magazine, to find Coupe d'Hébé represented as a dark rose. I soon discovered how it came about. In my hurry, I had forwarded to the printer the wrong woodcut, the same, in fact, as was employed to illustrate Mr. Clarke's paper, published on the 8th of December, 1866 (page 546), and which represents General Jacqueminot, as we did it with the plunge-bed out of doors. I now beg pardon, and present Coupe d'Hébé, in its proper shape and colour, as a model for all ambitious rosarians.

S. H.



Pot Rose Coupe d'Hébé.

THE Rev. Henry Ward Beecher, describing his now organ, says: "The swell died away in delicious suffocation like one singing a sweet song under the bed-clothes."

PET BEDS FOR LADY FLORISTS.

The following short list of useful flower-seeds for bedding are given with a view to assist the fair readers of these pages in attaining an object we know they often desire—that of filling a few beds with flowers of their own raising. For want of knowing what to choose to make a lasting display for the season, and how to grow them when chosen, they frequently give up in despair a task that might be full of delights. Many ladies have perhaps tried and succeeded in so far as to secure from the ordinary list of annuals a few weeks' run of flowers, but at the expense of seeing their beds nearly if not quite empty by the time the ordinary bedding plants are at their best. But such is the fate of many of our most popular annuals when sown, as most people are anxious to sow them, early in the season. Mind, this is not depreciating annuals; I am only reflecting how inexperienced people take them up and are disappointed with the result. The fine flattering descriptions we too often read in the announcements of the seed trade, which the unwary are not always prepared to look upon with the same amount of caution as the old practitioners, lead many astray, and the result is injury to horticulture. But now to my subject with all speed, and I shall choose first the

CALABRIAN SOAPWORT (*Saponaria Calabria*).—A better thing than this we have not in the whole list of annuals, it being easy to raise, not at all particular as to soil or position, and, above all, one of the most abundant flowering plants known, as it will last in full bloom far on into the autumn. When grown in a circular or oval bed with the centre somewhat raised, it has a very pretty effect. I say pretty advisedly, because it is never gaudy, but throughout the season it continues to present a complete mass of flower. Its growth and habit, too, are so regular, so free from all ugliness, that I cannot say too much in its favour. It may be sown at once in the open ground, in a deep pulverised soil that has been well exposed to the weather during winter. The seeds should not be covered more than half an inch deep, and sown pretty thickly, removing some of the plants if they come up too thickly. At the same time a little seed should be sown in some six-inch pots and carefully attended to. These will come in useful should the seeds in the bed come up irregularly, as they may be used to fill up any gaps that occur; or the seed in the first instance may be sown in pots and planted out, the same as ordinary bedding plants. But for myself, I give the preference to plants raised in the open ground. It is not a gross-feeding subject, therefore does not need strong stimulants, but it is greatly benefited by a few good soakings of water in dry weather, which should be given from a fine rose.

SCARLET FLAX.—The next subject, and amenable to the same course of management, is the *Linum grandiflorum*. This is another continuous-flowering annual. It will grow and flower vigorously in a rich deep bed of soil, and is eminently adapted for lady cultivators, as the growth of the plant has a kind of refinement about it such as is generally admired by all our fair readers. There are three kinds—a blue, a white, and a scarlet. The last-named is the one I recommend. I have succeeded best with it when I used to sow about three seeds in some fine light earth in thumb pots. I have placed them in a cold frame early in April, and planted them out in May. But at the place I grew it our position was low, and consequently our soil was damp and cold in the early spring. In warm dry soils, I see no reason why the seeds should not be sown in the open ground, using the same precautions as to securing a few plants in pots, to fill up any gaps that may occur, as advised in the case above.

PURLANE.—I shall next name an old but too much neglected favourite—the *Portulaccas*. The constant accessions to the number of our bedding-out plants have quite driven these out of the field, but I trust this notice may induce some of our readers to bestow upon them a share of their favour, as they are deserving subjects. It is true they are somewhat more troublesome to raise than the hardy annuals, but their beauty more than repays for any amount of trouble they may take to bring them into use; and, as compared to the little extra trouble, the beauty of these plants is an important consideration. Indeed, I cannot imagine anything half so chaste and beautiful in the whole list of annuals, being quite distinct from any commonly grown; and their neat habit of growth, and the chaste markings of the flowers, render them most fit of all to be favourites with the ladies. But to grow them satisfactorily they must have special treatment. In the first place, I may say, that if it is desirable to have a perfect bed, the seed should be had in separate colours. Messrs. Carter and Co. of Holborn used to supply me with a collection of twelve different colours, out of which I could select at the time of flowering eight sufficiently distinct to warrant their being separated, but the remaining four differed so little from the others, that a casual observer could hardly assign to them any peculiar distinctness. That, however, is of but little consequence when compared to the advantage of knowing that you can depend upon the majority coming true to the colours given, as when planting you can the better balance the colours, by arranging the most distinct at such distances as will secure an even distribution

of the most prominent tints over the bed, and by filling in the doubtful ones between, all risk of there being a predominance of any colour over one part of the bed will be avoided. For those who might not care to take the trouble to raise them in separate colours, a shilling packet of mixed seed will be sure to repay the cultivator for all the pains he may take with them. In preparing the pots or pans in which to sow the seed, let them first be thoroughly cleansed and dried, and then half filled with broken potsherds for drainage. Next pound into dust some old mortar, and some old bricks into small nodules, about half the size of hazel-nuts. Take equal quantities of these pounded bricks, silver-sand, and dry leaf-soil. Fill the pots to within an inch of the rims with this mixture, and give it a gentle soaking of water. When this is drained away, sow the seed (which is very fine) thinly on the surface, and cover with a very little dry silver-sand. If the pots are placed on a warm shelf in the greenhouse, and carefully shaded, they will not require any water until the young plants are showing themselves; or they may be raised in a warm room with a southern window. But here they may require water once or twice before the seed germinates, as the air of a room is usually more drying than that of a plant-house; and the water must be given with a very fine rose. From the first to the middle of April is a good time to sow the seed. It will be important to remember that water is the greatest enemy of these plants; but from the time you can detect the first appearance of the seeds germinating, you cannot give them too much heat, as they delight in a dry heated atmosphere, and thrive best when they have but little water and an unbroken continuance of brilliant sunshine. When the plants are well up, in very bright weather give them water twice a week, not more; and not through a rose now, but lay a small convex potsherd just over the rim of the pot, upon this pour the water gently from the spout of a small water-can, and by tilting the pot or pan gently on one side, the water will distribute itself over the whole surface without damping the succulent leaves of the young plants. When I used to grow them, I never pricked them off from the seed-pans; I rather prefer to sow the seed thinly, and grow them on in these pots until the first week in June, when they may be bedded out. Now for the bed; and on the proper construction of this depends in a great measure the success of the cultivator. In the first place, take away all the soil in the bed twelve inches deep, and place in the bottom six inches of brick-bats or flints; upon this put another six inches of the same mixture as advised above for sowing the seed in, but this need not be broken up so fine; into this prick out the plants three inches apart, give a little water, and shade for a couple of days if the weather is very bright, and then leave them to fate. If the summer should be a favourable one, then the result will be a brilliant bed of colours that cannot be surpassed if the whole range of annuals were grown and shown by the side of them. In an ordinary summer they will produce an effect that will surprise many who have never grown them. If we could foretell what the coming summer was going to be, and that it would be a bright sunny one, we might dispense with the drainage beneath the plants, and use the mixture only; but in the absence of any foreknowledge, those who intend to grow them had best adopt the precaution of using it, as a thorough system of drainage is at all times essential to success.

THE GALLARDIA.—*Gallardia picta* is another subject that gives a variety and change of colour, and continues to flower throughout the season. Sown now in a warm place and nursed along, they may be planted out towards the end of May.

JAPAN PINK.—This is the *Dianthus Heddwigi*, of which there are double and single varieties, all of them most charming things to keep up a lasting display. They should be sown in heat, if possible, at once, and planted out in May.

EVERLASTINGS.—For a tall noble subject that will give flowers from July onwards, we have the *Helichrysums*, or everlasting flowers. They make a grand display if planted in deep rich soil, to say nothing of the handsome bouquets they make for in-door decoration during winter.

The above short list contains some of the best of annuals adapted for bedding; but I have not yet exhausted the list, which I may return to some other time.

J. C. CLARKE.

SELECT LIST OF ANNUALS, WITH NOTES ON THEIR CULTURE, &c.

For several years past the demand for greenhouse bedding plants has been on the increase, and the cultivation of annuals has been on the decline. There are at the present time but few gardens in which there is any attempt at the culture of a general collection as formerly, although seedsmen's catalogues enumerate endless varieties. Yet I will venture to say of the many there described but a very few are now inquired after. This is to be regretted to some extent, because among them are to be found some real gems of the floral world. As regards showy and striking colours, they are not to be surpassed by the majority of our bedding plants, so that I do not think it is wise to entirely banish them from our gardens. Then comes the question as to the selection of the best, so that we may ensure a few out of the many that partake of the most useful properties

for all purposes; and as we consider they are indispensable in all well-cultivated gardens, we will, without attempting to classify them, speak of a few, as our memory aids us, with descriptive notes.

SWEET PEAS.—Instead of first sowing these in pots, and afterwards transplanting them into the borders, we would advise the drawing of a drill of some length in a convenient part of the kitchen garden that is easy of access without disturbing the general crops. They would make a very good screen as they grow, if needed. They are very valuable for cut flowers on account of their fragrance. If the soil is very rich, give them taller sticks than usual; always take care they are well supported when growing, for if their tops are allowed to hang over by reason of their weight, it will shorten the duration of their flowering season.

VIRGINIA STOCK.—Common as this annual is, it is yet very beautiful, although it does not last long in flower; still it is to be prized on account of its early blooming. If sown as an edging round a bed, or in a line as a border, it has a very pretty effect. When past flowering, it can be removed to make way for the growth of other plants that will flower the same summer.

CALLIOPSIS.—For a mixed border nothing is more desirable, as they continue to flower more or less during the season, and are very showy, being rich in colour. All the varieties are good.

LUPINS.—A few years since these were favourite flowers in almost every cultivated garden; but now you may range through many grounds in the kingdom before you will obtain a sight of one of them. *L. Cruikshankii* has a very noble appearance; it grows tall, and throws up splendid spikes of flowers. It is well adapted for planting in the back rows of a mixed border. *L. Nanus* is a very neat dwarf plant, and blooms in profusion; it forms a pretty edging, or an excellent bed if needed.

CONVOLVULUS MINOR.—Where there is space sufficient to sow patches in the border, nothing can possibly exceed the grand display these make on a fine summer morning, producing as they do large quantities of rich blue and purple coloured blooms. Always thin them, leaving from three to five plants in a patch, and if possible plant them on the north side of a window, as they turn their faces always to the south, and will therefore be seen from the window with advantage.

MALOPE GRANDIFLORA.—Very showy and free flowerer; in every way suitable for sowing in patches in the back row of a border.

ERYSIMUM PEROFFSKIANUM.—There are very few plants that can boast of so decided an orange colour as this annual. This makes it the more attractive. Growing in patches in the border, it has a very pleasing effect, as it continues in flower for some months.

NEMOPHILA INSIGNIS.—This well-known annual requires no comment from my pen in its favour, as it is already an established favourite; but it is not generally understood that it will make a very showy and effective bed early in the spring. My plan is to sow it in drills in November, affording sufficient width to plant bedding plants betwixt when it is in flower in May. To ensure strong plants and good blooms, bestow some care on the thinning of the rows or patches.

SAPONARIA CALABRICA.—There is something very interesting and dazzling as you gaze on this striking annual when in full bloom; it literally appears to clothe the surface of the earth on which it is growing with a countless multitude of starry pink coloured flowers. It continues a long time in bloom, and forms a very neat edging if used as such. It is seen to great advantage when growing on a slope or bank.

I could extend this list threefold; but my object is to create a taste for the cultivation of those that are really desirable. JOHN F. McELROY.

CANDLEMAS DAY AND THE SUBSEQUENT WEATHER.

Some time ago Sir J. Herschel recommended persons who attend to the "signs of the weather," and put faith in any particular weather-adage often repeated, to keep a note-book and set down, without bias, all the instances in confirmation or in contradiction of the same; and he added that he would be very glad to enlarge his own experience by the obliging communication of such memoranda (*Good Words*, January, 1864). One of these popular maxims has had a remarkable fulfilment in the present return of winter.

Sir Thomas Browne, in his *Vulgar Errors*, quotes a Latin couplet as follows:—

Si Sol splendescat Maria Purificante,
Major erit glacies post festum quam fuit antè.

That is, "Should the sun shine out at the purification or churching of the Virgin Mary, there will be more ice after the festival than there was before it."

The adage is thus paraphrased in the popular Scottish rhyme:—

If Candlemas-day be dry and fair,
The half o' winter is to come and mair;
If Candlemas-day be wet and foul,
The half o' winter's gane at Yule.

Now last Candlemas-day (February 2nd) was a remarkably fine day in London, and, as far as I can ascertain, much about the same throughout the country. I noted it at the time with the view of verification.

In Germany there are two proverbial expressions on this subject: 1. The shepherd would rather see the wolf enter his stable on Candlemas-day than the sun. 2. The badger peeps out of his hole on Candlemas-day, and, when he finds snow, walks abroad; but if he sees the sun shining he draws back into his hole.

It has been deemed not improbable that these notions—like the festival of Candlemas itself—are derived from pagan times, and have existed since the infancy of our race.

Forster, a very patient and accurate observer, states that he has "noticed this to be a critical time of the year with respect to the weather," and that, when mild and wet, winter is actually gone, and we may calculate on no more frost, quoting another version of the proverb:—

If Candlemas-day be fair and bright,
Winter will have another flight;
But if Candlemas-day bring clouds and rain,
Winter is gone and will not come again.

Probably Candlemas-day was only the prominent day selected to fix the characteristic of the period, extending back to the 23rd of January, by which time the utmost rigour of frost is usually expended, followed by westerly gales, "mild and wet"—in countries where the seasons are more regular than in England. Fine and frosty weather at the period would therefore indicate a continuance of wintry weather. A. S.

Calendar.

WORK FOR WEEK COMMENCING APRIL 6.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Successional sowing may be made of all leading kitchen crops, and where the work of the last month has been delayed, seeds got in early will not be much behind those sown last month. Sowings should also be made of Horn carrot, Savoy, Brussels sprouts, Scotch kale, broccoli, cauliflowers, and cabbages, for autumn use; a succession of such things being preferable to a glut all at once for the private grower. The main crop of cabbages should be up by this time, and must be hoed between when the ground is in a fit state. Beet should be sown this week or next, in ground deeply dug, but not manured; the main crop of celery should be sown on a rich warm border, the surface to be made light and fine; sow thin, and merely dust the seed over. Sow also onions, lettuce, radish, small salad, seakale, and asparagus; the two last in drills, one foot apart, and one inch deep for asparagus, and two inches for seakale. Another mode of raising seakale plants is to sow in four-foot beds, the seed to be in patches of eight inches in diameter, and two feet apart, and about eight seeds in each, the plants to be thinned to three plants in each patch; the ground should be rich, well drained, and deep. Beds may also be formed now by planting roots, but the best plantations are those raised on the spot from seeds. Those who purpose raising seedling rhubarb plants should sow about the middle of the month in shallow drills, eighteen inches apart, dropping the seeds in patches six inches from each other. Potatoes not yet planted should be got in without delay, and towards the end of the month scarlet runners and French beans may be sown; the runners should have a warm dry position until the 1st of May, when they may be sown in almost any soil or situation without risk, but, like most other things, yield the best crops on ground well dug and manured. The main crop of carrots should be got in about the fifteenth of the month, and there is still time for a crop of parsnips, but they must be sown directly. Slips of kitchen herbs may be put in any time this month, and will root quicker if planted in a rather dry sandy border.

CELERY.—Sow for the last time, in seed-pans, and place on a hotbed; but if no convenience of that kind, sow on a warm dry border, and it will come up in time to make good plants for a late supply. When there are no conveniences for growing celery in trenches, useful plants may be had for soup by sowing any of the red kinds on a warm border, and when large enough, planting them out in beds, six inches apart every way. These need not be earthed up at all, as the earthing is intended to blanch it, and for soup that is not necessary. This plan is recommended for poor shallow soils where fine heads of celery for table cannot be produced. Prick out, on a bed of three parts rotten dung and one part loam, the plants from the last sowing; and pot off singly, in 60-sized pots, the plants for the first crop, which encourage with a moist heat in a cucumber pit. We always turn out from the pots our first crop of celery, and obtain fine heads early in the season; it is a method which occasions no check to the plants.

ONIONS for salads to be sown frequently. Fork over the beds of main crop, and if no blade appearing, or if the blade is thin, make up your mind whether you ought to sow again. Onions sown last autumn may now be transplanted to rich beds, in rows nine inches apart, and be helped with occasional sprinklings of guano on the surface.

POTATOES.—It is not too late now to get in the main crop, but it had best not be longer delayed.

TOMATOES, CAPSICUMS, &c.—Pot off as fast as needful, and keep them growing vigorously. It is not too late to sow if they have been neglected.

VEGETABLE MARROW sown now will produce almost as early as those sown a fortnight or a month since. It is best to get the plants on singly in pots, as they are shorter and stronger when turned out than if grown several in a pot and allowed to sprawl about and spindle away their strength.

OUTDOOR WORK.—The month of April is one which generally tests severely the cultural capabilities of the gardener, as well as his ways and means. The weather may be summer one day and winter the next; and inexperienced hands may easily be led astray by the temptations of warm showers and sunshine to regret afterwards the havoc caused by sudden frosts, storms, and even snow and hail. In the general work of the garden, many of the directions—especially as to sowing—given last month apply to this, and more particularly to those who live in exposed districts. Those who live far south, in the almost Italian climate of Devonshire, will often have things up at the time we are instructing them to sow; while residents on the bleak Northumberland coast, or in the eastern parts of Scotland, will always be a fortnight, sometimes a month, behind us.

KIDNEY BEANS.—Sow a small lot of Newington Wonder or Fulmer's forcing beans on a warm border at once, and in ten days make another sowing. Sow Negro or Speckled Dun the third week, and runners the last week of the month.

BEANS to be dressed with soot or wood ashes, and hoed up quite to the lowest leaves. Sow for succession; they like a rich retentive soil.

CUCUMBERS.—Sow for ridging out, and get the plants forward in pots. They turn out better when singly, in 60 or 48 pots; they should have no check. Shift those already forward. Splash water about the beds of fruiting plants, and close early, so as to give the plants a good steaming, which they will enjoy.

Flower Garden.

FLOWER GARDEN.—Seeds of hardy annuals and perennials are to be sown early, and towards the end of the month the more tender kinds may be safely committed to the ground; but very small seeds of choice things had better not be sown till next month, as heavy rains may wash them down into the soil, and they may be lost. Perennials may be planted out, and old stools of Phlox, Chrysanthemum, Sweet William, &c., may be parted. Dahlia roots may also be planted, and if the shoots appear before night frosts are over, they may be protected by flower-pots inverted over them, the holes stopped with tile. Box edgings should be clipped, and ivy may be out-in and trimmed, and fresh plantations made of last year's roots. Cuttings of ivy may also be taken and planted in a sandy border, only partially exposed to the sun. The cuttings should be short-jointed and trimmed of the lower leaves. Tigrida bulbs may be planted two inches deep. A light netting or some similar protection will be found useful now as a protection to tulip beds, and if the foliage gets frozen, water them with cold water before the sun gets on them. Walks

should be turned and rolled, and grass-plots dressed, so as to give an air of neatness and order to the whole of the ground.

LAWNS to be mown and rolled, and daisies spudded out before they scatter their seeds. Our grass has been once mown already.

PANSIES.—This is a good time to buy in stock of new kinds, and to sow for pot and border bloom. Cuttings of bedding kinds put in now will make nice plants to bloom all the summer; better than if propagated earlier.

ANNUALS of all kinds may be sown now in the open air; the hardy sorts will be up in from ten days to three weeks, and tender kinds in a month or six weeks. It is often a convenience to sow all kinds at once, in accordance with a general plan, and it may be done in April. Of course, Asters, Balsams, &c., rarely come to much good by this offhand method.

AURICULAS to be shaded as the bloom progresses, and have shelter at night by means of mats. Give plenty of water and plenty of air. Thin the pips in good time to the standard number, whatever that may be.

CHRYSANTHEMUMS for general purposes to be now propagated. Suckers are as good as cuttings; and there need be no disputes about the relative values. They do not require much heat to start them, and nothing better than a gentle hotbed on the old-fashioned plan. Old stools may be planted out in the borders.

HOLLYHOCKS planted now from store pots will bloom to perfection, and have no check from frost. Put a couple of spadefuls of rotten dung in each hole, plant firm, tally and stake at once; cover each plant with an inverted flower-pot for a week, and then remove it. Give plenty of water and liquid manure as required.

HYACINTHS must have abundance of water while in bloom, and for some time after; as long, indeed, as the foliage continues green and growing. After it begins to get discoloured, dry them off gradually, and lay the pots on their sides, where they will have morning and evening sun to ripen the bulbs.

VIOLETS planted now from young runners of Russian and the double-flowering kinds will make fine plants. Seedling plants generally bloom most profusely, and in most of the seed catalogues the best kinds are entered.

Greenhouse and Conservatory.

GREENHOUSE AND PIT.—If bedding stock is still in request, cuttings should be struck in a brisk heat, even as high as 90°; they will bear much more heat now than they would a month ago. China roses may be propagated in pots by taking off young shoots close to the old wood when four inches long, and plunging in a moderate heat. General collections should only have a moderate heat, and a strong healthy growth should be promoted by giving plenty of air, with a view to putting out the fires for the season. Many specimen plants will want liberal shifts, and all subjects not immediately required in flower should be regularly and frequently stopped, to induce bushy growth and form good heads. Water and liquid manure must be more freely given, and vigilant efforts must be made to keep down green-fly and thrips. Many of the less tender things may be removed to cold pits, to increase the room for other things that want continued protection to make fine plants. Young stuff from the propagating house should be potted as fast as rooted, and kept close till started afresh, and then be gradually inured in air and light, so as to be strong by the middle of May. All tropical plants required for summer blooming in the house should be got on without delay, and a quick growth promoted, so as to allow them as long a season as possible for blooming, and ripening their buds for next season. Where desirable, the house may be shut up with sun-heat to render fire unnecessary.

AZALEAS done flowering must be kept rather close, and in a moist atmosphere to favour a quick growth, as it is important to get the new wood well ripened when the growth is completed. Those that are cramped at the roots must be repotted in good peat and silky loam. Artificial peat is wholly unfit for such plants in pots.

CALCEOLARIAS coming into bloom must have plenty of water and free ventilation. Syringe the lower leaves and branches, but wet the blossoms as little as possible.

CAMELLIAS done blooming treat the same as advised for azaleas. Those coming into bloom must have occasional strengthening with liquid manure. Lanky plants will be improved by removing the top buds before they expand, to throw vigour into the lower branches.

BEDDING PLANTS.—If our advices have been followed, most of these are now in a forward state, and their pots full of roots. Shift any that are wanted large for centres of beds and back rows of ribbons. Now proceed to propagate variegated Geraniums and silver-leaved plants, which, as bloom is not of much consequence, need not be got on so early as the flowering kinds. *Cersium tomentosum*, cut up into bits two inches long, the lower leaves of the cuttings removed, and dibbled into pans of very sandy soil, will be in prime condition for planting at bedding-out time. It may be delayed another week if work presses hard. The same with variegated Mint—much better when struck late in spring from shoots truly coloured than if got forward too early. The variegated Arabis may be rooted quickly in the same way by dividing it into separate crowns. It is said to be shy of rooting now that it is in flower, but that is a mistake, as we know from having raised millions of plants at this time of year. If there is a moderate quantity of old stools, they may be divided and planted in tufts, with a bit of root to each, four inches apart, at the end of this month, and will meet and form a lovely yellowish-grey line by the middle of June. Verbenas and Petunias struck now will make good bedding plants, if encouraged to grow after potted off. This is the best time also to put in cuttings of bedding Tropæolums, which flower best and grow more moderately when struck late and planted out in poor soil.

CINERARIAS are very fine this season, and some good seedlings have made their appearance. It is a good time for beginners to purchase sorts in bloom to propagate for stock. Green-fly will annoy the plants, unless kept down with gentle smokings. Dung, three parts rotten, and mellow hazel-loam should be chopped over and laid up at once for potting the next lot, so as to be sweet and friable when wanted.

CONSERVATORY should now be very gay with hedges, csmellias, and forced deciduous shrubs and trees. Look out at once for the summer supply. Cannas are now fashionable for their fine tropical-looking foliage, and some new varieties of Ricinus will be much used to help the foliage effects of Caladiums, &c. *Datura Wrightii* is a charming convolvulus-like herbaceous plant for a warm house, and delightfully scented. Sow seed now in a brisk heat. Treat the same as balsam. We have some plants that have

flowered five years in succession, and have now large fleshy roots; it is therefore a mistake to call it an annual.

DAHLIAS for show ought now to be strong in 60 pots, and kept growing slowly. Cuttings put in now will make good plants. For large specimens, use old plants, to be started now at the bottom of a vinery or a cool part of a pine-pit.

PELAROONUMS to be encouraged to grow freely by the use of the syringe and regular tying out. Fumigate as soon as fly appears, or much mischief may ensue. Plants showing for bloom to have weak manure or soot-water at every other watering.

Fruit Garden and Orchard House.

WALL AND BUSH FRUITS should be hunted over now, to gather the first crop of young caterpillars. There is no process like hand-picking, and where to pick will be known by the curl of the leaves. Trees that were washed in winter, as we recommended, will probably be very clean in their first growth. Disbud and thin fruit with judgment, and remember that there is nothing gained in the end by taking too large a crop from a fruitful tree. In disbudding, do not remove too many buds at a time. First take off with finger and thumb those that are obviously ill-placed; a week afterwards select a few for laying in to keep up the furniture with young wood, and remove others that are again evidently not needed. This process will very much reduce the work of summer pruning, and strengthen the shoots left to form bearing wood. It makes one shudder to see how some gardeners lay in all the wood they can get, till their walls are literally felted, as if peaches and apricots were to serve the same purpose as ivy. Be in no haste to remove tiffany and other shelters from walls; but let the trees have air; they are as fond of it as you are.

ORCHARD HOUSE.—If this is crammed full of all sorts of things in pots, which is too often the case at this time of year, make a general clearance, for this system of making too much of the glass leads to mismanagement, and one common result is keeping the trees too close in order to help more delicate subjects. *Trees must have air*, and plenty of it. Let the wind whistle among the bloom, and it will set freely. Give plenty of water at the roots of the trees.

Stove and Orchid House.

ORCHID HOUSE.—An increase of heat and moisture will now be required for orchids of all kinds, in both Indian and Mexican houses, but water must not be applied directly to any until growth has fairly commenced. Specimens of *Cattleya*, *Calanthe*, *Phajus*, *Saccolabium*, *Stanhopea*, *Zygopetalum*, *Brassia*, *Dendrobium*, and *Sobralia* will require frequently syringing about their pots and blocks as the plants advance; in fact, the cultivator must now encourage luxuriant growth as early as possible, in order to get the bulbs well ripened in the autumn. Shading must be put up not later than the second week of the month, but a better plan is to have good roller blinds, so as to shade at will, if only for an hour or two, when there is a hot sun with an east wind. Growers of *Anæctochilus* usually place them on bottom-heat, and keep very close at this time of year, which is the very opposite of good practice. Bottom-heat causes too quick a growth, which results in weakness, and want of ventilation adds to mischief, and the two evils are frequently combined for the destruction of collections for which large sums of money have been paid. Ordinary stove temperature is all they require. Let the bell-glasses be always slightly tilted up; this will render necessary more frequent watering at the root, which the plants will enjoy from the present time to the end of September. Any not newly repotted this season should be repotted without delay, in a mixture of equal parts of sphagnum, chopped fine, and fibry peat with one-half part of sharp silver-sand. In potting, raise the collar a little above the soil and finish with a slight sprinkling of washed silver-sand on the surface.

Forcing &c.

FORCING must be continued with lettuce, mint, asparagus, and potatoes. Many of the complaints of failure which reach us are attributable to high night temperatures. All sources of heat that are under full control, such as hot water and flues, admit of being reduced or increased as required, and the temperature should always fall from five to ten degrees at night in hested structures of all kinds.

DANDELION, grown in Pascal's seakale-pots in a gentle dung-heat, forms an elegant and acceptable salad. Strong plants may be forced the same as seakale and asparagus, and must be thoroughly blanched, to prevent bitterness. Any old plants in places about the garden may be blanched where they are by turning a pot over them, and stopping the hole with a piece of tile.

PINES will want shade on bright days, and sir as often as possible, but the atmosphere about them must be kept moist, and the roots well soaked whenever the soil about them is dry. Red spider will now be getting active, and must be kept down. Keep also a good look-out for green fly, especially among young stock. Average temperature for pines, 70° by night, 80° by day.

PERIODICALS.

The Floral World for April contains a paper in continuation of the editor's remarks on Collecting and Selecting, the title of which is "The Arcanum of Perpetual Beauty." In this he gives an account of the method by which certain portions of the garden may be kept in a state of high embellishment all the year round, constantly changing in aspect, yet never deficient of beautiful combinations and interesting objects. Amongst the other portions of the bill of fare are articles on the Auricula, by Mr. Walsh; on plants of grand character for English gardens, by Mr. Proser; a selection of Herbaceous Plants, by The O'Shane; a list of the best varieties of *Polystichum angulare*, by the editor; a paper on the Cineraria, by Mr. Turner, from the "Gardener's Annual;" and the usual notes on New Plants, news of the month, &c.

The Intellectual Observer for April contains a most entertaining paper by Mr. Henry Woodward, of the British Museum, on shells and their inhabitants; a valuable contribution to experimental science, by Professor A. H. Church, on "Chemical aids to art;" a readable account of the natural history aspects of some parts of Shropshire, by the Rev. J. D. La Touche; and various contributions by Mr. H. J. Slack, Rev. T. W. Webb, Rev. W. Houghton, and Mr. N. T. Lynn.

Our Own Fireside for April is a good number. Mrs. Ellis continues to contribute, and Mrs. Beecher Stowe appears with an essay on "Fault-finding." In the scientific department are some interesting particulars of Esquimaux life, and a pretty batch of anecdotes of animals.

Correspondence.

EMIGRATION FOR GARDENERS.—I should feel greatly obliged if you or any of your correspondents could furnish me with some information as to the spirit of horticulture carried on in the United States of America, and in what part would be a likely place to get employment in our line, as I am desirous of emigrating to that prosperous country, and also of getting on in my occupation as far as my abilities will allow. I should be grateful for a word of advice through the pages of your GARDENER'S MAGAZINE.

A YOUNG GARDENER.

Replies to Queries.

Double Petunias.—J. and T. T.—The double varieties yield but small supplies of seed, and those are obtained from semi-double flowers. The flowers that are thoroughly double do not produce seed at all. To raise double varieties from seed requires only ordinary good culture, but the result is all a chance. Those who give their attention to the raising of such things grow thousands, and as fast as they flower they destroy them, unless they possess some superior qualities. It is true, an amateur growing a dozen or two might happen to obtain out of them a few extra fine varieties, but such luck is not to be expected. These things follow a law of their own.

Vines.—Polly.—It is not well to apply nostrums to the tender leaves of vines. What you take to be the eggs of insects are probably such warts as are commonly met with on vines that are in too warm and too moist an atmosphere. It is not good for vines to be thus affected, and we therefore advise more ventilation and less moisture. The other subject shortly.

Various Queries.—Scientific Amateur.—We do not know the "cherrycluck" set up in gardens for the purpose of keeping birds off fruit-trees. It must be some sort of miniature windmill. Perhaps Messrs. Bury and Pollard can give you some information on the subject. Messrs. Negretti and Zambra can probably supply the new Anemometer figured by M. Craveri in the Archives des Sciences of Geneva. *Hernandia sonora* has been registered as a plant in cultivation in this country for nearly two hundred years, but you might search far and wide to obtain it. Try Messrs. Veitch, Mr. Bull, and Mr. B. S. Williams. In Herschell's "Outlines of Astronomy" is the best account of the harvest moon that we can call to mind at this moment. There are some excellent maps of the stars in the Atlas published by the Society for the Diffusion of Useful Knowledge. These you might hear of by applying to Mr. Stanford, Charing Cross.

Bowood Muscat.—New Subscriber.—This grape requires a good heat to ripen it, as much in fact as any muscat. As your vines commonly produce plenty of promising bunches, yet fail to ripen them, we suspect there is a want of reciprocity between the roots and the branches. What to advise we do not know, because you furnish no particulars of the house or the border in which these vines are situated. But we have the right to guess that the roots are in a fat cold border, that they are neither dry enough nor warm enough, and that they consist chiefly of strong, fat, far-reaching, rope-like roots, instead of surface fibres close home. Our view of the case may lead you to discover for yourself the remedy for the evil of which you complain. The probability is that these vines will never do any good till they are lifted and replanted in a warm, comparatively dry, and not over rich border. For the present we advise you not to use liquid manure this season at all, and to give only as much water as is absolutely necessary to keep the vines going. For some time to come practise upon these vines as the Frenchman did upon his horse, but stop in time to avoid the Frenchman's disaster.

Messrs. Alexander.—We cannot spare time to test your chemical manure; if you wish to give it publicity, your best course is to advertise it.

A. B. C.—Your plant is the lovely African lily, *Agapanthus umbellatus*.

Orange-coloured Annual.—Commelina asks if we can recommend a dwarf annual of any effective shade, either of yellow or orange, that may be sown in autumn to flower the succeeding spring, along with *Silene pendula*, *Saponaria*, &c. Would *Leptosiphon aurea* be hardy enough? There is a yellow and white *Nemophila* which would do, yet I do not know its botanical name. Yes, *Erysimum Arkansanum*, which is like a golden phlox, will do precisely what you want. Probably *E. Peroffskianum* might also be useful, but we should prefer to trust to the first. A dwarf double wall-flower would be an acquisition for this sort of work, but we do not know of one that we can recommend off-hand.

Wood-lice.—J. H. P.—There is no mystery at all about getting rid of wood-lice; it is a matter of skill first and perseverance afterwards. The skill is a small matter; the perseverance almost everything. Wood-lice are fond of any juicy vegetables of a wholesome kind, and they love to lurk in dry dark places. It is therefore a most easy matter to trap them, and having trapped them, to destroy them. Your cucumbers are destroyed by them. Well, cut a cucumber, and humour their tastes by putting slices of it on some tufts of dry moss, which cover with clean pots or pans, or even with lids of baskets or pieces of board. If you cannot afford to give them a cucumber, use slices of apple or potato. If you have plenty of young lettuce-plants in frames, use the outside leaves as bait. Whatever is dry and dark will make a trap. Perhaps the simplest traps are small flower-pots, with a bait put in and covered very lightly with dry moss or shavings. Very soon the wood-lice will find out the treat and will nestle in the traps, and if they are examined daily (by daylight) the vermin may be quickly swept out of the traps into boiling water, and the place may be cleared of them in a week or two.

Varieties of Apples.—Centurion.—*Monstreuse d'Amérique* is a large, roundish, flattened apple of fine quality for kitchen use. The tree is a strong grower, and bears well. *Duchess of Brabant* we know nothing of. *Reinette Royale* we believe to be identical with *Reinette du Canada*, a fine large yellow apple with light red cheek; good for both kitchen and dessert. *Yellow Newtown* is a medium-sized conical apple, of a lemon yellow colour, good for both table and kitchen. *Newtown Nonpareil* we do not know; probably identical with *Newtown Pippin*. *Calville Rouge* is pretty well known as *Winter Red Calville*, a large oblong fruit, pale red with deep red cheek; a good culinary apple. *Calville Rouge d'Hiver* is the same as the last.

Ne quid nimis.—We make it a rule not to propose plans for the planting of beds, for the very good reason that we could not hope to please people, and could not bestow the time requisite to consider all the cases that would be submitted.

Book on Investments, &c.—Orion.—"Playford on Investing," published by Virtue Brothers, will probably suit you. Pray do not write again to ask the price; we do not know it. If you write to anybody, write to Messrs. Virtue.

Plant Labels.—Early Sub.—We do not know where to obtain the label you inquire about. You will find, on reference to "The Floral World," that we have written one very class of ferns almost every month for ten years past. As for the label business, it is all in a fog; the best labels at present are those made at home.

Gladioli.—M. D. S.—Sea-sand will do for gladioli if previously exposed for some time to the weather, or well washed to remove the salt. We have known sea-sand to be largely used in growing hyacinths without any washing—in fact, quite fresh from the beach, and the bulbs did well, in fact, extra well. It might be so with gladioli. Try it with a few bulbs, and let us know the result. But do not risk any that are valuable in any sea-sand until it is washed, when it will be quite safe and suitable. We are strongly of opinion that the washing is unnecessary, but cannot from experience recommend the use of unwashed sea-sand.

Heating Small Greenhouse.—H. F.—A small conical boiler, and pipes of two or three inches diameter, would produce the kind of heat you want. The boiler would have to be outside, and coke would be the proper fuel. The fact is, these small houses cannot be heated satisfactorily; and when correspondents expect us to settle the matter in a word like magic, they expect an impossibility. Nor can we advise you about the height and pitch of your house; why, you do not give the measure, or even say in what sort of position it is to be in. Now suppose yourself an architect, and a man writes to say he intends to build himself a residence, and wishes to know if it should be Gothic or Tudor, or Italian or Chinese, what sort of answer would you give? You would tell him to please himself, and that is the best answer we can give you. If you wish to grow great plants, have the roof high enough for them; if little plants, have it high enough for yourself.

Beds on Lawn.—A. B.—No. 1, large centre of geranium, *Kate Anderson*; broad band of geranium, *Flower of Spring*; edge of blue *Lobelia*. No. 2, *Calceolaria, Aurea floribunda*. No. 3, *Geranium, Christine*. No. 4, *Calceolaria, Bird of Paradise*. No. 5, *Geranium, Minnie*. Nos. 2, 3, 4, 5 to be edged with blue *Lobelia* or *Cerastium tomentosum*.

* * * The Editor can recommend a Gardener who could take charge of the grounds of a public asylum. The principal work would be in the kitchen garden, of which he must be a master. No forcing or fancy work.

FRUIT TREE PROTECTION.

Many, and often conflicting, are the opinions with regard to the necessity or otherwise, the advantages and disadvantages, of protecting wall trees when in blossom. That there is risk in leaving the trees to exposure and chance few, we think, will deny; that the material and mode of protection are often at fault, and a greater cause of injury than the evil they are intended to guard against, must also be admitted. As the season is now upon us, when the matter is uppermost in the minds of horticulturists, a few words on the subject will not be out of place. In the first place, it must be thoroughly understood that any protection that will exclude those important agents—air and light—from the trees will be positively injurious. Therefore, such material as will admit of the freest and least interrupted action of both, and, at the same time, secure a dry atmosphere about the trees must, undoubtedly, be, of all others, the most desirable. If the trees and blossoms be wet, the atmosphere charged with moisture, and a frost suddenly supervene, the bloom will be much more liable to suffer than under opposite conditions. Any one, then, who has old hothouse sashes or unused frame or pit lights to spare, will have the best of all material for protection. They may be got into position at once and fixed, just taking care not to put them close together, and to leave them open at the ends, in order that the circulation of air may be free. When once fixed, all anxiety may be laid aside, and the necessity of attendance to sudden or apprehended change of weather, as well as the trouble entailed and time lost in removing or running up by day and letting down at night, when other modes of protection are adopted, are altogether obviated.

It is not in many places, however, that sashes are available. It may here be a question after all, considering the cheapness of glass, if light, portable glazed frames kept at hand for the purpose, might not be after all the most economical, as they would, doubtless, be the best. They would be available for many other purposes, and among them one which, notwithstanding the stress laid on spring protection, is scarcely less important, though little thought of. We allude to autumn protection, and as aids to ripening the wood, more especially after a wet, cold, unless season, such as we had last year, and too frequently experience. But in the absence of glazed protecting material we must take the next most convenient. The thin flat spray of the spruce is often used, but care must be taken so to place it that a space of three or four inches may be left between it and the trees, and it be placed so as to admit as much light as possible. Canvas, calico, woollen netting, doubled, tiffany, all offer themselves for the purpose. If so adapted that the protecting agent can be run up and down like window blinds, or drawn to either side by rings like a curtain, when required, it will be all the better. We have seen another mode of protecting the bloom practised, and, as we are informed, with the best possible effect. Eschewing the use of protecting materials of any kind, the practice is this: As soon as the blossoms expand they are dredged with fine sulphur from an ordinary dredging-box or the sulphurator, so as to fill the cup of the blossom and cover the reproductive organs within it. The rationale of the success attributed to the practice is not very obvious, but we apprehend it may be found to lie somewhere in the direction of the insolubility in water and non-conducting properties of sulphur. We wish some few of our practical friends would give it a trial by sulphuring one half of a tree and leaving the other untouched; or what would, perhaps, be better, some of the alternate ramifications, marking those dressed with the sulphur and noting the results.

To conclude, one thing is certain, that if we may not err in being prompt in the application of protection at the proper time, we are still less likely to do so in being slow to remove it.—*Irish Farmer's Gazette*.

A MINISTER in Massachusetts lately took occasion to administer a reproof to old Joe for swearing. Joe listened attentively to his words, seemed to appreciate the exhortation, and, when he had concluded, replied as follows: "The fact is, parson, that I may swear a great deal, and you may pray a deal, but neither of us means anything by it."

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.				M. Imp. avg. of 4 yrs. Growth	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain.	Barometer.	Thermometer.	Rain.			
1867			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	1867
14	S	Palm Sunday. Brussels Exhibition	5 0	6 52	2 0	p. m.	3 13	a. m.									142
15	M	Easter Law Term begins	5 7	6 53	3 11		3 42										15
16	T	R. H. S. Second Spring Show	5 5	6 65	4 20		4 10										16
17	W	Napoleon III. visited England, 1855	5 2	6 67	5 27		4 35										17
18	Th	Full moon at 11h. Can. p.m.	5 0	6 59	6 35		5 0										18
19	F	Good Friday	4 58	7 0	7 44		5 27										19
20	S	Emperor of the French born, 1808	4 50	7 2	8 45		5 54										20

The Gardener's Magazine.

SATURDAY, APRIL 13, 1867.

FLOWER SHOWS FOR THE POOR continue to multiply and prosper both in the metropolis and in all large and densely populated towns. It is impossible that the movement out of which these exhibitions originated can be otherwise than beneficial, and it is the duty, and should be esteemed the privilege, of all who can assist to lend a helping hand in a spirit of the most disinterested kindness. It does not, however, lie in the province of the horticulturist merely to initiate an exhibition of this sort. It is a social and domestic movement, it is far removed from the ordinary domain of science, and the horticulturist can assist only when the clergy and philanthropists associated with them have made a beginning, and laid the foundation for something tangible. To institute a horticultural competition amongst the dwellers in dark lanes and alleys, who, of all classes needing the refining influences of fresh air and vegetable beauty, are least able to obtain them, may be good in itself; but we can only seriously regard it as part of a scheme having for its object to ameliorate the domestic circumstances of the poor in great towns, by the inculcation of habits of sobriety, cleanliness, and thrift, and the diffusion of those religious and moral truths that bear directly on human welfare. It is in one part of the scheme that the horticulturist, as such, finds himself some work to do. And hitherto horticulturists have been for the most part rather astonished at the tasks allotted them; but it has been evident from the first that, without competent horticultural guidance and authority, these flower-shows must end in grief. In some cases, the promoters of these shows are so ambitious as to attempt an exhibition which shall attract the general public, or such of the public as, for the promotion of a good cause, can be persuaded to pay a fee for admission. Here the possessor of decorative plants comes in usefully, and it is his business, if proposing to assist in earnest, to "make a show." Another part of the practical cultivator's task is to advise about arrangements, and no small burden of responsibility rests upon him for impartial judgment of the competitive contributions. Now we beg, for all the poor people's exhibitions that are to be held this year, the generous consideration of horticulturists in the several districts in which the exhibitions occur. Let them not suppose that the interests of horticulture are in any way bound up with this movement. It is quite otherwise. But much more important interests are concerned—the interests of humanity; and whose loves flowers, loves also, we assume, his fellow-man.

He prayeth best who loveth best
All things, both great and small.

And every religious, moral, and social consideration that may engage the heart and mind of the true philanthropist, has direct relationship to the prosperity of this movement. To relieve distress, to teach the ignorant, to lift up all who are weary and cast down, is the duty, not of a class, but of all who possess the means of help; but the cultivator of plants enjoys the peculiar advantage of being enabled to make sunshine in the poor man's path, and it is with unfeigned pleasure we can say, in reference to this peculiar class of exhibitions, that horticulturists have not hitherto been slack of willingness and sacrifice in their behalf. We have seen men whose labours are commonly severe, in the midst of the busiest part of the exhibition season, devoting themselves generously and earnestly in this cause, and doing for it what none else can do, for at a certain point the philanthropist must step aside and leave the work in the hands of a gardener. The judging is indeed a strange task, for the subjects to be judged are such queer examples of plant growing; yet there is a spirited rivalry, and it needs a competent judge, not only to distinguish as to the merits of *bona fide* competitions, but to disqualify subjects that have no proper claim to compete. That a trick should now and then require to be denounced, should not prejudice the movement as a whole—for tricks are perpetrated at the greatest and grandest of flower-shows; and if these shows are not suppressed because of great sinners, neither should the more humble ones be because of little sinners. But, as a rule, the *bona fides* are well guarded by an essential part of the movement, which consists in visiting the poor at their homes, encouraging them in habits of cleanliness and the observance of religious and moral duties, and providing them with plants to make their rooms cheerful.

No. 102, NEW SERIES.—VOL. X.

The visitors become acquainted with the plants that are intended to be shown, and, generally speaking, every one can be identified when on the exhibition table, and therefore attempts at imposition are of comparatively rare occurrence. But now and then a fresh plant, purchased at Covent-Garden Market, or obtained by gift from a country gardener, finds its way to the show; and if the judge (one is generally sufficient) understands his work, it is picked out and referred to the committee, who proceed to ascertain if it has been in the possession of the exhibitor a sufficient length of time to fulfil the requirements of the schedule. A strict system of judging is one of the vital elements of an exhibition of this sort, not so much in its horticultural as in its moral bearings, and neither judges nor committees should ever wink at any intended wrong, however generous they may be, and must be, in other matters.

It is not at all surprising that a few mistakes should have been made in the machinery for promoting these exhibitions. In some cases subjects are entered in the schedule that are quite beyond the capabilities of the cultivators invited to compete. Usually, the committees consist of persons wholly unacquainted with horticulture, and therefore the mistakes are pardonable; but it would be well if in every case some person skilled in practical matters could be persuaded to take part in the proceedings as a promoter, for mistakes are injurious. The poor are easily discouraged, and when grievously disappointed, there is usually a feeling of suspicion aroused that they have not been fairly dealt with. A very great mistake was made in the autumn of last year in the distribution of the bedding plants taken up in the public parks to ragged schools and mission houses, for distribution amongst the poor. When our contemporaries were eulogising the benevolence of the Government, we had not a word to say, and only when the winter was close at hand did we consent to chronicle the fact, at the special request of certain of our correspondents. We are gratified now that we gave that movement no encouragement, and regret that we did not take an active opposite course, and warn our philanthropic friends to abstain from participating in the spurious boon. Where are all those plants now? Perhaps one in every thousand may be alive; we seriously doubt if the numbers that have survived the winter exceed that supposed proportion. Such a proceeding as an injudicious distribution of plants must tend greatly to check the progress of floriculture amongst the poor, who are sure in time to discover that they have been put under obligation for worthless gifts. A few thousands of thrifty young plants distributed now, amongst the denizens of courts and alleys, would give delight, would stimulate the recipients to careful cultivation of them, would quicken their enjoyment of such few glimpses of awakening nature as they obtain from the open spaces and gardens that are within view as they pass to and fro in the streets. It is a sad thing, however, that in all the central parts of London, where the poor most do congregate, open spaces and visible gardens are few; and wherever they belong to public bodies they are, as a rule, hideous to behold, and a disgrace to all concerned in their keeping. To improve the open spaces in great towns is as necessary a work, on the ground of philanthropy, as the promotion of tidy rooms and little flower shows.

VARIEGATED CONIFERS are frequently presented to public notice at horticultural exhibitions and in other ways; but it is seldom any of them actually take a place amongst cultivated varieties, or are ever met with beyond the boundaries of the garden in which they originated. One great difficulty in the way of their distribution is their propagation; but another difficulty, and, in fact, more than a difficulty, is the fact of the variegation "running out" in the young plants, so that when a stock had been raised, it was found to be, not a new variety, but the original restored. There are a few Thuas and Cupressus in cultivation that are exceptions to the rule; these are not only finely variegated, but pretty constant to their characters as variegated varieties in all stages of their progress, and under many differences of condition as to soil and climate. Mr. J. B. Hartland, of the Lough Nurseries, Cork, has been more than usually fortunate in producing, keeping, and multiplying variegated coniferous trees, and we have before us some specimens that give more than an average promise of making decided and delightful effects in gardens and plantations. One of these trees is a variegated *Wellingtonia gigantea*, the garden name of which is *Aurea variegata*. The original tree is about 12 feet high, and has a circumference of over 30 feet; in its proportions and outlines it is a true *Wellingtonia*, which is saying enough in respect of its heavy form. Its peculiarity as a variety is that it is richly variegated with strong gold-yellow; it is, in fact, a golden tree, a pyramid of superbly coloured vegetation, the richness of the golden hue bringing out with great distinctness the fine red of the bark, and the sombre green of the older leaves and those parts which are not variegated. The coloured figure of the tree, printed by Day and Son, is well worthy of a place in the portfolio of every amateur

arboriculturist. Another of the good things from the Lough Nurseries is a variegated *Cupressus macrocarpa*. This in its normal form is one of the handsomest of garden trees, and most delicately coloured. The variegated form of it is at once rich, decisive, and peculiar; the prevailing hue being orange-yellow, bright and pure towards the points of the shoots, but changing to green at their bases. Some 5000 plants have been propagated of this charming variety, all taken from one tree, which of necessity is now in a somewhat lean condition, but will have done its duty well in furnishing so many counterparts of itself, to light up the choice gardens of the British islands. Another interesting example before us is a variegated form of *Cupressus Lawsoniana*, the prevailing hue of which is a clear amber shading to primrose-yellow. From the sample forwarded, we should conclude this to be a valuable acquisition for decorative purposes, and well adapted to produce surprising effects in ornamental planting.

THE MANCHESTER NATIONAL HORTICULTURAL EXHIBITION proceeds so satisfactorily in its preliminaries, that it is now pretty well assured of success; it can scarcely be marred, in fact, except by some unforeseen and unusual occurrence, such as continuous bad weather or a revolution. No alteration has yet been made, either by the Royal Horticultural Society or the promoters of this exhibition, to remedy the evil of their mutual interference in respect of the last day of one exhibition and the first day of the other. Should the present arrangements continue fixed, we have no doubt exhibitors will find some way out of the difficulty; and those who have promised to show at Manchester will assuredly do so, even if they keep away from Kensington altogether, to maintain their honour. The plan decided upon with respect to the show, is to cover a great space with canvas, equal in extent to three times the area of the large exhibition-house, to enable visitors to inspect the whole without going from under cover. The railway companies have consented to carry goods for this exhibition at the rate of a single fare for the double journey. Manchester itself can show something in the way of horticultural power, for the suburbs of the city abound in well-kept gardens; and it will be a great benefit to the wealthy patrons of horticulture in the district to be placed in competition with the foremost exhibitors of all parts of the kingdom, and to see, side by side with their own productions, some of the best collections of exhibition subjects known. We have but to wish the undertaking the most complete success, and this with the more pleasure that the profits are to be applied towards the reduction of the debt upon the Botanic Gardens, a debt not quite creditable to the wealthy city, which, as much as any place in the empire, needs the influence a botanic garden must exercise in counteracting the materialism of a busy trade and excessive work. Mr. Findlay, the curator, who has done wonders for these gardens, appears to be the guiding spirit in the promotion of this exhibition. In his able hands may well be confided all that it is his part, and all that he has engaged to do.

CULTIVATORS OF PANDANADS will find much to interest them in a "Revision of Indian Screw-pines," by S. Kurz, Esq., in the April No. of the *Journal of Botany*. As a contribution to systematic botany, this paper is of the highest value and importance.

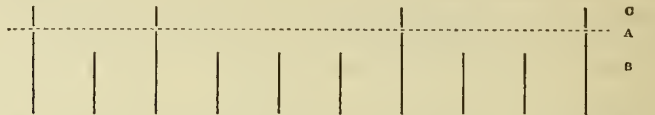
A HYBRID PALM is at least a novelty, but doubtless it is a fact. It is reported that M. Denis, of Hyères, has succeeded in crossing *Chamærops humilis* with the pollen of *Phoenix dactylifera*. The result is a plant combining some of the characters of both parents, but in which the characters of the male parent predominate; but the fruit (the immediate result of the artificial fertilization, not the produce of the hybrid plant) is strictly intermediate between the two.

MODELS OF ORANGES GROWN IN NEW SOUTH WALES are prepared for the Paris Exhibition of 1867. Samples represented by these models weighed respectively 22 ounces, 22½ ounces, and 25½ ounces. Two oranges grown on a single stalk in the orangery of Mr. George Oakes, at Paramatta, weighed together 32 ounces.

SOME BLIGHTED SPOTS IN ENGLISH GARDENS.

I have noticed, not alone in the English gardens, but in all parts of Europe, spots which do seem under a spell, and quite unproductive of vegetation. But I shall now only think of the English gardens, as I am writing this, to the best of my knowledge of your language, for the English reader. But it is to him who is a lover of beauty and who is the friend of improvement that I am now addressing, and we shall, if you please, walk through a garden together. You will see that the gardens near to great cities have most of the blighted spots, but some in the country are bad equally; so let us walk in a garden, whether it be town or country. What shall be said shall be to both useful. Now we are in the entrance, which is a court leading to an open platz before the house. Stop, stop, you are in such hurry; you have already dragged me past one of the blighted spots. Shall I not, keeping eyes open, and find what I am seeking? See here, in front of the long wall, and as an adornment to the path, are large bushes of *Aucuba Japonica*, *Holly*, and *Phillyrea*. I admire this much; it is a noble entrance, and within view in every part of this property are noble trees. But all the ground beneath the trees in the border between us and the wall is bare; you see that it was once edged with box, for there are a few scraps still living, but as an edging the box is gone, and perhaps many things that were originally planted in the border have perished in the heavy shade of the trees. Now I can clothe all that ground with beauty; I can make the skirting of the walk equal to its upper line, which is so good with trees and shrubs. I would first take away the few remains of the withered box-edging, that none shall say there has been a failure here. Then I would mark out a new line, to give the border greater width—that is, I would encroach upon the walk, which is ample, for the sake of forming a new edging somewhat in advance of the drip of the trees. But I want no new soil, I want very little; surely, if I want much, I shall not be allowed to clothe with beauty the blighted spots in English gardens. Now then I make a new edging, and it shall consist of little plants of *Euonymus Japonicus*. This is

secret No. 1. Now I hope it will be esteemed, for it cost me many years of experiment with various subjects to discover what would live in the shade of trees, and take the place of box for edging, and I can say that the *Euonymus* will do it; so if a green edging is desired in a great court where the trees are large, the reader will know what to do. In winters of such severity as 1860-61, and 1866-67, the *Euonymus* might be cut down by frost, but the next thing would be to cut it down with the knife, and in the next summer a fresh growth would arise from the roots, and the edging would replace itself. Now I shall tell you of other ways to make edgings under great trees. Gather a lot of holly-berries at the close of the year, and lay them in a heap mixed with sand, and thatched with straw. In the following March sow them in drills, in light sandy fibrous soil—not in loam if you can help it, but you may use peat or leaf-mould if you can; in some places fibrous soils are as plentiful as in others they are scarce. What I have always used for holly-seeds was a thin slice taken from a sandy waste, this thin slice consisting chiefly of fine grass turf, which was laid in a heap to kill the grass. Being sown on this kind of soil, the young plants may be lifted with abundance of fibres, whereas in loamy soils they soon form tap-roots, which are objectionable. In the month of May in the first year after sowing the seed—that is to say, fourteen months after sowing the seed—take up all the strongest plants and transfer them to your edging, but do not disturb the seed-bed, because many of the seeds do not germinate the first season. Make the edging with care, and if the soil is not good, use plenty of rotten manure and leaf-mould; the *Euonymus* will grow in any soil, but a hedge of seedling hollies should have something good to grow in. If you do not want all this trouble, go to a nursery and buy as many hundreds or thousands of three-year-old hollies as you will require; plant them in April or May, and as soon as they are planted, put down a line and cut their tops to it; the shears must not be used, but a knife, and the line must be put so that there will be no need to cut severely, as in the diagram, where A is the line, B the hollies, C the few tallest leaders that have to be cut.



Yet once more with this entrance court. More cheap and effectual than all else would be an edging of ivy. The common *Hedera canariensis*, which is here absurdly called "Irish Ivy," would answer well. The plants would have to be planted a yard apart, and trained and cut as required. In a small garden the ivy I should prefer is the Taurican, or *Hedera helix Taurica*, which is rather small, very rich green, and glossy. We shall suppose now that the edging is disposed of. Then I would plant in the best of the open spaces under these trees the following, to cover the ground: *Taxus adpressa*, a neat tabular-headed yew, which will thrive in very deep shade if the soil is strong loam or clay, but is no good in a sandy soil; *Ligustrum ovalifolium*, the oval-leaved privet; *Berberis dulcis*, the best of the race for places much shaded, and for any kind of soil (many other *Berberis* like shade, but generally speaking much judgment is required in planting them—at all events, I will not recommend the lovely *B. Darwinii* for the purpose, for I never saw it thrive except in an open peat bed); *Hypericum calycinum*, a pretty dwarf St. John's Wort, will grow anywhere under trees, and will be always spreading and improving in beauty; the common holly, *Ilex aquifolium*, and the noble dark green, very distinct "twisted-leaved" holly, called in the nurseries *tortuoso*, are the two best of the race for such places; the common *Daphne lauricola*; every kind of Butcher's Broom, *Ruscus aculeatus* and *Ruscus racemosus* being the best; also Periwinkle, *Vinca major*, and common Juniper, *Juniperus communis*. I shall quit this border by offering a hardy herbaceous plant that looks like a shrub. I shall call it the poor man's shrub for blighted spots, because one bit as big as the finger may in time be increased to cover acres; and though it is invisible in winter, its growth all the summer is like an evergreen shrub. The plant is *Aster fulvis*, a small-leaved dark green plant, which in October produces heads of pretty small copper-coloured flowers, but requires a sunny place to flower well. This, then, is a good subject to plant in a blighted spot for the sake of its foliage only.

Now I will go on with you. How neat, how bright, how harmonious is the scene! Surely we cannot find another blighted spot. Ah! here is one. Observe how these trees overhang the grass and kill it, so that on the margin of the lawn there are great semi-circular spaces covered with moss. Now, if the moss there were nice green moss, such as we find in woods, I would leave it alone; but it is ill-looking, more black than green, and is altogether sour and unsightly. The gardener says he can't help it; the grass never will grow there. Well, I know that; then why not try something else? I can see, by the fine grass in the open spaces,

and the vigour and health of the trees, that the soil is all right. I never want to dig up the soil to discover its quality; what I find growing on it will always tell me what it consists of. Now I shall say that the appearance of these bare places is most objectionable, and we must sacrifice formality for the sake of beauty. We will not alter the shape of the lawn; it is not my business to alter any one's designs, but we will cover the ground where the grass will not grow. First, then, I will have these places well dug and manured. Next I will plant them, about a yard apart, with tufts of *Ranunculus ficaria*, which you call the "small Celandine," also with the "Enchanter's Nightshade" (*Circæa Lutetiana*), with Russian violets, and English primroses. You may perhaps think also of periwinkle and ivy, but these I do not name, because they are too dark in colour. The plants I offer for the purpose will quickly spread, and make beautiful sheets of bright green herbage, in most perfect harmony with the grass all around them. The first two plants may not be known to all the readers of this; they are most common, most beautiful, and spread fast and luxuriantly in damp soil under trees. The Celandine produces at this time of year numbers of lovely golden flowers, far superior in beauty to any of the meadow ranunculuses. Another reason for naming these four subjects is that they may be mowed, if desirable, after spring is past, but I do not advocate mowing them; rather I would take the machine close enough just to touch them where they seem likely to encroach on the grass, so as to keep them to their proper districts. Nevertheless, if at any time late in the summer or autumn it is found desirable to pass the machine over these places, it may be done if the cutter is set high, so as only to shave their tops, and not cut close to the earth.

Now we have got upon the improvement of the lawn, the proprietor asks about the south bank or glacis on the further side, where from the terrace-walk we look down on a geometric garden. This south slope is so hot and dry in summer, that by the end of June it always turns brown, by the middle of July is quite brown, and thence till the end of September unsightly. It strangely happens that the soil here is quite sandy and poor, so there are two obstacles to the growth of grass. It has been several times sown with clover, but though this promised well for a time it perished at last. Now I can face that slope with as bright green grass-like herbage as can be found in the world, and I advise that it be planted with camomile and common yarrow. As vulgar names are not to be trusted, I wish it to be understood that the camomile I mean is the *Anthemis nobilis*, and the yarrow is to be *Achillea millefolium*. These may be mown like grass, and will continually spring again from the root; but the wise gardener will never mow hot dry banks and slopes very close, or very frequently, for in such places herbage lives in summer chiefly on dew, and if closely shaven, there are not sufficient condensers of dew as when there is some amount of leafage surface to attract and collect the watery particles. There is a much-contemned plant that might be frequently used to improve lawns, especially where the soil is damp and sour, and that is *Sagina procumbens*. To obtain it is easy enough, for it makes its appearance everywhere—in flower-pots, in little tufts, and on bricks, and in odd waste corners—not in England only, but all over Europe. I have never been in a garden but I could find it somewhere. Indeed, I have known many gardeners to call it Spergula; but the true spergula is a different plant, and a more elegant, but not so accommodating as this to form a close bottom amongst grass. If it is ever wanted in quantity, a bed or nursery should be prepared for it, and the best soil is that thrown out from flower-pots. When to be used to improve the lawn, it should be dibbled into the ground during showery weather in April, after the first mowing has been done. Roll the turf immediately afterwards, and the Sagina will soon begin to spread and increase.

Now we shall find in this garden some spots that, being near a rockery, a root-house, and some old brick structures, are so much infested by vermin that very few herbaceous plants thrive in them. But I can tell my friend of a few good things that vermin will not readily touch, and that may be planted under the shade of trees, and that will take care of themselves for ever. And I shall now in thought transfer myself to the garden of the poor man, in the vicinity of the town, for he has to contend with smoke, walls, trees, snails, and wood-lice. To him I would say, have a free current of air by all means, but consistent with that have as many trees and shrubs as possible; for a garden may be rich and delightful where they are, but cannot be so where they are not. I would rather have one fine birch or plane tree, or even apple, pear, or elm tree, than ten thousand flowers, if I could not have both; but that is my taste, and may not be yours. Nevertheless, I tell you now of a few beautiful plants that may be put in borders where shade, confinement, and vermin commonly destroy your pansies, asters, dahlias, and even your pretty *Saponaria ocymoides*, and other lovely borderers. First, then, the most beautiful *Ranunculus ficaria*, which I have recommended for the lawn. Put little bits of it everywhere in borders under trees, and leave them to spread. In the month of April every year they will shine with emerald green and purest

gold, and when they make large patches will be worth inviting friends to see, especially while the sun shines. I do not advise much use of the Enchanter's Nightshade now, because it runs and spreads much, and is not showy; yet it is quite acceptable to cover the ground in quite dark places where not even ivy or periwinkle would thrive, and it is neat and pretty. Next, we have choice of all the varieties of *Primula vulgaris*, some thirty in number; and lovely as are the double pink, double white, and double yellow, the common single yellow is a real gem, that bespeaks the plentifulness of beauty in the gardens which the Lord has planted; for He makes it to grow as a diffusive weed, in company with the violet and the pimpernel, and that sweet-scented weed the Wood-ruff or *Asperula odorata*. All the species of *Lysimachia*, and especially two, the *Lysimachia nummularia* or "moneywort," and the *Lysimachia thyrsoiflora*, a fine, bold, shrub-like plant, which spreads and spreads, and flowers richly all the summer, showing amongst the bushes its fine thyrses of yellow flowers. Then there is the Lily of the Valley, *Convallaria majalis*, which I am told many English gardeners cannot grow; but I say from experience that if they will now take up a quantity, and tear the roots asunder, and plant the pieces in all parts of the shrubbery, quite covering the crowns that are now rising (the end of March is a better time though), they will in a few years take hold of the soil and spread extensively, forming the most lovely summer surfacing that can be imagined, or that has ever been seen. The *Alchemilla pentaphylla*, *Alchemilla conjuncta*, and *Alchemilla vulgaris*—these are most beautiful plants, equally elegant in leaf and flower. The quaint Hoffman reports upon them, that they possess the power of preserving beauty, but that no plant has; but the love of plants may tend to preserve the beauty of the soul by keeping us in mind of the presiding Maker, who, in His infinite goodness, has clothed the lily of the field with more splendour than was seen in the gorgeous robes of Solomon, once greatest of Oriental princes. And here I am reminded of a most elegant plant, the Solomon's Seal or *Polygonatum multiflorum*, which I have seen grow with a vigour and beauty few plants could equal, in spots where it appeared a miracle a plant should live, and no snail or oniscus will touch it. There are many more species of *Polygonatum* which the amateur who wishes for variety may plant with satisfaction: I would name especially as worthy of a place in the choicest garden, *P. ambiguum*, *P. latifolium*, and *P. multiflorum fol. variegata*, which is one of the rarest gems of variegated-leaved plants, but very scarce, and I know of no one who has it, though I have seen it many times. But let us proceed. The Artemisias will live where many other plants will not, and are always most elegant in their aspects. Say, for the sake of being definite, that we put down *A. maritima*, *A. pontica*, and *A. vulgaris*. Of the last there is a variegated-leaved variety, which should be allowed somewhere to extend and form a great patch. *Epilobium hirsutum* and *E. angustifolium*, and the variegated-leaved varieties of both, are quite proper for such places, and though generally recommended for damp soils, they will thrive on quite dry spots if planted early in the spring, so as to have the summer to extend their roots, and form good crowns for the next year. The Day Lily is the next thing. The botanical name is *Hemerocallis flava*, a most beautiful plant, whether we consider its graceful light green leaves or its gay lily-like flowers. There are a dozen kinds in cultivation; and on a border near the windows, but where many trees preclude much planting of flowers, all the kinds of day lily should be planted, and every year thereafter they will increase in size and flower profusely. Of the Hawkweeds, *Hieracium pilosella* will be useful. *Spiræa ulmaria* is not to be despised, though I do not see it flower much when in a shady place; indeed, it is by the river's brink that it seems to be most at home, but as a green tuft it is of some value in the shady border where vermin abound. Of the violets the best for very shady places are *Viola cornuta*, *V. lutea*, a charming yellow flower, not much known, though common all over Europe; *V. obliqua*, which has a twisted flower; and the Russian variety of *V. odorata*, which grows and spreads, and makes beautiful tufts of herbage, but only flowers well once in three or four years unless skilfully cultivated; and you know that one part of skilful cultivation consists in propagating annually, and planting the young plants in fresh rich soil. For my part, I would rather see great patches of such a plant consisting of leaves only, than the bare, sour, ill-looking spots that are neglected because the shade and the vermin render it impossible to clothe them. Impossible! that word is for the incompetent, the idle, the careless ones who take refuge in a word from the obloquy that belongs to their paucity of noble deeds. It is impossible to take an army across the Alps; but Napoleon Buonaparte, greatest of leaders and worst of men, did it. Impossible! All that I have said herein is possible, and I hope it will be useful also. I had almost forgotten to advise the possessor of a shady border to sow at this time of year, or some time before Midsummer day, plenty of seeds of the columbine *Aquilegia vulgaris*, and allow them to spread and grow as they please. In truth, seeds of all the kinds of *Aquilegias* may be sown under the

shade of trees, and very few if any will fail. And what will be the result? Lovely tufts of most neat and attractive herbage in spring, soon followed by charming flowers, and these flowers will shed their seeds, and more and more plants will spring up every year.

Borders occupied with such things as these should not be dug: the gardener who digs such borders is—I will not use unkind terms, but I mean them, and as many as can be imagined. I have seen in some of your London gardens the spade used in borders where I was told there were many lilies, pæonies, and other herbaceous plants; and I have said, "You had best take farewell of your lilies, pæonies, and other herbaceous plants, for they are now being executed, though innocent of wrong, and without the sanction of either judge or jury." Dig not these borders. But few weeds will ever grow in them, and such as do appear must be removed by hand-fork or trowel; and to give a new surface wait to the end of March or middle of April, and then slightly break the top crust with a small hoe, taking care that in the operation not a leaf is hurt. If they are left to me, however, I will not even hoe them; for nature does not hoe the ground in the great woods, where for the most part such things grow, but they are covered with leaves all the winter, and in spring break forth as it were singing—certainly they break forth smiling while the lark is singing, and when we should be singing too, with the Spirit of the Lord upon us to bind up the broken-hearted, and deliver them that are bound. And once more the woods and the leaves remind me of the hyacinths—such as *Hyacinthus non scriptus*, in its blue and white varieties—which are at home under trees, and at the present moment are displaying their beautiful racemes of flowers. I have not seen this plant in English gardens, except those that belong to the poor; the rich do not know of its adaptation to make sheets of white and blue, and even of pale rose colour, under trees in the month of April. I saw some of it lately in a cottage garden, and I said within myself, "How many thousands of pounds have been expended on flowering plants that have not rewarded the disbursers of the money with flowers of beauty equal to these!" But that is no matter. Some value plants for their cost. I value them for their use and beauty, and if there be a story woven into the thread of their simple lives, the delight is the greater. Now, in the opening spring, we see some of the loveliest forms of vegetation pertaining to our native climes. If so poor a pen as mine could set forth their beauties and expound their influence on the human heart, how gladly would I labour for this. But to be silent is better than to load the page with inelegant reflections, though, having the works of De Lisle before me, I can transcribe a few lines that are appropriate, and may entertain the reader, and especially the reader who loves as I do the tangled maze of Flora's wilding wreath, and the nearest approaches that can be made to it in the enrichment of the garden:

"Ye gentle shades between the trees and flowers,
With you, ye laughing race, I'll deck my bowers.
Oh that my theme would grant the fond delay,
Nor with too urgent haste forbid my stay!
With what delight my hands each spray should guide,
And teach your curling tendrils where to glide.
In woven bowers and roofs your shoots should grow,
And 'neath your network arch the riv'let flow;
Around your elm your wedded arms should wind,
Emblem of strength, with gentlest beauty joined.
You, then, to whom their lovely pomp is given,
Display with art these charming gifts of Heaven;
Let every season have their brilliant bloom,
Their laughing colours, and their rich perfume:
Let each in turn the well-wrought chaplet wear,
Thus ne'er shall fade the garland of the year;
But new-born joys shall every season bring,
Each month a bower, and every bower a spring."

I did not observe till I came to transcribe this its complete appropriateness to the subject. It anticipates our ideas and warrants our assertions. KARL PROSPER.

THE GLORIOSA OR CLINOSTYLIS.

A vast number of plants of all denominations get a long grand-sounding name tacked to them and started out into the world, which very probably they by no means deserve, or in any way bear out the relationship which is naturally supposed to exist between the plant and its name; but this truly beautiful plant is one of the exceptions, for every one acquainted with its merits will admit that it most conclusively establishes its claim to the appellation conferred upon it, for it is indeed a glorious thing when well done. There is not a stove in the three kingdoms, or a collection of stove plants, however select, whether hard or soft wooded, that it would not be a very valuable and grand acquisition to it; yet, notwithstanding its extreme beauty, it is by no means extensively cultivated. I must admit that one cannot grow everything that is really good, for it would require a regiment of gardeners and several acres of glass to do so; while admitting this, I am of the opinion that it could be introduced into scores of collections with immense benefit, where the space required for its cultivation is at present occupied with

plants far inferior in merit to it. Few plants which are employed for training up the rafters and roof of the stove have a better appearance, or produce a richer effect, than this does when in bloom. For covering large spaces it would not be fair to put it in competition with fast-growing plants like the *Stephanotis* and passion-flowers, for it is not so suitable. My favourite way is to train it straight up the rafter: it shows the flowers off to a far greater advantage that way than any other; it also looks very well trained over a trellis, which is the way it must be trained if the plant is required in the conservatory during the time it is in bloom. Whichever way it is determined to proceed, it should receive attention immediately the young shoots get a few inches long, for they are very liable to get broken if they are allowed to hang about over the sides of the pot until they are several feet in length.

The *Gloriosa* is propagated by seed and division of the roots when the old tuber is shaken out of the old soil, and repotted in the spring. With careful impregnation, which is a very easy matter, it will produce a few seeds, which require sowing as soon as properly ripened, and a moderate amount of care bestowed upon them. For the first potting, in March or April, I prefer potting the bulbs in rather small pots, and then as soon as the pot is nicely filled with roots, and fairly started into growth, shift into a larger size. My opinion is that they do much better than when they are potted in the blooming pots at once; they root better, and when the plant feels the fresh soil it goes away with amazing rapidity. It is a great advantage to give the bulbs a nice bottom-heat of about 75°, if it can be conveniently done; it will enable them to push out much quicker and stronger. For the first potting, sandy peat, leaf-mould, and loam will be suitable, and for the final shift, some good fibry loam and rotten manure. If the loam is deficient in fibre, use a little peat to keep the soil open. Let the first soil be moderately moist, so that no water will be required until the young shoots make an appearance above ground, when they will require a little at first, and increase it in proportion to their growth. The temperature of an ordinary stove, with plenty of atmospheric moisture, and potted in the above-mentioned soil, will grow the *Gloriosa* to perfection. After the plants have done flowering, and the leaves begin to change and turn yellow, they should be dried off, and the bulbs put away in a cool part of the stove where they can be kept perfectly dry until the following spring.

I cannot occupy space with a long list of species, for I know of two only, *Plantii* and *superba*, and both are good.

GEORGE GORDON.

SHRUBBY CALCEOLARIAS, AND THEIR CULTURE AS POT PLANTS.

There are but few florists' flowers that better than these repay for the time and pains bestowed on them, when grown as specimen plants for furnishing the conservatory. Their varied, and always richly, and sometimes curiously coloured flowers are highly attractive, though not so large or so fascinating as the flowers of the herbaceous section. Yet they are far more useful to furnish cut flowers, and last a great deal longer after they are cut, their close compact heads of bloom favouring them for such a purpose, as contrasted with the herbaceous varieties. Even *Aurea floribunda*, the pet of our bedding calceolarias, when cultivated as a pot specimen, is in every way excellent for making the greenhouse or conservatory look gay during the late months of the spring. Perhaps one of the most important of the many reasons urged against their general pot culture, is their liability to suddenly droop and die off. We will attempt to explain the causes of this, so far as we can make them out, and also suggest such remedies as we consider to some extent would counteract the evil. First, we would say, exercise great caution in regulating the supply of water. Too little would be the lesser evil of the two, as compared with an excess; for should the plants become so thoroughly soaked as to be for any time water-logged in their pots, the healthy action of the roots must be checked, and the consequences must be fatal. Again, if allowed to suffer from drought, the result would be scarcely different, although by an after supply of water to the roots they may apparently revive, yet the chances in their favour are but as one to ten against a satisfactory recovery. Now comes the question, How are we to prevent these casualties? Why, by being attentive in watching their necessary requirements, and so using our judgment by regulating the supply of food and drink to the plants, and also keeping them very clear of insects of every kind. The latter advice should be rigidly adopted by fumigating them at least once a fortnight.

When potting them, put a thick layer of half-decayed manure over the drainage; cow-manure is the best, if obtainable. Such practice affords their roots a cool nourishing food. Before using it, examine the manure well, and pick out all worms that you can find, for should they be harboured in the soil or manure, evil consequences must ensue, for the constant activity of the worms would choke up the drainage.

It is advisable always to have duplicate plants of all the sorts you may cultivate, in case of an accident. When you stop the shoots, put the tops into a prepared pot of soil. They are not long before they become rooted, especially if they are covered with a hand-glass, so that air is shut out. The autumn is the most favourable period for successfully propagating all the varieties of the shrubby species.

When rooted, pot them off singly into small 60-sized pots, and put them in a close frame. If they are subjected to a gentle warmth in the first stage of their rooting, it is so much the better. As soon as they have grown sufficiently to admit of being stopped—that is to say, so that you can ensure from four to six breaks from the main leading shoot—take the point out of the leader; then, as soon as the new shoots have commenced pushing, shift them into one size larger pots, or, if they are well furnished with plenty of roots, you may put them into a pot twice their present size. As they grow, carefully train out each shoot, so that they may enjoy plenty of light and air, which will tend to strengthen them. When the increasing growth is allowed to crowd in a mass together without training, the thickening leaves afford to some extent a shelter or nesting-place for the breeding of insects.

In training them use caution, for they are brittle and soon snap. That you may in some degree avoid that, first secure the lateral shoots with bass to the main stem, or the centre stake that supports the plant; this will prevent the branch from severing from the stem.

The principal object of the cultivator should be, if he is desirous of obtaining large specimens, to encourage a rapid but healthy growth; and this can be done by endeavouring throughout all the stages of their career to maintain a moist and mildly warm atmosphere, admitting plenty of air on all favourable occasions, but avoiding sudden cold draughts. If the plants are progressing vigorously, they can be successfully shifted from a large 48 to an 8-inch or 24-size pot. It is useless to continue to shift after they have shown the least disposition to flower, as whatever shoots they make afterwards, flower-buds are sure to appear with them. A gentle syringing when they are shut up of an afternoon will be very beneficial to them, especially at the close of a warm sunny day. When in flower, keep them shaded from the hot rays of the sun. If they exhibit signs of being pot-bound, we then suppose that they have exhausted all the nourishment contained in the soil, and should they be in their flowering-pots, it is prudent to water them occasionally with liquid manure; but cease to apply this when the trusses are somewhat developed. Endeavour to keep them thoroughly clean, by continuing to fumigate them up to the period of their commencing to flower. If you fumigate after they are in flower, the chances are that the fumes of the tobacco will cause the majority of the blooms to drop. The compost most suitable for growing them in is a friable turfy loam, such as the top spit of a pasture that has been stored and turned at intervals, to which add about a fourth of leaf-mould or good old decayed *cow-dung*, with sufficient silver sand to render the whole porous. It will be all the better if you add about an eighth of peat-earth; but still that can be dispensed with. The following list will be found to contain some useful sorts, all of which I am at present growing.

Names.	Colours.	Remarks.
<i>Angustifolia Superba</i> ..	Deep yellow	Dwarf habit.
<i>Beauty of Heris</i> ..	Clear amber	Dwarf habit.
<i>Bird of Paradise</i> ..	Bright orange spotted	Free branching habit.
<i>Beauty of Montreal</i> ..	Bright crimson	Small flower, but effective.
<i>Canariensis</i>	Bright yellow	Compact habit, very dwarf.
<i>General Tom Thumb</i> ..	Deep yellow	The dwarfest variety in cultivation.
<i>Princess Alexandra</i> ..	Rich orange buff	Dwarf, compact habit.
<i>Magnificent</i>	Crimson	Large flower, and good.
<i>Etna</i>	Crimson-scarlet	Very free, rather long flower stalks, good for bouquets.
<i>Lillio</i>	Bright yellow	Very good and effective, forces well for bouquets.
<i>Victor Emmanuel</i> ..	Red scarlet shaded	First-rate.
<i>General Havelock</i> ..	Fine bright crimson	Excellent and long lasting.

JOHN F. McELROY.

IDER-DOWN.—A consular report of this year on Iceland gives an account of the way in which down is exacted from the cider duck. Early in June, the bird, always repairing to the same spot, comes to some small holme or islet in a bay or fjord, and lays its eggs, after lining its nest with the down plucked from its own body. As soon as the eggs are laid, the owner of the hatching-ground robs the nest of the down and a part of the eggs, both of which the poor bird replaces a second and a third time, when she is left in peace to complete the process of incubation, but with her body completely denuded of down. This method is adopted because the down of the dead bird loses its elasticity, and is of comparatively little value. The hen-bird gives eight or nine ounces of down to a nest, but when cleansed the weight is diminished by half. The value of the cleansed down is about 19s. per lb. The annual produce in Iceland is valued at about £5,000. In some instances one small holme will give its owner an annual income of £150. Such is the care taken of these birds that during the hatching season no guns are allowed to be fired in their vicinity; foreign vessels arriving are forbidden to fire salutes.

KNOCKHOLT BEECHES.

This has been a very unhappy sort of a day; my men have been unable to work on account of the continuous drizzling rain, which has been falling throughout the whole of the day; so, to save myself from stagnation with cold and ennui, I took my umbrella after dinner, and walked up as far as the famous Knockholt Beeches. This is a fine clump of beech-trees, growing on the highest point of land in the county of Kent. I am told that they can be seen from the sea, although forty miles distant. I have had them in my eye for many months past, as they form a prominent feature in the landscape of this part of the country, as seen from Chislehurst Common, and I have often wished for the opportunity of a nearer inspection. This opportunity has been twice afforded me. Once, six or seven weeks since, when the ground was thickly covered with snow, and every bush and tree was beautifully incrustated with rime, sparkling gloriously in the sunlight; and again to-day. On both occasions the atmosphere has been filled with mistiness, so that I have been quite unable to distinguish the configuration of the surrounding country as seen from this point, which, as may be easily imagined, is very extended and varied. I can therefore do nothing more than make a few notes on the clump itself. This consists of ninety-five large trees, the tops and branches of which commingling form one dense, twiggy mass, which even now, denuded of foliage, are a dark, imposing object, standing out in bold relief against the sky from every point for many miles around. Fourteen of these trees appear to be of very great age, probably not less than from 500 to 700 years; some of these are very much torn and gnarled with the storms and battling with which they have had so long to contend, and to the full force of which they are constantly exposed by their unsheltered and elevated position. I should say that the remaining eighty-one trees are seedlings from the older plants, as, from the exceedingly irregular way in which they are disposed, it seems impossible that they should have been planted. Another reason why I think these younger trees must be seedlings from the older ones is, that the whole surface of the soil, both in the interior of the clump and on the outskirts, is covered with young beeches of various ages, and different heights and stages of growth, so that, as any of the larger specimens decay, blow down, or otherwise lose their position from the main group, others are pushing themselves up into their places. The ninety-five trees are those which by their uniform height and growth do constitute what in common parlance are called "The Beeches." The moralizer would be very much interested while surveying this group at its resemblance to human society. Here are fourteen grandsires, so to speak, beginning to manifest signs of decrepitude and decay. Surrounding these and intermingled with them, eighty-one adult specimens of ages varying from one to three or four hundred years in their prime vigour, while on every hand saplings of every age, from the infant just out of the soil to the hobbledehoy, between a man and a boy, abound on every hand. The whole of the trees composing the group, with one exception, are fine, straight, upright boles, averaging eighty feet in height, or perhaps more. I don't know whether there is any tradition about these trees, as to how long they have existed in their present form, how they came here in the first instance, or whether the surrounding country was all forest and the surrounding trees cut away and these purposely left for a landmark or seamark, or what not. I may some day or other have the opportunity of learning. The length of the clump from outside stem to outside stem is 137 yards, the breadth about 60. The shape may be called a pot-hellid oval, a sort of monster egg.

There are three excavations, two of them being fifteen or more feet in depth, in the bottom of which and on the sides some of the largest trees are growing, while the third is a circular hollow, five or six feet in depth, containing a nice group of young trees, say of forty years' growth. The soil in which they are growing resembles much of the soil of this neighbourhood, and consists of a dark-red loamy clay largely intermixed with flint-stones, as large as two fists, and is of a nature to sustain trees of the largest growth. The undergrowth among the trees has nothing remarkable—a few scattered hollies, brambles, and honeysuckles thin and poor in their growth, are everything at present visible, with the exception of moss, which covers the ground with a bright, green, soft carpet, far surpassing in beauty and finish Turkey or Kidderminster. I think, Mr. Editor, you would be just in your glory if you could on some bright, clear, sunshiny day come down and roll yourself upon the moss among these trees, and enjoy the beauty of the surrounding scenery.

Knockholt, Kent, Feb. 26th.

WILLIAM CHITTY.

GRAPE-VINE TRAINING.

I am glad to find you continuing to advocate so powerfully in *The Farmer* the long-range system, as I may term it, of grape-vine training, which you brought prominently into notice last autumn.

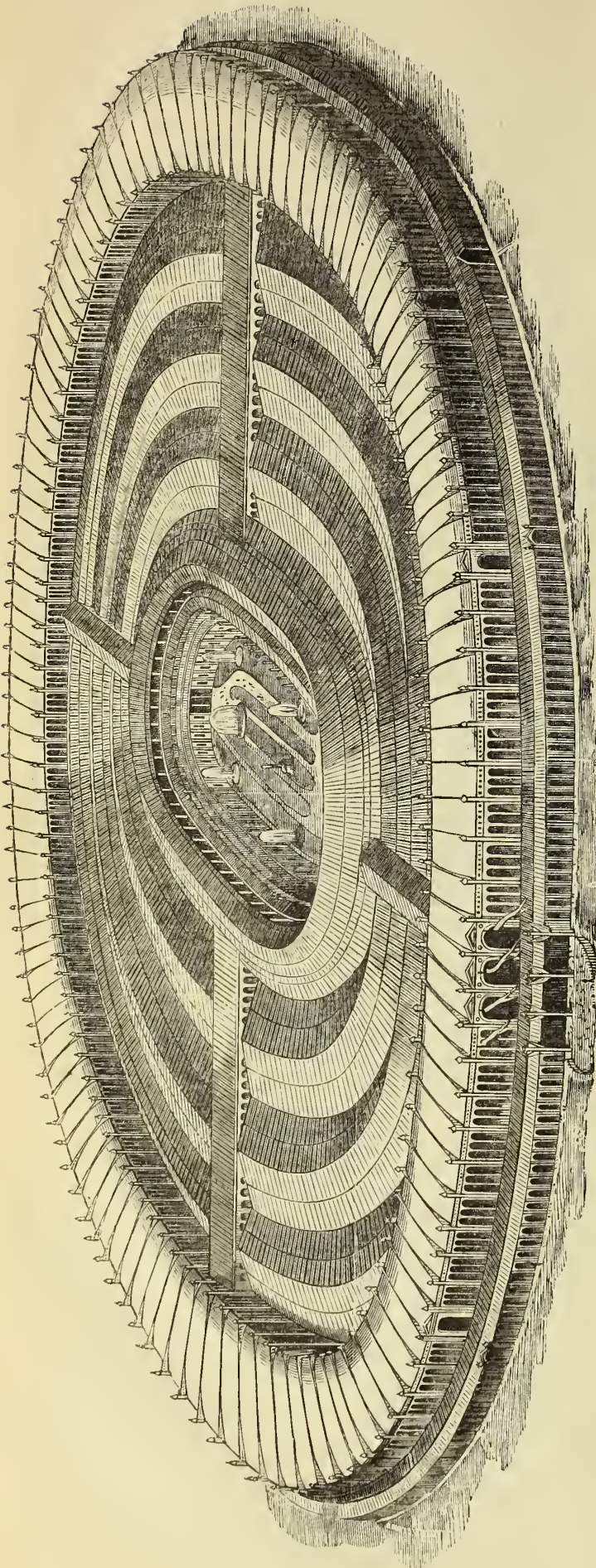
I have for many years been convinced of the absurdity of the so termed "spur system," although no doubt vines will, under such treatment, bear very well during the first three or four years, while their roots and branches are more equally balanced; but gradually afterwards, by the unmerciful lash of the knife, they are, like a cruelly over-driven young horse, soon on their last legs. In corroboration of this, I may state that about four years ago we had a viney here, that after enduring the unnatural spur torture for many years, and yielding at the best about a third of a crop, I, in faith of giving liberty to the vines, cut out by the roots every alternate plant, thus leaving one vine only to every alternate rafter.

In pruning I then cut away all the spurs, with the exception of leaving a pair of branches at about 3 feet apart up the main rod, and these young shoots I trained horizontally along the wires. And now these vines go on regularly yielding double the number of bunches required to be left for a crop, and all perfectly coloured and entirely free from shanking, which was not the case while they were subjected to *vegetable bondage* under the former system.

The prevailing system of grape-growing may, in my opinion, be compared to a thickly planted and regularly dressed *thorn hedge*, the plants of which, in a comparatively short period, get stunted and die out; and as to the remarkable crop of *haws* on said hedge, who saw them?

Much is now being said and written regarding reform in our Parliament, but truly we gardeners, who pretend to control the vegetable kingdom, have as much need to grant universal suffrage to the vine.—Peter Murray, *The Gardens, Taymouth Castle, in "The Farmer."*

A RALE BULL.—An Irishman, passing through a field of cattle the other day, said to a friend, "Whenever you see a herd of cows all lying down, and one of them only standing up, that one is sure to be the bull."



PARIS INTERNATIONAL EXHIBITION, 1867.

with us in hoping that long ere it closes it may be unanimously pronounced a brilliant success.

We present a rough sketch of the building, as far preferable to the most elaborate description. The site occupied is on the margin of the Seine, on the spot so well known as the Champ de Mars. Originally the ground was some feet lower than the surrounding roads; but on the opposite side of the river was a mound (lying between Paris and Passy) called the "Troadero." Rails were laid down from the hill to the hollow, by way of the bridge which connects them, and in the course of time the mound disappeared, by the transference of its substance to the Champ de Mars, the level of which rose sufficiently for the purposes of the architects. The Exhibition, therefore, is built on made ground, and for that reason its very foundations are interesting; and when we state that the area which it covers is three times as large as the Exhibition at Kensington in 1862, it will be understood that the preparation of the ground was at once a curious and a gigantic undertaking—the removal of a mountain, in fact, to fill up a valley—fulfilling in a peculiar manner a scriptural expression as regards the two sites operated on, that the valley shall be exalted and the hill made low.

The building measures 1,600 feet by 1,250 feet. In general configuration it approximates to an ellipse. It consists, as may be seen by the figure, of a concentric series of courts, connected by transverse arcades, enclosing in the centre a garden, with flower-beds, fountains, and statuary. This garden, indeed, revives the idea of the inner garden of the old Roman mansions, the pleasing adornment of the colonnade on which the rooms of the basement opened, and which is so admirably represented in the model of a Pompeian villa in the Crystal Palace. In the case of the Paris Exhibition,

however, we have a space of 500 feet long by 200 feet broad, forming an elegant finish to the plan, and an agreeable place of resort to visitors who have become weary with the exploration of the courts.

The horticultural exhibition proper is in a portion of the park set apart for the purpose, and comprising an area of about twelve acres. The management of this is entrusted to M. Barillet Deschamps, the chief gardener of the city of Paris. This department will probably be the most attractive of all to the majority of our readers, and we venture to believe that, many and surprising as have been the rumours circulated respecting it, few English horticulturists will be disappointed. We forbear to speak of the specialities of this part of the undertaking at present, for they are as yet but in part developed; but for some time past the fruit garden has been enriched with some remarkable examples of training, an art in which the French cultivators excel, and by which they will astonish many of their English confrères. A very important section of the horticultural department is that devoted to the plant houses, of which there are six—and twenty, all tastefully arranged and connected with a noble conservatory, in the immediate vicinity of which are picturesque winding waters, with cascades, flowery banks, and other elegant accessories. In a short time hence the inner garden will be planted for the season with bedding plants of the richest colours, and with a profusion of sub-tropicals to give the dignity of form. Of these and other matters we shall afford our readers full particulars, in so far as may be necessary to keep the pages of the *Magazine au courant* with the progress of horticulture and its associated arts, in Paris during 1867.

The following are the names of the jurors, in the classes pertaining to the arts of rural life, in Group IX., Live Produce and Specimens of Hor-

PARIS UNIVERSAL EXHIBITION, 1867.

No. I.

The Paris Exhibition is the first of its kind in which horticulture has been regarded as an important feature, and the horticultural departments are fast attaining to such perfection, that they may be expected to prove the most successful, both because of the novelty of the idea and the admirable manner in which it is being worked. That the Exhibition was opened on the 1st of April everybody knows; that there is as yet scarcely any part of it in a finished state is also pretty well known; but no one who has taken any serious interest in the affair can seriously doubt—as some superficial and over-wise people do doubt—that in the course of a few weeks the present chaos will be reduced to order, and that this will prove to be the most complete and magnificent international exhibition of the series that commenced in London in 1851. That first gathering of the nations had the charm of beauty as well as novelty, to render it capable of making the bright mark in our memories it has done. In some respects the Exhibition of '51 will never be surpassed, cannot be surpassed: the world will never again see in the temper of surprise, delight, and emotional ambition for good, with which it then saw the glittering arch rising, like a palace of enchantment, from the bright green grass, toying with the sunshine in the matchless sparkle of its crystal roof, and within made more beautiful than was possible for art merely by the great elm-trees that were enclosed, and that became in time to the minds of all the presiding geniuses of that congress of the nations. But we can turn from the delightful memories of the first great Exhibition to this large affair of the French world without envy and without alarm; and we trust all our readers will join

ticultural Works:—Duke of Cleveland, K.G., president.—Class 83: Horticultural Apparatus; juror, Professor Balfour, M.D.; associate juror, Dr. T. Thomson, F.R.S.—Class 84: Flowers and Ornamental Plants; no juror allowed.—Class 85: Vegetables; no juror allowed.—Class 86: Fruit Trees; no juror allowed.—Class 87: Seeds and Saplings of Forest Trees; juror, Dr. J. D. Hooker, F.R.S.; associate juror, Dr. Moore.—Class 88: Hothouse Plants; juror, Mr. James Veitch; associate juror, Mr. F. W. Brady, Q.C.

LONDON GARDENS AND CHURCHYARDS.

We must be practical, even in spring-time, and even upon such a disturbing and delicious topic as the flowers of spring. In truth, we have a little suggestion to make, not altogether without reference to the change in the weather and the pleasant themes which it suggests. Everybody knows that for ten shillings or a sovereign you can, at this time of the year, make the most surprising investment which it is possible to mention on the Stock Exchange or elsewhere. You can plant silver in the ground—or even copper for the matter of that—and grow gold! It is no secret: it has been a perpetual fairy tale, perpetually coming true, since Adam was head-gardener in Eden. You lay your money out in odd-looking seeds and bulbs of various sorts—with Latin names generally spelt wrong—and by-and-by you find your garden all alight with colours and lovely forms; though it be only a tiny patch in London, like that which Charles Lamb used to "cultivate," as he wrote, "with a toothpick and a pair of scissors." Do not say that flowers will not come up in London—look at the window-gardens of poor people, and at the wonderful things which, despite the smoke, have been done in the different parks during the last few years. Why, all last summer and autumn there were Cannas and Sarracenas, the dwarf palm and the castor-oil plant, and many other distinguished foreigners, freely naturalising at the corner of Rotten row. But our thoughts are not soaring to sub-tropical or costly gardening; we speak of the common hardy annuals, which cost no more than a penny or twopenny the packet, and which will, with proper care and management, turn a bare unhappy plot of London soil into a place of beauty. And everybody knows that a little labour at the rake and hoe, water now and then, and half a cart-load of gravel or sifted shells between the beds, will render the effect of the investment splendid. You do not want a large garden to produce it; nothing is so small as not to repay care with beauty. Where nothing else will grow, scarlet runners can; and if you saw for the first time the coral flowers and broad green foliage of the "poor man's vine," how you would marvel that it could ever be a bold and vulgar thing even to allude to such a cookmaid's vegetable! Where, again, will not the nasturtium thrive, with its blossoms of golden tissue, pale or ruddy, and its great flat leaves, which love the light so much, and turn so constantly to the sun? We say—and this brings us to the point—that there is no spot, even in dingy, smoky London, where something pleasant may not be done in spring-time by the help of the flowers.

Why, then, when we are gardening everywhere, should we forget the dismal-looking churchyards, which might so easily be made bright and cheerful, and in some places positively charming? Go down the Strand, go up Drury Lane, into the City, into the suburbs, anywhere about the metropolis, and note what melancholy spots those churchyards are. The soil many and battered flat, the stones defaced and awry, dead cats, broken pipes, and hat-brims all about; and, perhaps saddest of all, a miserable attempt of some consumptive laurels or chrysanthemums to grow, without a chance of success. The graveyards are shut up now, and the sorrow of those who laid their dead there has probably, for the most part, long been robbed of its bitterness; but the ground is surely sacred still, and should be kept with care and reverence. St. Paul's itself is surrounded by a "yard" of the most leprous aspect—a howling-place for cats at night, and offering by day, in its neglected condition, a comment on the gloomy view we take of death. Most of the disused burial-grounds have substantial railings about them, and we will not allow that there is one—including even that of St. Giles's Church or of St. Paul's itself—where bushels of common flowers might not be made to grow for the trouble of putting in a little seed, or planting the space between the graves. If turf and some bright fresh gravel or shells were added, these places, which our Anglo-Saxon mother tongue called "God's acre," might be made to show like pretty little oases in the great city, instead of repulsive, sickly, accursed-looking patches, stamped upon by the hoof of Death's white horse and deliberately rendered barren. It would only need an order from the churchwardens and the rector in each parish to effect the beneficent change. If the plants were once struck, an occasional pot of water, and perhaps a little encouragement in the shape of manure, would be sufficient; and we might then have inside the railings, among the resting-places of "the poor old dead," those sweet blossoms, none of which are too common to serve for illustration to St. Paul's great argument, "that which thou sowest is not quickened, except it die. It is sown in dishonour, it is raised in glory." It would not cost the parishes a ten-pound note in the year to turn the wretched forgotten lumber-holes of death into beautiful nooks, with gay blossoms and green grass among the head-stones, and a wreath of clematis or jasmine, which will grow anywhere, to salute the passer-by with its perfume, and softly veil the names of the dead, who would no longer then be so forgotten. Now is the gardening time; and places like the Temple Gardens show what can be done in the worst of the smoke. Besides, the air of London is slowly improving, as all who grow flowers in it know. At little cost and trouble we might plant flowering trees and hardy shrubs which would make every churchyard in our great city a beautiful sight instead of an eye-sore; while many a sad face passing out from the great crowd to sicken and die would take home from the "places of the dead" a happy instead of an unhappy thought, and begin, perhaps, to guess, before the angels tell him, that golden things assuredly may grow out of Death, as those marigolds and lilies spring from the graves.—*Daily Telegraph*.

To CATCH RABBITS.—Schoolboys in England think themselves mighty clever when they catch birds by putting salt on their tails. Jonathan, however, goes a-head; witness the following mode of catching rabbits: "Place apples on the parts where the rabbits frequent, after sprinkling them with snuff, and when they come to smell, the sudden effort to sneeze which they make never fails to break their necks, and even in some cases has been known to cause them to tumble heels over head a considerable distance; in fact, cases are on record in which, in the convulsion of sneezing, they have leaped into a crust and become instantaneous rabbit pies."

MANCHESTER FIELD NATURALISTS' SOCIETY.

The first mild day in spring, when the slanting sunbeam falls warmly on the "silvery almond-hough," or lights up a sheet of the golden flowers of the little eelandine, causes also a curious stirring in the heart of the lover of out-door nature, and suggests the resolve for a ramble in the country, and the re-establishment of the old fellowship with green things. The garden suddenly becomes increasingly precious, for there are (or should be) myriads of lovely spring flowers there to invite us from the fireside; but of all places to charm the lover of beauty, to fascinate the eye of the artist, and warm the soul of one possessed of a poetic temperament, the woods enjoy pre-eminence. It is under the sheltering care of great old trees, and in the nourishing mould that centuries of decayed leaves have prepared for them, that spring flowers flourish; there we find the ground paved with daisies, violets, and primroses, surpassing ten thousand times the splendour of the grandest Alhambra court, in its green, gold, indigo, and snow-white tessellations, every tint of which is alive, odorous, and apparently full of joy, for each leaf dances to the breeze. It is not the season for elaborated tours and long-prepared-for sojourns, for the weather is capricious; and plans formed during sunshine, when the air is balm, and life has suddenly lost its reality and become a delicious dream, are likely to be mocked at the moment they should be carried out by the sudden return of winter wrestling with the spring, and splashing the pane with an unwelcome wet, and threatening to tear up by the roots the woods that a short while since, in their delicate glimmering of new green, made us think of nothing else than the possible perfections of an earthly state, and the probability of the real existence of fairy-land. Extemporized trips are glorious in spring-time if judiciously carried out, for, with all the accustomed uncertainty of the weather in this sea-girt isle, there is no place in the world where the spring is so rich in beauty, so overwhelming in its food for mental joy and exalted sensuousness. There are no flowers to equal the spring flowers, no verdure like the verdure of spring; at no other time do we see the true grandeur of the trees so advantageously, for their extremest fingery extensions are tipped with gold or emerald, and they shine as if hung with millions of costly gems, and yet their outlines are all displayed sharply, like vast magic etchings, against the clear blue or soft gray sky. Everywhere too, especially in the neighbourhood of an old village, and by the wood-side, the song-birds are swarming and singing, the air is as a voice speaking the praise of God, and we are silent because we cannot soar with the lark in the eye of the sun, and warble like him at the very gate of heaven; or, like the thrush, pronounce a melodious psalm that rises above all other sounds in the vast psalm of nature in the spring. It may be that we hurry out and tread the tender grass for mere diversion, to gratify the love of change, to promote our health; or it may be that we are engrossed in the study of natural history, and are on the search for such knowledge as the things of the season may afford us. But it matters not, provided we accept thankfully the feast that God provides us at this lovely time of year; and he perhaps will be most thankful and most happy who troubles himself least about science, and gives himself up willingly to the spirit of the season, which is tender, affectionate, cheerful, and has but one look and one language—the look and the language of LOVE. We may surely shake off our troubles on a sunny day in spring, if we will give ourselves to nature, and forget the cares that make us pale and thin. Yes, the forest is the proper hospital and sanatorium for a mind distracted with commercial cares and the anxieties of money getting. "Who can minister to a mind diseased?" God alone; and He does minister to thousands of minds that have become diseased through the cultivation of selfishness, by presenting to them a fluttering green leaf, or a timid, restless, musical bird, or a great expanse of heavenly blue, with the glad sun in the midst, warming nature into new life and love and song. These spring leaves are the soul's best medicines. They are the gifts of our Heavenly Father, whose Son has admonished us to behold the lilies of the field, and who, during His earthly pilgrimage, was constantly deriving from the aspects of nature the simple illustrations of his wondrous teachings. Shall we speak of the love of nature, and forget for a moment that Jesus Christ spoke with unapproachable affection and poetry of the beauties of the world—of the ravens that are fed by God, of the lilies that toil not, of the sparrows that are provided for in the vast scheme of providence that embraces the economy of countless millions of worlds? Yes! the country is the health resort of the soul equally with the body; and a religion that ignores its attractions, and calls this world a "vile world," is blasphemy in practice, whatever gray theologians and harsh sectaries may say. When cares multiply, go to the woods,—mayhap you may leave all your cares there, at all events you will be freed of their weight; for the fresh air, and the blue sky, and the tender green, and the wayside flowers, are so many elements of enchantment; and the true elixir of life is to be had for the asking direct from the Divine Disposer of our fortunes.

Oh! forest deep and gloomy,
Oh! woodland, vale, and hill,
Of all my joys and sorrows,
The gentle witness still.

When sick of worldly pleasures,
Leaving the busy town,
I seek thy quiet shadows,
And weary lay me down,

The forest softly whispers,
In tones of truthful might,
It speaks of earnest duty,—
Of what is wrong and right.

I listen to its teaching
With patient humble ear;
To me the beauteous language
Shall be for ever dear.

In connection with a subject so full of delights, it is somewhat chilling to think of organizations for promoting the observation of nature. The all-abounding beauty of the natural world is enough for the soul that loves in earnest, and it is like imposing fetters on a spirit that cannot live unless it be free, to subject the mind's communion with nature to rules and times and seasons and purposes. But it has been done, and that with vast benefit to thousands. Possibly there are not many in this age who can rise to the height of regarding impulse as superior to law, and hence such an institution as a Naturalists' Field-club is a good thing, a glorious thing; for it gives a healthy direction to the thoughts of all whom it embraces in its operations; and it is better for men and women to be led into the fields by the persuasions of a society than to forego the minutest part of life's share

in the glory of the great world, and its evidences of the love of its Maker. If the poetic element, which is undoubtedly the highest, morally and spiritually considered, loses by organization, there can be no doubt that social life is benefited and science promoted by the establishment of field clubs, and, for all we know, the good actually accomplished in one way may far outweigh the harm we imagine to be done in another. Not to hypothesize—for that is what we have almost engaged in—here is the report of the Committee of the Manchester Field Naturalists' Society for 1866, and we call the attention of all our Manchester readers to the fact, that if they love rambling in the country, they can have the advantage of organized rambles and good society to make an end of loneliness, and, moreover, accomplished savans to assist them in the study of the things they see, if they will join this society, and take full advantage of its enlightened provisions.

The writer of this has taken some interest in the formation and prosperity of these societies, and though given to impulse in seeking his own enjoyment, can have no objection at all to organization for those who find it needful or beneficial. Having been accustomed to out-door explorations for nearly forty years, he always believed he had little to learn as to the conduct of a party making an excursion ostensibly in the pursuit of natural history studies. There might be a little flirtation, and some very happy and prosperous courtships, all in the interests of science—that is to say, social science; but, as a rule, much knowledge would be diffused amongst the excursionists, respecting plants, insects, and even geology and meteorology. But some real curiosity was excited about the way in which a flourishing society, such as the one now occupying our attention, would get through the winter. It was, therefore, with some pleasure an invitation to address the members at one of their winter soirées was accepted; there could be no better opportunity of having a peep at a good society in its season of (comparative) hibernation. If the whole case may be judged by this one example, Field Naturalist Societies are somewhat better off in the winter than what are called "Literary and Scientific Institutions!" These last have meetings at which there is either much speaking or much performing; but the naturalists have a way of promoting social enjoyment and intellectual communion far superior to what is generally understood as the winter recreations of literary societies. At all events, at the soiree at the Manchester Athenæum, on the 18th of December last, there was a vast gathering of ladies and gentleman, and the only fare set before them consisted of dried plants, collections of fossils, drawings illustrative of botany and zoology, and a few kindred subjects, to which were added, as a makeweight, an address by the writer of this notice, who is not ashamed to say that he found it pleasant to speak to the assembly who honoured him with their audience, and hopes it was not a painful task for them to listen. One of the advantages of this sort of entertainment is that (except when the orator of the evening is on his legs) there are abundant opportunities for conversation. This is an advantage of far greater value than the promoters of tedious meetings, where there is a flood of speeches or a plethora of performances, are aware of. One of the simplest and most successful methods of getting up a private party is to invite a lot of people, and then leave them to entertain one another. That is nearly the method pursued by this society; but care is taken that there shall be abundant amusement for the eyes, with a little music and light refreshment, and the result is success. By success we mean that the society continually increases in strength, and all that join it pronounce it delightful.

During the past year there were soirées and excursions as follows:—On the 13th of March, a soiree, when Mr. James Bateman, of Biddulph Grange, gave a lecture on the Wellingtonia gigantea. On the 17th of April, another soiree, when Professor Williamson, of Owen's College, gave a lecture on fossil and extinct birds. On the 12th of May, an excursion to Hanging Woods Bank, Wilmslow, when (after tea) Mr. Holland gave an address upon the Natural Order *Cruciferae*. On the 9th of June, an excursion to Thelwall and Lymm, when Mr. Bailey (after tea) wound up the affairs with an address. On the 23rd of June, an excursion, *via* Buxton and Millersdale, to Chee Tor, when many rare plants were gathered, and there was no time left for botanizing or speechifying. On the 7th of July, an excursion to the lower valley of the Etherowe. On the 21st of July, an excursion to Bollington, respecting which occurs in the report this note: "Upon the slope ascending towards the rude summer-house called 'White Nancy,' abundance of wild thyme was observed. This is a new locality in our neighbourhood for a plant scarcely known to the flora." How some of the Manchester hotanists would rejoice to see in some of the sandy parts of Surrey, on every acre of land, thousands of round hummocks (like hassocks), this fragrant plant growing all alone, and in superb luxuriance, and to observe also the signs that after dusk every hummock is a meeting place for a soiree of rabbits, which, however, are not scarce in the fauna of the cotton city! August 4th, excursion to Knutsford. August 18th, excursion to Southport, for the Birkdale sand-hills; this was a good day, and heaps of good plants were gathered. September 1st, excursion to Capersthorne; and again there were good botanical findings. September 15th, the ninth and last excursion, this time to Marple, and thence to Romley; after tea an address was given by Mr. Bailey. It all appears so pleasant that one can scarcely glance at the list of officers, and see Mr. Grindon's name entered as secretary without concluding that Grindon is a synonym for happiness. But, with all our regard for this society, we can find fault, which is always a fortunate circumstance for a critic. The society is *too botanical*; it does not look after animals enough. One of the objects of this summer should be to teach its members how to distinguish the several song-birds of the district by their voices, flight, and plumage. We could suggest a few more agreeable tasks, but perhaps it would be more decent to observe and admire, for great things have been done to enhance the love of nature amongst the residents in a great smoky city.

On the 25th of November, the soirées commenced, when there was a display of microscopes, and a lecture on microscopic botany by Mr. Grindon. Dr. Simpson, who occupied the chair, no doubt contributed his share of light, effulgent light; for on a subsequent occasion, December 18th, he presided again, and spoke most eloquently and truthfully on the elevating tendencies of scientific pursuits. As it may interest some of our readers, and serve generally to exhibit the purport and management of these meetings, we transcribe verbatim from the report the notice of the last of the soirées of 1866, that which took place on December 18th, and with that we for the present quit the subject. The specimens exhibited included a collection of fossils, lent by Mr. J. E. Forbes, F.G.S.; the white head of an arctic fox, brought from the arctic regions by the McClintock expedition; and a collection of sixty varieties of the ivy-leaf. The two latter were exhibited by Mr. Hibberd, the lecturer of the evening. On the tables

were also the prize herbariums of the season, prepared by Mr. John Barrow and Miss Wilson; and specimens of the cones of the *Wellingtonia*, produced at the residence of Lord Crewe, and exhibited by Mr. Grindon. The chair was taken by Dr. Pankhurst, who stated that that meeting completed the seventh year of the Society's existence, and he hoped the new septenniad would be entered upon with renewed zeal. Mr. Hibberd's excellent address upon the "Essentials of Observation in Natural History" occupied considerably over an hour, and was listened to with the most cordial attention. In substance it was as follows:—

"While we all have our hobbies, success in any enterprise comes only of deep love of what we undertake, and few things awaken so lively an interest as natural history. Natural history is important and interesting to every man, since it is through what we derive from the earth, in the form of natural productions, that we are enabled to enjoy life as well as to sustain it, and that we become intellectual beings. Natural history is identified with civilization. Through natural history we understand the nature of coal, and learn how to procure it. So with all vegetable substances used for food. In every way natural history proves itself to be one of the high roads to human happiness; it makes us more complete as human beings.

"Referring to the excursions undertaken by the society during the summer months, Mr. Hibberd said it was important to remember that in order to derive intelligent enjoyment from country rambles, we must take knowledge with us. Those get the most pleasure and reward who carry out with them the most, previously acquired. 'To him who hath, shall be given,' is not more true in morals than in the pursuits of nature. Natural history helps immensely to perfect our organs of sense. A botanist is at once known by his quick eye and keen sense of discrimination. So with the ornithologist; so with the geologist: they learn how to see. How common it is to find people incapable of noticing the commonest things; it is because they have not acquired the habit of observation, such as natural history so eminently confers. What mistakes and absurdities are committed in giving descriptions, even by people who are 'well educated'! The reason is plain: they have not been observers of facts in natural history.

"Natural history teaches us to compare. We learn from it how to be cautious in pronouncing things to be different or the same. Nature never deceives us, though she submits many problems to our curiosity, as illustrated in the beautiful *Poinsettia* which (pointing to it) stood by the lecturer's side. A strange condition of the common mushroom (exhibited by Mr. Hibberd) was another apt illustration. Next, holding up the head of a white arctic fox, Mr. Hibberd proceeded to speak of the nature of organic types, and pointed out a number of very curious and interesting phenomena connected therewith.

"Another essential to the wise observation of nature is to acquire a good stock of sound general knowledge. It is of no use for a man to say, 'I will be a hotanist,' or 'I will be a geologist.' The sciences help one another. The anatomist wants some knowledge of mechanics; the botanist wants knowledge of climates and seasons. No man can learn a subject even approximately unless he gathers light and illustration from many surrounding departments. Very important is it also to take broad views of things, and to practise catholicity in our estimation of what we see and hear. We should always remember as naturalists, that we do not live in a botanic garden or in a museum, but in a world. We then perceive the relations of things, and learn to comprehend somewhat of the general scheme of creation, and to see how things fit into one another. Who sends his boy to school in order that he may become simply a mathematician or a chemist? No one. We want our boy to become a citizen of the world, and as this is the true idea of education, so is it in reference to natural history studies. Always avoid walking in a groove. To a certain extent we are constrained to it, but let us be ever striving to escape from the slavishness of it while we still keep our eyes fixed on some given point. And while doing this, never look with contempt on the studies of others, though they may not be such as we sympathise with. They all have a use. Keep an eye to truth, admiring everything in its degree.

"Lastly, while studying forms, remember that life-history is still more important. The mode of growing, of living, even of dying, for everything has its own way. Moreover, cultivate a spirit of reverence; believe that this world is a good one; and be glad if you have the power of contemplating it in the spirit and with the eyes of the poet, for the imagination is essential to sound enjoyment and genuine progress."

EAST LONDON FLORICULTURAL SOCIETY.

An exhibition of spring flowers was held by this society, in the Vestry Hall, Bow, on Thursday, the 4th, and Friday, the 5th of April. The announcement of the fact need not startle the community, but it is worth especial notice that a local society, instituting an exhibition of spring flowers, makes an innovation on the customary order of things, and establishes a most valuable precedent. Not that such an exhibition is a thing unheard of, because in the days of the Surrey Floricultural and other societies, when the late John Neville was a young man, such things were rather common, but they have sunk into desuetude long enough to justify us in congratulating the amateurs of Bow on reviving the idea, and carrying it out with taste and spirit. The large room in which the principal part of the display was made presented a beautiful appearance. So, indeed, did the small room, where there was no competition; but the interest for judges and connoisseurs was concentrated in the competitive part of the display, for there were the evidences of the love of floriculture still influencing the tastes and pursuits of citizens, a matter of far greater importance, socially speaking, than the charming display by Mr. Allen, of the Norfolk Nursery, Shacklewell, who had the small room almost wholly to himself, and made such good use of it, that therein was to be found a complete exhibition comprising plants, cut flowers, and trophies. In the large room there is a sort of orchestra or platform, or rostrum, we know not what: it is a narrow strip of flooring, separated from the body of the hall by an elegant iron railing. It is admirably adapted, on such occasions as these, for a special display of plants, though it may be supposed that on ordinary occasions its use is to favour a display of eloquence; and we trust, if it is ever so used, it may be in favour of a reduction of the present enormous aggregate of metropolitan taxation. Here, however, Mr. Prostoe, the able superintendent of Victoria Park, had taken possession with a splendid collection, comprising *Aralias*, *Marantas*, *Dracenas*, *Caladiums*, *India-rubber plants*, *Eriostemons*, *Begonias*, *Geraniums*, &c., and a very charming variety of colours and forms was the result; all, however, were arranged in a formal manner, befitting the

formal and almost solemn site on which they were placed. On the two sides of the hall were banks of plants and flowers, one large compartment being assigned to Mr. A. Forsyth, of Brunswick Nursery, Stoke Newington, who filled it with *Cytisus*, *Cinerarias*, and other spring flowers, making quite a blaze of colour. Other compartments were appropriated to competitive collections, the schedule inviting competition in collections of plants in flower, and collections of plants with fine foliage. In the collection, Mr. Grovo led the way with a very beautiful group comprising a pair of fine *Callas*, bright *Aecias*, a good example of *Fuchsia Glory of England*, a superbly forced *Hydrangea*, a batch of *Rhododendrons*, a *Rosa* nicely in flower, *Deutzias*, and other good things. In the centre was a little fountain, which splashed and sprinkled most musically, a pretty relief to the stillness of the plants. Mr. Deacon was second in this class with a beautiful group, comprising a very fine and fresh *Hydrangea*, several finely-grown pot *Rosas* (not all of which, however, were out), some brilliant *Cinerarias*, *Dielytras*, and *Fuchsias*. Here again *Glory of England* appeared to be the favourite *fuchsia* for early flowers. Third in this class Mr. Howard, with a fine *Cytisus*, three beautiful *Heaths* in flower, good *Deutzias* and *Hyacinths*, and a few pleasing miscellanies. Fourth, Mr. Hardy, who brought some well-flowered *Pelargoniums*, in which a plant of *Gauntlet* was undoubtedly the best; also *Fuchsias*, *Cytisus*, and a nice lot of *Zonales*. Fifth, Mr. Grace, with a few beautiful *Auriculas*, *Dielytras*, and *Lilies of the Valley*. The judges regretted they could not place this lot higher, especially on account of the *auriculas*, a few of which were exceedingly good; but after careful deliberation, they felt compelled to place them after the foregoing; the sixth position was awarded to Mr. Sinclair, who had some nice pieces of foliage, but not many flowers.

In the class for twelve *Hyacinths* Mr. Grovo took first place with a very beautiful collection. Mr. Grace, Mr. Cheshire, and Mr. Sinclair also presented nice groups, with good spikes and the colours various and fresh. The best twelve *Tulips* came from Mr. Howard; the next best from Mr. Grovo. Here the ugly double *Van Thol* was the best of the varieties, gorgeous for size and colour, but never worthy to compete with a good sample of *Proserpine*, *Tom Moore*, or *Imperator Rubrorum*, which in form and finish vie with the florists' varieties. But double *tulips* please, and therefore have their place in the world. Mr. Deacon presented a beautiful group of six *Polyanthus Narcissus*, very nicely done, the heights uniform, and flowers and leaves clean. In the class for three Mr. Cheshire took first place, Mr. Grovo second.

In the ante-room Mr. Allen of Shacklewell put up a collection of plants and flowers, which were not only displayed with great taste, but comprised a large number of valuable subjects in a state of the highest perfection. A background was constructed by means of a series of painted panels. Against this were placed pedestals surmounted with tree-ferns; beneath the tree-ferns foliage and flowering plants were grouped in two sets, opening in the centre, where was placed a large silver epergne loaded with choice flowers. The effect of this was not only pleasing, but decidedly rich, novel, and above the average degree of merit of such things. We sincerely hope that the amateurs of Bow may, having made so good a beginning, continue to consider a spring show a necessary part of their programme, and that many other societies may follow their example.

Calendar.

WORK FOR WEEK COMMENCING APRIL 13.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Flat-hoe between growing crops, and be very vigilant in keeping down the weeds, dealing promptly with them at every opportunity during dry weather.

POTATOES.—Protect the shoots of potatoes which have made their appearance above ground by drawing earth over them, and continue planting for the main crop.

SEAKALE AND RHUBARB.—Where fresh beds are wanted, they should now be made.

BRUSSELS SPROUTS.—The main crop to be sown this week. It is impossible to ensure fine buttons in the autumn and winter from this much-esteemed vegetable unless the seed is sown early. Choose for the seed-bed a sunny spot, and let the soil be liberally manured. Sow thin.

CABBAGE to be sown in considerable breadths if the main sowing is not yet done. The seed sown now will give supplies from August to April next, if the sorts are well chosen.

CAULIFLOWER.—Those that have stood the winter beneath handlights should have the soil loosened about them, and a little earth drawn to the stems. The glasses should now be removed, but be kept ready to put on at night in case of keen north-east winds blowing, when they will be useful to put on at night, and indeed to leave on for a day or two, should the weather be really wintry, as is not unusual at this time of year.

KIDNEY BEANS may be sown on warm borders for a first supply.

LETTUCES may be sown in open beds for main summer crop. Any that are crowded in seed-pans may be much benefited by pricking out on a bed under a frame, to be lifted shortly with good balls, and planted out finally. If this treatment is carried out with care, so as to cause as little check as possible, some grand samples may be grown, manure and water being of necessity aids thereto. But if the plants are roughly handled, and suffer much, the check will cause them to bolt as soon as warm weather sets in.

BASIL is in great demand in some families, but many never use it at all. It is rather tender, and is best treated as a half-hardy annual, being sown on heat and transplanted. If no convenience to do this, sow on the warmest nook you can find, and if possible on a bed of rather dry sandy soil.

BROCCOLI of any and every kind may be sown now. Any plants coming forward in seed-pans to be made as hardy as possible by full exposure to air and sunshine, preparatory to pricking out.

CARROT.—There is still time for sowing the main crop; in fact, early sowing is not desirable. James's Intermediate is a most useful kind for shallow soils; but there is nothing to surpass *Long Orange* and *Surrey Red* for good deep soils, where handsome roots are required.

ASPARAGUS.—Sow the seed for new plantations on ground deeply dug and abundantly manured. Established beds ought to have been dressed at least a fortnight ago. If not yet done, finish the job at once.

PARSLEY to be sown for summer and autumn use. To grow it fine requires a very rich soil, and the plants to be freely thinned as soon as large enough to handle.

RADISHES of the turnip kind to be sown on rich soil in sufficient breadth to yield supplies for some time. They will not soon get woody if on rich soil, especially if the bed is situated near trees where there will be shade at midday.

CELERY.—Prick out young plants into boxes or on a slight hotbed, and at all favourable opportunities give air as soon as they have established themselves. If the main crop is not already sown, sow it at once in a gentle heat, and also a little of it in the open ground on a warm border to come in late in the season.

Flower Garden.

HOLLYHOCKS planted now will bloom well this season, so there is still time for those who have not yet made up their selections. The soil for *Hollyhocks* should be deep well-manured loam, and the plants should be from cuttings of last autumn, now strong, in 60 or 48 pots, the pots quite full of roots. After planting, turn an empty pot over each plant to prevent exhaustion by the sun, for a week.

PINKS AND PANSIES.—Those should have a rich top-dressing now, taking care to stir the surface of the beds before it is applied.

HARDY HERBACEOUS PLANTS turned out of pots into good borders now will take to their stations immediately. If delayed longer, they will not do so well unless frequently supplied with water; and it is advisable to grow these plants with as few artificial aids as possible.

POLYANTHUS seed may be sown on north borders on fine soil, and to be very thinly covered. If the border is dry, water well before sowing. When the sowing is done, sprinkle a very thin coating of moss over the seed plot; this will preserve a sufficient degree of moisture till the plants appear. If this seed gets dry after being once made moist in the ground, it perishes.

CHRYSANTHEMUMS.—Now is a good time to propagate by means of cuttings, or by taking the young rooted suckers, and potting each singly in a 48-sized pot, and giving them the shelter of a warm greenhouse.

GENERAL WORK.—Look after syringes, garden engines, &c.; put new suckers where required, and see that they are at once placed in efficient working order, as they will speedily be required for constant and active use.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Trees lately planted on dry sandy soils had best be mulched at once with rotten dung. If this cannot be done, spread short litter or some other such material to arrest evaporation, or during dry weather they may suffer considerably. Should there be any pruning not yet done, let it be finished instanter; the trees are growing freely, and in many places pear, plum, and cherry trees are in full bloom.

GRAFTING.—Old trees which it is intended to head down should be done at once, and the stock grafted as soon as possible.

Greenhouse and Conservatory.

GREENHOUSE.—Prepare at once to harden off all soft-wooded plants intended for bedding out early. *Calceolarias* will be all the worse for bedding if kept under glass any longer; the same with *Gazania* and scarlet *Geraniums*, if they have filled 60-sized pots with roots. A few spare lights or old frames will suffice now to protect them at night, and where few facilities exist, a little ingenuity will suffice to provide protection by means of tiffany or varnished calico.

CONSERVATORY.—The surface of the bed should be stirred, and some fresh soil added, in order to maintain the plants in a vigorous condition. Shoots that are rambling and unsightly should be pinched back promptly. Plants placed in the house during their period of blooming should be carefully attended to, and should not have too much water, or they may become diseased. Chinese *Azaleas*, however, require liberal supplies of water while in bloom, but water must not be permitted to fall upon the flowers, and the atmosphere should be kept moderately dry.

PELARGONIUMS required for late blooming should be stopped now, and in such a manner as to make well-shaped plants. Young stock should now have a good shift.

AZALEAS AND CAMELIAS.—Keep shaded while making their new growth, and syringe frequently. Remove all seed-pods and the few remaining flowers that abstract vigour from the new wood. Like ourselves, plants cannot well do two things at a time; when growing, they do not need to be bothered with flowers, and *vice versa*.

BEDDING PLANTS to be exposed as much as possible now night and day during warm weather. Be in no haste to plant, as we may yet have frosts and cold rains. Pot off plants newly rooted, and let them taste a little bottom-heat to induce new roots to form.

CALCEOLARIAS.—Green-fly must be kept down either by means of the syringe or tobacco-smoke. Cuttings taken now and placed in a gentle heat will speedily take root and form nice plants this season. Young stock to be shifted on as required; in repotting, plant deeper than before, as they send out rootlets from the stem. Herbaceous kinds which have been pushed on for early decoration, and are now showing bloom, should be removed into a cool airy place, to strengthen the flower stems, or they will be drawn up lanky and weak.

FUCHSIAS to be frequently syringed, and grown steadily on in a warm moist atmosphere; long-jointed ones may be stopped so as to produce bushy plants.

HEATHS and other hard-wooded plants coming into bloom should have plenty of air.

Stove and Orchid House.

ORCHID HOUSE.—Shade during bright weather with tiffany, or some other suitable material, removing it early in the afternoon. Plants requiring repotting must be attended to as soon as they are fairly in a growing state. Keep up the moisture in the atmosphere by sprinkling the paths, flues, &c., and shut up early in the afternoon. *Cattleyas*, many of the *Dendrobiums*, *Sobralias*, *Gongoras*, *Brassias*, and all similar orchids, must have abundance of atmospheric moisture, as they are now growing freely. The bloom of plants in flower may be prolonged by removing them to the conservatory, drawing-room, or other building where the atmosphere is drier. Plants suspended in baskets or on blocks will require the frequent and plentiful use of the syringe to keep them in health. A more interesting method than using outside shading is to train climbers over the roof; if these are kept in good order, and trained with judgment, they will be found to answer admirably.

STOVE.—Keep up a warm moist atmosphere, and allow no diminution of bottom-heat, as most of the plants, and especially those which have been recently potted, are now making vigorous growths. All free-growing plants,

such as Gesneras and Clerodendrons, should be shifted on as soon as they require it.

SOFT-WOODED PLANTS are now starting into growth freely, and must have light, heat, and moisture. If allowed to start under stages, and in other odd places where they have been stowed away, they will soon get drawn and be the worse for it.

BEONIAS may be repotted and propagated.

GARBIENIAS flourish in a pit with dung linings, as they revel in a warm close atmosphere.

Forcing Figs.

FORCED FRUITS.—Figs will need stopping the young shoots at the fourth eye, and plenty of syringe, to help the swelling of the fruit. Cherries of good size must have plenty of light to give colour and flavour; also syringe, liquid manure, plenty of air, without cold draughts; and as soon as they show colour, less water. Strong foreright shoots to be stopped back to five buds. Peaches and nectarines may have clear weak liquid manure as soon as the fruits begin to swell; at the same time thin the crop, and syringe every morning. All the foregoing may have a temperature not lower than 48° at night, nor higher than 80° by day; keep as much within these extremes as possible, and give plenty of air till two p.m. on bright sunny days.

PINES are growing freely, and must have plenty of water. In the fruiting house there must be a good heat kept up—65° to 70° by night, 80° to 90° by day; successions 5° less. Pines fruiting require more air than growing plants, or the fruit will be flavourless. If the fruit needs support, it is a proof that plants are not so robust as they should be.

VINES in covered borders require the full power of the sun on their roots now, so remove the covering at once. Let there be no neglect in stopping and tying-in, now that the vines are growing freely. Covered borders are usually very dry at this season, and a good soaking is necessary.

CUCUMBERS.—See that the beds are not too moist, or mildew may appear. Add fresh linings, fork up the beds, give air cautiously, stop and train, and use tobacco at the first sight of fly.

FIGS must be frequently syringed until the fruits begin to change colour, and the roots must be aided with manure-water. Stop the young shoots before they push too far; four joints are a good average.

MELONS in a strong state, and with a good bottom-heat, should now be encouraged to set about half a dozen fruit each. If not strong, nip out the blossoms to prevent fruiting. Use the syringe regularly, but moderately; close early. If allowed to go too dry, red spider will appear, and do mischief. If any leaves have a burnt or shrivelled appearance, look underneath them for the cause, where it is likely enough to be found.

PEACHES AND NECTARINES are now coming on well, and the trees must be assisted to swell the fruit to a good size. Give enough water, with liquid manure at least once a week. Pinch off laterals, tie in good wood, syringe early on fine mornings, and always give air early.

STRAWBERRIES ripening to have less water and plenty of light; temperature not lower than 55° by night, nor higher than 70° by day. Remove runners on plants coming into fruit; those gathered from may be allowed to run, to make early plants for forcing next year.

PERIODICALS.

Permanent Pastures: their Formation and Improvement. By MARTIN H. SUTTON, F.R.H.S., &c. 7th edition. Blackie and Sons.—This is the essay originally contributed by Mr. Sutton to the *Journal of the Royal Agricultural Society*, now reproduced for the seventh time, and this time with life-size and truthful figures of the grasses recommended for the several characteristic soils. All we need say of this now famous essay is that it is the best on the subject, and that its appearance in a new dress is most timely and opportune. All who are concerned in the laying-down of pastures should not proceed another step without consulting it.

The Ladies' Treasury, edited by MRS. WARREN, is this month full of life, variety, and its tone throughout is healthy and elevating. There are stories for the young, and essays for those of riper years, and heaps of practical matter for good housewives and housewives who wish to become good. The pictures are admirable: one of them is a large design in colours, representing a fisherman's family "on the look-out" at the sea-beach.

The Gardener for April contains articles on *Hedychium coronarium*, one of the best of the neglected plants; a continuation of the valuable series of papers on "the Flower Garden;" a note on the fruiting of *Benthamia fragrifera*, which will never be of any use in this country; and a variety of other useful and interesting matters.

First Annual Report of the Aeronautical Society of Great Britain. Cassell and Co.—The first sensible contribution to the history of ballooning as a science. It will be valued by meteorologists, and all others who are interested in the investigation of the phenomena of the atmosphere.

The Rail and the Road. No. 1. Great Eastern Railway. By GREVILLE F. (BARNES), 340, Strand.—This is a guide-book for anglers to fishing stations in Essex and Herts, by one of the many accomplished sportsmen connected with our able contemporary *The Field*. To brethren of the angle it will be of great value, as it gives the latest information respecting the regulations of the principal waters, and all needful particulars respecting weirs, pools, shallows, and other matters that directly bear on the quality of the sport in this or that place; and the writer does not forget to point out the best routes to the several districts, and the best houses of entertainment for the tourist angler. It is a good shilling's worth on the subject.

Correspondence.

ROSES AND THE WINTER IN THE WEST.—I have carefully studied the report by Mr. Laxton on roses at Stamford. As an amateur, allow me space for a query or two. In list No. 1 I notice, amongst the hybrid perpetuals, Rev. H. Dombrain, Catherine Guillot, and Comte de Paris. Are not the two former Bourbons, and the latter a Noisette? In list No. 2, amongst the half-hardy hybrid perpetuals, Louise Odier and Baron Gonella. Are not these both Bourbons? In list No. 3, Marguerite Bonnet and Madame Masson. Is not the former of these a Bourbon, and the latter a Noisette? As a young rosarian, I should be obliged if you would put me right. We have had the severest winter here that has been known in this extreme west part of England for above thirty years, yet I find my experience of certain roses differs from that of Mr. Laxton. He puts amongst his list of very tender roses *Comtesse*

de Chabillant, General Jacqueminot, Mademoiselle Bonnaire, Maurice Bernardin, Prince C. de Rohan, Sénateur Vaisse, Eugène Appert, and Anna Alexieff, hybrid perpetuals; and Celine Forestier, a Noisette. All these with me have survived above 10° of frost, unprotected in the open, during the month of January last, and are now, as they have always been, strong healthy plants.

[Rev. H. Dombrain, Catherine Guillot, Baron Gonella, Louise Odier, and Marguerite Bonnet, may be most properly classified with the hybrid Bourbons, but it is really a matter of quite small importance, for many with equally strong Bourbon features are in the H. P. list. Madame Masson is a true H. P., with large crimson purple flowers; but Madame Massot is a Noisette, with pretty flesh-coloured flowers. Comte de Paris is a veritable Tea, a very veritable Tea. The roses you name as in Mr. Laxton's list of tender kinds we have always found to be amongst the most hardy. It is curious that both Mr. Taylor and Mr. Laxton date from damp valleys. We now want reports from bleak hill-sides and hot, stony, dry places.—Ed.]

Replies to Queries.

Selection of Greenhouse Shrubs and Climbers.—R. B.—The following are subjects of easy culture, and every way adapted to the requirements of beginners, being mostly free bloomers offering considerable diversity of character, as to habit and season of flowering. They are also comparatively inexpensive, and obtainable at any respectable nursery. Those marked thus (*) are most desirable for small collections.—*Shrubby Plants.*—**Acacia armata*, yellow, May to June; *A. Lambertiana*, purple, May to June; *A. pulchella*, yellow, May to June; *Adenandra uniflora*, pink, April to July; *A. umbellata*, pink, April to July; **Azalea indica*, in variety, March to May; **Borreria serrulata*, red, June to July; *B. pinnata*, purple, Feb. to May; *Bouvardia tryphilla*, scarlet, April to November; **Csmellia japonica*, in variety, January to May; **Chorozema cordata*, red, April; **C. Dicksonii*, scarlet, July; *Coleonema tenuifolia*, rose, March; *Cytisus racemosus*, yellow, February to May; *Daphne odora*, purple, March to December; *Diosma cupressina*, pink, June to July; **Epacris grandiflora*, crimson, January to June; *E. nivalis*, white, January to June; *E. impressa*, crimson, January to June; **Erica splendens*, scarlet, April to September; **E. grandiflora*, yellow, May to September; **E. aristata* major, scarlet, March to April; **E. Sbanoniana*, white and purple, June; **E. Massoni*, red and green, July to October; *Gardenia radicans*, white, March to June; *Jasminum odoratissimum*, white, May to November; *Nerium splendens*, pink, June to October; **N. oleander*, red, August; *N. album*, white, June to October; *Pultenaea obovata*, yellow, May to July; **Salvia fulgens*, scarlet, May to September; **S. patens*, blue, May to September.—*Climbers and Trailers.*—**Bignonia grandiflora*, orange, July to August; **Cobea scandens*, purple, May to October; *Erythrina crista-galli*, scarlet, May to July; *Gompholobium polymorphum*, yellow, March to August; *Jasminum revolutum*, yellow, March to September; *Kennedia prostrata*, scarlet, April to June; *K. nigricans*, purple, March to June; **Maurandia Barclayana*, purple, April to December; *Lobospermum*, var., July to November; **Mandevilla suaveolens*, white, June to August; **Passiflora cerulea racemosa*, purple, June to October; *Sollya heterophylla*, blue, July to October; **Thunbergia alata*, yellow, May to September; *T. alaba*, white, May to September; **Tropæolum tricolorum*, orange-purple, May to August; **T. brachyceras*, yellow, May to September; **T. Lohianum*, varieties, scarlet, January to December; *T. Jarratii*, scarlet-yellow, June.

TREES IN PARIS.—One of the best features of Parisian gardening, of Parisian improvements, is the great abundance of healthy young trees that are introduced into the very heart of the city, and planted wherever a new road or boulevard is constructed. It is indeed very surprising to see how well this is done, and to what an enormous extent, as well in the centre of Paris, on the boulevards, along the river, &c., as on the scores of miles of suburban boulevards, radiating avenues and roads, the sides of which one would think capable of supplying Paris with building ground for a couple of generations to come. All the planting in all the London parks is as nothing compared to the avenue and boulevard planting in and around Paris; and the trees are nearly all young, but very vigorous and promising. Every tree is trained and pruned so as to form a symmetrical straight-ascending head, with a clean stem. Every tree is protected by a slight cast-iron or stick basket, neat wads and ties preventing this from rubbing against the tree injuriously; it is staked when young, and when old if necessary. Most important of all, nearly every tree is fortified with a cast-iron grating six feet wide or so, which effectually prevents the ground from becoming hard about the trees in the most frequented thoroughfares, permits of any attention the tree may require when young, and of abundance of water being quickly absorbed in summer. The expense for these strong and wide gratings must be something immense; but assuredly the result that will be presented by the trees a few years hence will more than repay for all expense, by the grateful shade and beauty they will afford the town in all its parts. A few days ago we saw them cutting away a new wide street from the corner of the Palais Royal, or from near the Théâtre Français, towards the Boulevard des Capucines, through that very closely-built part of Paris; and as soon as the pathway is levelled, in go the trees and down go their protecting cage and grating, while they are equally busy and far more extensively engaged on the outer side. It is almost too much to hope for such improvement in London, though it is capable of being heightened to an even greater extent by judicious planting, and the trees used in Paris would do equally well there; but we at all events hope that trees may be planted along the Thames Embankment; there will be plenty of space and a fine opportunity, and they would highly embellish what will be the greatest improvement London has yet seen.—*The Field.*

A CREDIT TO THEIR COUNTRY.—A Canadian paper states that there is a family in Trafalgar, near Milton, "raised on clay land," of a length and breadth that the province may be challenged to beat. There are six boys, all over 6ft. high, weighing respectively 219, 220, 224, 220, 217, and 199lbs., making an aggregate weight of 1,300lbs., or an average weight of about 15½ stone.

LEAN SOULS.—A clergyman in Ohio told the trustees of his chapel that he must have his money, as his family were suffering for want of the necessaries of life. "Money!" replied the chairman; "you preach for money!—I thought you preached for the good of souls!" "Souls!" replied the minister; "I can't eat souls; and if I could, it would take a thousand such as yours to make a meal."

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.			M. Imp. avg. of 43 yrs. Gravh	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D
			rises.	sets.	phases.	sets.	Barometer.	Thermometer.		Rain						
1867			h. m.	h. m.	h. m.	h. m.	AX.	MF.	AX.	MF.	ME.	°0	47.5		1867	
21	S	Easter Sunday.	4 55	7 4	9 45 p.m.	6 25 a.m.	30.22	30.02	64	21	40.5	°0	47.5	Dendrobium primum, I ... India	21	
22	M	Royal Society founded, 1663	4 53	7 0	10 41	7 1	30.44	30.33	56	34	45.0	°0	47.6	D. tridactylum, I "	22	
23	T	Length of day 13h. 46m.	4 51	7 8	11 32	7 40	30.36	30.32	56	31	45.0	°0	47.6	H Wallichianum, I "	23	
24	W	Daniel Defoe died, 1731	4 49	7 10		8 26	30.19	30.09	6.0	30	48.0	°0	47.6	Epidendrum bicornutum, M Guayana	24	
25	Th	Princess Alice born, 1843	4 47	7 11	0 19 a.m.	9 17	30.17	30.02	6.6	30	48.5	°0	47.6	K. macrochilum, M Guatemala	25	
26	F	Captain Cook landed at Botany Bay, 1770	4 45	7 13	0 59	10 13	29.97	29.86	7.5	46	60.5	°0	48.0	E. macrochilum, r. acuum, M	26	
27	S	Gibbon born, 1737. Sir W. Jones died, 1794	4 43	7 14	1 35	11 14	2.93	29.64	7.9	48	63.5	°74	4.5	Odontoglossum Pescatorei, G Mexico	27	

The Gardener's Magazine.

SATURDAY, APRIL 20, 1867.

GARDENS IN GREAT CITIES are not always doomed to mismanagement, because we can call to mind a few examples that establish in the most conclusive manner the possibility of city gardening. But, as a rule, whenever the parochial mind initiates a city-garden movement, the end of it is a burlesque of a most melancholy character. Londoners—that is to say, those of them who have any taste and knowledge in gardening matters—must be familiar with some dreadful examples of horticultural muddle in the planting of squares, churchyards, and other open spaces; and many of them can call to mind how ready are city churchwardens to cut down trees, and how reluctant they are to plant them. The Board of Works possesses vast powers, conferred upon it by a recent enactment, for preserving and improving the open spaces of the metropolis. We have not yet become aware that the Board has actually set about cleaning and embellishing any of the metropolitan oases, and we hope that if they should ever put into force the Gardens in Towns Protection Act, they will take competent advice on practical matters, and not go jobbing on their own account, as some of the parochial boards have done, to the waste of parochial money and the disgrace of parochial decency. Such a hideous hole, in the midst of houses, as Leicester Square, is a standing proof that Taste has but small influence in the local affairs of the great metropolis. Even the gardens about the Inns of Court are not all as they should be, or might be; though we must speak tenderly on this point, for we have many times in our hearts forgiven the lawyers for all their real sins, and their alleged sins, when walking through Raymond's Buildings, where the grass is always green, and the elm-trees are protected from butchery; or in the Temple Gardens, where, besides grass and trees, there are also flowers, and occasionally such flowers as attract thousands of persons from all parts to see them. And this very reflection, that the lawyers do more for city gardening than any other class, furnishes the best argument against the churchwardens and members of district boards, who, under the pretence of gardening, do much mangling, but who may perhaps hear to be reminded that what the lawyers find possible other people may find possible, for a knowledge of law is not essential to the successful management of plots of ground set apart as gardens. The prevailing mistake in reference to city gardens generally, is that evergreen shrubs and trees are the most suitable, whereas these, as a rule, are the worst of subjects. There are plenty of deciduous trees and shrubs that will grow as well in a city garden as on the side of a mountain, so far as purity of air is concerned; and the only serious difficulty in city tree-growing is the excessive drainage of the soil: every street and lane in a city has a continuous tunnel for drainage, which takes off the moisture from the soil to such an extent, that trees fond of moisture—as the elm, the lime, the oak, and the beech are,—never can withstand the starvation they are subjected to, and hence are rarely seen in good condition in cities. Nevertheless, something green may be grown, even where the drainage militates against such moisture-loving trees as elms and limes; the Plane, the Ailanthus, the Catalpa, the Cratægus, the Birch, and a host of smaller trees, are as well adapted for city gardens as for plantations in the open country; and we may see in London a sufficient number of examples to render it quite unnecessary to do more than call attention to the fact. The local authorities of Islington made an attempt to embellish the green, once so celebrated as a place for meetings at election times; but in a few years the place became dismal and dirty—a hideous eyesore in a most favourable position for a display of some sort of gardening. The vestry at last took the advice of a practical man, and though Islington Green is by no means what we should like to see, and what we are sure it might be made—a really beautiful garden—it is so bright and cheerful with grass-turf, deciduous trees, and edgings of ivy, that it may well afford a lesson to

all who are interested in such matters as to what may be done, and the errors that are to be avoided in the endeavour. We see there a great success accomplished in the use of Irish ivy, which is so disposed that from every point of view graceful curves of dark green leafage come into view. We see there also a decided failure in the planting of such things as Wellingtonias, Picca Nordmanniana, and Cedrus deodara, for these trees are perishing: the soil is too starving and the atmosphere too smoky for them. But the Pyrus spectabilis, the Almonds, Ailanthus, and even Pawlonia imperialis, have all done well, and of course the Lilacs, Laburnums, and Ribes have also. In Bishopsgate churchyard, to which a correspondent, "Passer-by," called attention in these columns about six months back, the errors of Islington are repeated on a large scale; for the principal furniture of the place consists of evergreens, which are likely to dwindle away; but the Planes and Poplars will probably grow handsomer from year to year, and save the place from looking utterly desolate, when the evergreens have become fit only for heaping on a smother to make charcoal for an onion-bed. It is strange that, although in the "Town Garden" the true principles of city planting were enunciated fifteen years ago, that in these two instances persons who must have been acquainted with that work should make such grievous mistakes. At Islington many of the coniferous trees planted were worth at least five pounds each; and some have already perished and been removed, while others are lingering miserably, and show by their looks that their days are numbered. There is a fatality apparently about the delusion that evergreens are adapted for city gardens, yet every experience proves they are not. Yet, for all that, any and every open spot in a city may be made beautiful by means of vegetation. We say nothing of the removal of the memorials of the dead from Bishopsgate churchyard. Not a stone remains, not one visible proof that the place was for many years—we know not how long, perhaps for centuries—consecrated to the reception of human remains. We suppose the representatives of those who sleep there were consulted, and that the law of the land was not outraged by the proceeding. But we do say that the system of planting adopted is a mistake, and that in due time what now looks so neat and finished will look as if it had been done with a view to another job at a future time.

Let us turn from blemishes to something better. We have referred to the Temple Gardens as evidence that city gardening is at least possible. Now we ask our readers who know those gardens to dismiss from their minds all remembrances of the exhibitions of chrysanthemums held there every year, and judge them by their trees, turf, border flowers, and the rest of the elements that are strictly localized,—and are not those gardens beautiful? Are they not fresh, umbrageous, varied, and inviting? Just as umbrageous, varied, and inviting might be many a plot of ground in London that is now a licensed dust-heap or a mere dead-cat depository. Nor is this all. During the past few weeks the Temple Gardens have been gloriously gay with hyacinths, and the managers of London squares and churchyards have had one more lesson from that most practical of teachers Mr. Samuel Broome. The twelve oval beds adjoining the upper cross walk in the garden of the Inner Temple, where usually in autumn there is a display of pompons, have been filled with these charming spring-flowering bulbs, and the bloom has been rich and substantial—equal every way to anything that has been done with the hyacinth as a bedding plant heretofore. The manner in which this display was produced throws light upon a great question about which gardeners everywhere are concerned, and that is how to secure a good display of spring flowers in the beds devoted to subjects that flower during summer, as these beds are usually occupied beyond the time when it becomes necessary that the bulbs should be planted. Mr. Broome is not one of those who are beaten by small difficulties. He took his time to make his beds ready, and yet started his hyacinths early by planting them in cocoa-nut fibre, under a west wall, in October. There they made abundance of roots, and in January they were lifted and transferred to the beds without injury to a single root-fibre; and the result has been a display of the most delightful and novel character. For such reasons, and because of such examples as we have now submitted to our readers, we repeat, what we have many times advanced in these and other pages, that gardening is possible in cities, and eminently desirable, and there is now no excuse for great mistakes, though in every department of gardening it is necessary now and then to look over little ones.

ROYAL BOTANIC SOCIETY.

SECOND SPRING SHOW, APRIL 13.

This was a small but very interesting exhibition. It was wholly held under canvas, and had had weather to mar its attractions. On either side of the walk down were banks of plants and flowers, and at the extreme end a terminal bank of azaleas, which were, of course, rich with colour, and the principal attraction to the crowd of visitors. No, not exactly so; the principal attraction was a bank of pot roses from Mr. William Paul, done in the best possible style, and shown in the best possible condition, and presenting a very delightful spectacle for visitors of all classes.

AZALEAS.—In the class for three new varieties sent out since 1862 there were many competitors. Messrs. Lane and Son contributed in this class the best Stella in the show, and exemplified that something grand may be accomplished with this variety as a specimen. The flowers were as large and smooth as when Stella was first exhibited; the colour brilliant, and the violet shade on the top petals adding greatly to its splendour. With this, *Elegantissima*, a good white with a greenish shade, and *Advance*, the colour of which is intense rich rosy pink, with carmine on the top petals.—Mr. C. Turner presented *Prince of Orange*, clear red, flowers rather small and compressed, like a Quaker's bonnet; also *Stella*, a large loose plant, the flowers of which were superb for size and smoothness; and *Charles Enke*, lively light pinkish red, with white margins, the colour forming a star on the face of the flower.—Messrs. Ivery sent *Madame Dominique Verveine*, the flower large and flat, with broad petals, colour clear warm flesh, top petals spotted pink; *Souvenir de Prouay*, the form first-rate, colour intense rose pink, the top petals carmine, habit first-rate, and very free; *Flag of Truce*, now well known as a superb double white.—Mr. A. Wilkie, gardener at Oak Lodge, Kensington, put up fine examples of *Etoile de Gand*, the form and substance all that can be desired, colour rose on a white ground, with heavy rose spots on the top petals; *Stella*, admirably done; *Burlingtoniana*, a fine large red.

In the class for six, without respect to age, there were many admirable contributions. Mr. Turner presented a beautiful group, the plants averaging 4½ feet high, and in fine finish. The varieties were *Louise von Baden*, quite a sheet of snowy flowers; *Kinghorni*; *Madame Meiliez*, white, with tinge of green, extra fine; *Etoile de Gand*; and *Variegata* (union plant), *Beauty of Reigate*.—Messrs. Lane sent half a dozen smaller and more precisely uniform plants: they were *Reine des Blanchés*, *Cheloni*, *Magnificent*, *Iveryana*, *Roi Léopold*, *Sir Charles Napier*.—Mr. G. Wheeler put up a group comprising several styles of training: a squat Duke of Devonshire (quite aolid with bloom), *Albocincta*, *Semi-Duplex*, *Broughtoni*, *Stella*, *Marie Louise*.—Mr. Wilkie presented standard plants of *Mrs. Fry* and *Sir Colin Campbell*, and round-headed dwarfs of *Sinensis*, which is always welcome for its colour, and neat pyramids of *Optima*, *Marie Louise*, and *Duc A. de Nassau*.

ROSES.—Mr. William Paul did full justice to himself by his splendid group of pot plants, comprising neat little specimens two feet high and through, and pyramids of four feet high or more, with every intermediate size—just such a group, in fact, as of themselves sufficed to form a picture. As the names of varieties that can be shown in perfection in this way in the early part of April may be useful to many readers, here they are—*Prince de Soria*, scarlet carmine, quite dazzling in colour, and otherwise a charming rose; *Anna Alexieff*, Madlle. Berthe Levêque, *Sénéateur Vaisse*, more inclining to scarlet or vermilion than usual, very brilliant the plant in a 12-inch pot, standing 3 feet high, and 2½ feet through, (with 35 flowers, none of them full out, a charming sight); *Madame Rousset*, a fine large flower, the colour bright rose; *Centifolia Rosea*, extra grand in character, though inclining to the character of *Anna de Diebach*; *Marquis de Foucat*, finely done; *President Mas*, *Fisher*, *Holmes*, superb in colour, which approximates to scarlet, form beautiful, being imbricated like a camellia; *Madame Bod*, a good forcing rose, though rather coarse; *Madame Fillion*, *Celine Forestier*, a fine plant, 4 feet high and 2½ feet through, about 25 flowers, the colour cream deepening to primrose; *Madame Hoate*, *Madame Damaizin*, *Madame Marie Rody*, a large Macaulay-like flower; very fine; *Alba mutabilis*, *Bernard Palissy*, *Glory of Waltham*.—Messrs. Paul and Son, of Cheshunt, presented a beautiful group, comprising *Maréchal Niel* (rich lemon yellow, the best example of it in the exhibition), *Madame Moreau*, *Madlle. Berthe Levêque*, *Madame Victor Verdier*, *Souvenir d'un Ami*, *Pierre Notting*, *Victor Verdier*, *General Jacqueminot*, *Madame Fillion*, *Charles Lawson*, *Madame Willermoz*, *Lord Clyde*, *Madame Caillat*, *Charles Rouillard*, *Madame C. Wood*, *Celine Forestier* (white, with yellow centre, beautiful), *Princess Mary of Cambridge*, *Exposition de Brie*, *Vainqueur de Goliath*, *Alfred Colomb*, *Achille Gonod*, *Fisher Holmes*, *Souvenir de Dr. Jamin*.—A collection of cut roses, from Messrs. Paul and Son, comprised beautiful examples of *Victor Verdier*, *Duke of Wellington*, *Alba Rosea*, *Exposition de Brie*, *Marcella*, *Comte Alphonse de Serenye*, *Baronne A. de Rothschild*, *Sénéateur Vaisse*, *Madame Victor Verdier*, *Maréchal Niel* (a fine example, the colour lemon yellow), *Beauty of Waltham*, *Pierre Notting* (fine), *President*, *Madame A. de Rougemont* (a lovely rose, better doubtless than of pure white), *Duchess de Medina Celi*, *Camille Bernardin*, *Triomphe de Rennes*, *Lamarque*, *Maréchal Niel*, (better colour than in Mr. W. Paul's lot, coming very near to clear yellow), *General Jacqueminot* (atill good), *Madame William*, *Devoniensis* (pale primrose), *Centifolia Rosea*. Messrs. Paul and Son also put up a great collection of cut roses that were aliko delightful for beauty of form and colour and fragrance.

FERNS.—There were several pretty collections, mostly British. Messrs. Ivery, of Dorking and Reigate, contributed of course. The following constituted a group of twelve from this firm: *Asplenium fontanum*, *Blechnum spicatum heterophyllum*, *Polypodium phegopteris*, *Polypodium vulgare Cambricum* (a fine piece), *Cystopteris fragilis angustata*, *Asplenium trichomanes monteii*, *Ceterach officinarum*, *Polystichum angulare rotundatum*, *Scolopendrium vulgare marginata cristata*, and the following varieties of *Athyrium Filix femina*, namely, *pulchellum*, *formosum*, *thyrsanotum*, *cristata*.—Mr. James, gardener, to W. F. Watson, Esq., Isleworth, contributed a nice group, in great part made up of varieties of the *Lady Fern*: they were *Osmunda regalis cristata* (a distinct and handsome variety), *Lustrea Filix mas cristata*, and the following varieties of *Athyrium F. f.*, namely, *stenodon*, *corymbiferum*, *Fieldii*, *vernonia*, *Applehurnum*, *Fissidens excurrens*, *plumosa*, *dareoides*, *conoides*, *multifidum*.—Mr. Bull brought forward several very pretty novelties in ferns: *Athyrium F. f. elegans*, like *Fieldii*, but richer; *A. F. f. goringianum*, curious, coloured, the stipes and rachis purple or reddish, the pinnae reddish

purple half their length, the other half whitish, extremely pretty, and decidedly novel; *Lustrea F. m. Barnesii*, a rich form, the pinnule rounded and overlapping; *Polystichum angulare parvissimum*, a lovely miniature form, the pinnules imbricated; *Athyrium F. f. pulchrum*, a minute *Fieldii* form, rich and fine; *Lustrea varia*, the young fronds cinnamon brown, changing to greenish buff, and ultimately to full green.—From Mr. Ivery, *Asplenium Germanicum acuti dentatum*, more deeply divided than the species, but of little consequence except to extravagant collectors.

One of the finest groups of plants in the tent was a dozen *Spirea Japonica*, from Mr. Bartlett of Hammersmith: they were in 48-size, with fine round green heads a foot over, and three or four spikes each of incomparable snow-white flowers. From the same, a nice dozen *Lily of the Valley*, leaves and flowers exactly balanced.—From Mr. W. Paul, *Crataegus oxyacantha fl. pl. new Scarlet*, a charming double flowering thorn, the flowers like rosettes, the colour vivid rose-pink.—From Messrs. Lane and Son, *Rhododendrons*, *Countess of Haddington* and *Edgeworthia*.

GERANIUMS.—From Mr. W. Paul, three new tricolor varieties: *Red Admiral*, fine bright red zone, in the way of Mrs. Pollock, but more highly coloured; *Rouge et Noir*, dwarf habit, fine dark zone breaking into bars of red, edge yellow; *Prince Silver Wings*, the old leaves like those of United Italy, the young ones like those of Lucy Grieve, a superb and very distinct variety.—From Messrs. Perkins and Son, of Coventry, a brilliant tricolor, called *Queen Victoria*; it is coloured in the Pollock style, the disc dull green, the margin yellow, the zone dark red: this description, of course, gives no idea of the relative excellence of the variety; all we can say is that it is richly coloured, and appears to be a first-rate grower.

STOVE AND GREENHOUSE PLANTS.—Mr. B. S. Williams, of Holloway, put up a pretty group comprising *Yucca aloifolia variegata*, *Cordylina indivisa*, *Genetyllis fuchsoides*, a fine *Croton*, an *Eriostemon pulchella*, and a huge *Azalea alba*. In another group from Mr. B. S. Williams were examples of the lively and most useful *Imantophyllum miniatum*, the characteristic *Bonaparte juncea*, *Dracæna ferrea*, *Todea superba*, *Tetratheca*.—Mr. G. Wheeler contributed a superb *Dicksonia antarctica*, *Hedera macrostegia*, *Eriostemon linearifolium*, *Alcacia metallica*, a *Pandanus*, and an *Azalea triumphans*.—Mr. Wilkie presented *Dendrobium nobile*, *Areca rubra*, *Dicksonia squarrosa*, *Eriostemon intermedia*, an *Azalea*, and a *Yucca aloifolia*.

AMARYLLIS.—Mr. Burley, of Bayswater, put up a handsome group, consisting of *Richard Cœur de Léon*, with two majestic scapes of four flowers each, the petals long, colour intense crimson and lake, with whitish stripe and whitish lines, the atripes change to green in the throat; *Shirley Hibberd*, large, finely formed, rather long petals, colour deep and exceedingly rich, crimson shading to lake, with white lines and greenish rays in the throat; *Meteor*, orange red, greenish throat; *Berangeri*, a small red feather on a white ground; *Comet*, a grand flower with broad petals, clear crimson; *Gordonia*, superb orange red.—From Mr. Wilcocks, gardener to Dr. Pattison, St. John's Wood: *Jupiter*, carmine scarlet, with white stripe and green throat, first-rate; *Venusta grandiflora*, broad petals, clear red, fine; *Hawkinsianum*, carmine, with greenish stripes, fine; *Vittata rubra*, white ground, with comb-like dark red feather; *Ackermannii pulcherrima*, superb crimson and green throat; *Regina*, light scarlet, fine broad segments.

BEGONIAS.—Mr. G. Wheeler exhibited a fine group, comprising *Vanden Hecke*, *Rex*, *Duchesse de Brabant* (in the way of *Rex*, and better), *Miranda*, *Grandis*, *Splendida argentea*.—Mr. Marcham, gardener to E. Oate, Esq., Hanwell, presented *Madame Albert*, a fine gray zone, and dark green star-like disc; *Secretary Morren*, cold silvery gray suffused with a reddish tinge, the edge purplish red; *Grandis*, a fine, hold, broad grayish silver zone, olive margin and central olive star; *Victor Lemoine*, remarkably coloured, the prevailing hue a hard, cold, metallic gray, with grayish olive disc overspread with silver dots—anything or anybody would freeze in front of it on the hottest day; *Marshallii*, very neat, small, striking, colours bright, consisting of silver and rich green. There was another without a name, and if Mr. Marcham will forward the name we shall esteem the favour, as it happens to be a particularly good one; the leaf is large, the disc blackish green, with reddish veins, the zone narrow and broken, very silvery, the margin blackish green.

CINERARIAS.—Messrs. Dobson and Son, of Isleworth, put up a beautiful half-dozen, comprising *Lord Elgin*, a fine magenta self, one of the very best; *Eclipse* (*Lucy*), superb form, broad magenta margin, narrow white ring, dark disc; *Perfection*, narrow rosy purple edge, fine broad white ring, dark disc; *Miss Smith* (*Smith*), fine form and very distinct, broad edge of cobalt blue, shading to rosy purple on the inner side, bold white ring, dark disc—this is one of F. and A. Smith's tricolor varieties, and worthy of all honour; *Conqueror*, fine crimson self; *Admiration* (*Dobson*), style of *Eclipse*, flower rather smaller, and less white.—Mr. J. Fairbairn, gardener to the Duke of Northumberland, at Sion House, put up the following: *Captain Hardy*, not good; *Compacta*, fine; *William Dobson*, same style as *Lord Elgin*, and remarkably compact, with wide-spreading trusses, the plant, in fact, a sheet of colour; *Lady Theodore Grosvenor*, broad cobalt blue edge, clear white ring, fine dark disc; *Creamy White*, very delicate and good of its class, neat brown disc; *Sensation*.—Mr. James, of Isleworth, presented *Fair Maid*, sharp rosy purple margin, broad white ring, small reddish disc; *Wm. Reeves*, broad magenta margin, pure white ring, large dark disc, good compact habit and fine trusses; *Snowflake*, beautiful; *Perfection*, *Lord Elgin*, *Charles Dickens*, one of the best of the broad-edged kinds, rich rosy purple or magenta, and neat purplish disc, good form.—Mr. August, gardener to Rev. S. H. Bridges, Beddington, presented *Adam Bede*, a rich magenta self; *Minnie*, *Captain Schrieber*, a bad self, the colour clear light blue; *Miss Smith* (*Smith*), *Duke of Cambridge*, fine dark crimson self; *Evening Star*, fine crimson purple, white ring, dark disc.


Messrs. Dobson exhibited a seedling called *Beatrice*, the flower large, flat, smooth, the edge clear magenta sharply defined, broad white ring, disc rather indefinite; a handsome flower.

NOVELTIES AND MISCELLANEOUS.—From Mr. B. S. Williams: *Strelitzia species*, deep orange-red bracts, a noble plant; *Glorinia atroviolacea*, beautifully formed, colour carmine, the tube whitish; *Vanda gigantea*, a good example of this now-well-known orchid; *Lindsea cultrata*, a neat usplenium-looking fern, shown under a bell-glass; *Maxillaria species*, an unattractive orchid, the flowers indeterminate but with brown spots; *Dracæna sanguinea*, a very graceful, long-termed species, the leaves linear, dark green, the back of the leaf purplish red, will make a fine exhibition plant; *Oncidium species*, with small yellow flowers, promising.—From Mr. Bull, of King's Road, Chelsea, *Habenaria margaritacea*, a South-American

terrestrial orchid, with broad ovate leaves of a delicate green, heavily overlaid with milk-white spots; *Maranta rosea-picta*, *Iresine aurea reticulata*, a variety of *I. Herbstii*, with yellowish leaves, the veins and stems of which are carmine; *Pittonia argyoneura*, superb ovate leaves, grass-green, overlaid with a multiplicity of white lines; *Tradescantia repens vittata*, very neat ovate leaves, one half of each leaf dark green, the other half almost white; *Nidularium Pinellii*, *Camellia Lavinia Maggi*, flesh overlaid with vermilion stripes, first-ripe; *Camellia Lavinia Maggi Rosea*, clear rosy red, fine.—Mr. Willcocks presented *Odontoglossum luteum superbum*, with one fine spike in perfection; and *Odontoglossum Bluntii*, with two beautiful flowers; this is a good companion to the new *O. Alexandræ*, and like it, though sufficiently distinct.

S. H.

MESSRS. CARTER AND CO.'S NURSERY, FOREST HILL.

The great establishment at Forest Hill, where a considerable portion of the plant-growing business of the celebrated Holborn firm is conducted, is just now in a very interesting condition—in a condition which might furnish occasion for metaphorical expressions; but as metaphor is out of our line, we will be content to say that in all the departments occupied with bedding plants the quantity of stock ready for sale is something surprising. That the many and extensive ranges of houses are crammed, is a matter of course, but so are the hardening beds, or "cradles," out of doors; and for some time past millions of plants, made ready for supplying the first rush of the demand for the season, have been fully exposed to the breeze and the sunshine, but protected at night, and during storms, by means of mats; so that when they reach the hands of customers, they will be as thoroughly hardened as if they had actually been grown from the first in the open air. The object of visiting a nursery is with us solely to gather useful information for our readers, not to utter a puff in praise of anybody. Therefore, as the very first feature of the establishment that we take notice of in entering is the hardening ground, a few words respecting it may be appropriate as introductory to a review of the stock. These cradles are rough frames, nine inches high, enclosing a series of four-foot beds—the length of each is about thirty feet; but length is no matter, as the principle is the same whether the beds are thirty feet or thirty miles in length. The ends are quite closed up; but the sides are closed as required by means of mats. These mats are nailed on rough wooden frames, and when in use they rest on the top bar or "ridge," like the two sides of the roof of a span greenhouse. Mr. Boston, the manager of the nursery, has hit upon a clever method of fixing these matted frames in an instant, so that in the event of a storm they are not suddenly blown all over the place. He has had made a set of heavy V-shaped terra-cotta clamps, which drop on the ridge-bar and clasp both the sides thus:  these clamps look like cast-iron, being of a blackish colour, and they are probably as strong. It is but a few minutes' work, in the event of a storm, for the hands to cover in all the cradles and clap on the clamps, and make all as safe as in a well-built house. You will find a figure of these cradles in the issue for April 23, 1864, but the modes of matting and clamping are amongst the novelties of the season.

Now what do we find in these cradles? Absolutely everything that can possibly be in demand this season for planting out in gardens—Geraniums, Verbenas, Dahlias, Pansies, Calceolarias, Gazanias, Petunias, &c., &c.; their name is Legion. But to see what may be called popular bedders is a matter of course at this time of year. What both surprised and delighted me was to find hundreds of those very plants that have been "written up" in the GARDENER'S MAGAZINE and the FLORAL WORLD during the past few years—those plants of majestic outline, such as the New-Zealand Flax, the hardy Yuccas, the noble ornamental grasses, the Pampas, the *Arundo donax*; the fiery poker plant, or torch lily, *Tritoma uvaria*; ay, even *Crinum capense*; thousands of the lovely varieties of *Dianthus*, thousands of the white Everlasting Pea, cradles full of *Anemone Japonica*, and wide sheets of *Viola cornuta*, and its boon companion *Viola lutea*, with *Delphiniums*, *Dielytras*, *Sedums*, and a fair linear mile of *Echeveria secunda*, which is "coming out" this season as a bedder, and will make one of the most classic edgings ever seen or heard of. From these cradles we find our way to the houses, which, of course, continually increase in number: glass is always growing in a prosperous nursery or well-kept garden. To enumerate the houses would be a tedious affair; their name also is Legion. There are a few, however, that strike the visitor as possessing more than common interest. In the show house there are heaps of *Cinerarias*, *Cytisus*, *Ericas*, *Epacris*, *Azaleas*, *Pelargoniums*, and other flowers proper to the season, with a few pillar plants; amongst them a *Passiflora*, now blooming nicely, and which would very well suit Mr. Hullett, as he might offer it to his patrons, at a guinea an inch, as the stellar passion-flower obtained from one of the fixed stars, *Passiflora cælestis*. The fern houses are crowded with kinds in great demand, the stock of *Adiantum cuneatum* and of *Lomaria gibba* being enormous. The somewhat scarce but beautiful *Pycnopteris Sieboldii* is in plenty here, and there is a good stock of young plants of the noble *Asplenium nidus*, or bird-nest fern, which makes so striking a figure at great exhibitions. The big house that used to be filled with hard-wooded mixtures is now occupied with *Camellias*; and the half-stove adjoining is gay with *Dendrobium nobile*, fine half-specimen plants smothered with flowers. Mr. Boston has fertilized many of his orchid flowers lately, and has now some good pods of seed. *Phalæopsis amabile* and *P. Schilleriana* especially promise to multiply themselves in this way. The principal Geranium house is always occupied in part with young Vines. The same temperature and intensity of light suit them both, and the house is well adapted, by its light, broad, comparatively low roof, to make the very most of the sunshine for the plants. This nursery has always been famous for its Vines, and, by the healthy appearance of the present stock, it may be judged that Messrs. Carter do not intend to lose one jot of their just fame in that respect. The Geraniums in this house number only 60,000 plants, which, of course, is but a portion of the general stock, the greater part having been for some time past out of doors. But it is a pretty sight to see so many occupying a great bed, the whole length of the centre of the house, showing here and there patches or blotches of bright flowers. On a shelf above—that is, a shelf suspended from the roof—were 5,000 fine plants of Mrs. Pollock: these plants are in small 60-size pots, and have six to eight leaves each—beautiful, short, round-headed samples, in brilliant colour—more brilliant than usual, the effect of being kept in the strongest possible amount of light. As for other houses, I forbear to attempt to give any idea of their size, shape, or contents. Mr. Boston, our excellent coadjutor Mr. J. C. Clarke, and the writer of this were engaged some hours in exploring, and probably not one of us could now give a categorical account of the route pursued or the things seen; for we

followed no rule, and mixed up inspections with criticisms, and "sometimes walked and sometimes ran," as did Adam when he first woke from soundest sleep, and became aware of the proper use of his limbs. A summary of things seen may be more useful than a description of the place.

GERANIUMS.—The collection is, as regards varieties, one of the most extensive I am acquainted with, and the system of keeping the sorts true to name is admirable. Amongst the kinds that take the lead, one most deserving of notice is *Christabel*, which is a miniature *Christine*—most valuable for edgings, growing only six inches high at the utmost, and being all through the season quite covered with flowers, which are as richly coloured as those of Helen Lindsay. This was sent out by Messrs. Carter last year, and had a great sale, and, by the immense stock they have of it now, it may be presumed they expect an increased demand this year. In the house containing 60,000 plants there was a batch of this covered with flowers as richly as a bed out of doors might be at the end of June—quite a charming sight to see. Another fine variety amongst Messrs. Carter's novelties is *Crystal Palace Gem*, from the seed-bed of Mr. Gordon of the Crystal Palace. This is the exact counterpart of Smith's Excellent, but the colour is brilliant carise. The flower is of the florists' type, quite circular, smooth, of great size and substance, and most reluctant to produce seed. It will be a leading variety at Battersea Park this season, and will drive out of the field at least a dozen famous old varieties that come nearest to it in colour. And speaking of Excellent, it may be worth remarking that in a cradle containing a batch of *Crystal Palace Gem* and Excellent, with many other kinds, those two were most profusely covered with flowers, while the other sorts were only just pushing their first trusses. *Crystal Palace Beauty* and *Souvenir de Sir Joseph Paxton*, also from Mr. Gordon's seed bed,—the first a charming salmon flower, the second rosy pink,—are decided favourites for this year, and should be put down in the list for present orders by all our geranium growing readers. As for the stock generally, Amy Hogg was showing many cheerful flowers; Beaton's Merrimac was fiery with its peculiar orange scarlet, and there were great breadths of Snowball, a superb white; Wild Charlie, a good deep salmon; Mrs. Whitty, which beats Helen Lindsay as a bedder; *Christine*, still in great demand; Perfection, a fine deep rose-coloured nosegay; Premier, a lovely shade of lilac rose; Rival Nosegay, one of the freest flowering geraniums in existence; and of course Stella, Cybiater, Lord Palmerston, Pink Pearl, and Black Dwarf, which are the cream of the nosegays. Of Hibberd's varieties of last year, H. W. Longfellow wears well as a bright salmon for beds, surpassing St. Fiacre. Kate Anderson is one of the most brilliant scarlets out; but Andrew Marvel, Magna Charta, and May Queen are better adapted for pots than beds, the flowers being of immense size and exquisite in shape and substance. At every nursery now we may see new tricolors; but we may travel far to find a series equal to those Messrs. Carter intend to offer to the public in 1867. Oberon is in the style of Lucy Grieve, the zone broad and hold, varying from vivid red to black, the habit all that can be desired for free growth and lateral extension. *Titania* has a flat leaf with clear amber margin, the zone deep umber brown, breaking into bars of bright red, the disc pure green: this is a splendid variety. *Ruby King* has a small rather convex leaf, the margin primrose yellow, the zone broad, very dark, holdly broken with flame-red; a brilliant piece of colouring. *Miss Schiller* is a heat upon our favourite Luna; the leaf is gold yellow, with a bright cinnamon zone. Mrs. Bass has a large leaf; the colour sulphur-yellow, with broad bright brown zone. These will take a permanent place in the tricolor series, and will have a good chance from the first; for the stock is in a cool house, and has never had the vigour forced out of it in propagating. Before quitting the geraniums, we must notice Goldfinch, which is one of the best golden bedders known, and in many places superior to Luna. Strange to say, that very pretty but unpopular geranium *Reine d'Or* is plentiful here, though what they will do with a beauty that nobody will buy I forgot to inquire. There might be a worse bed or ribbon line than *Reine d'Or* would make for one.

FOLIAGE BEDDERS.—These have acquired immense importance; indeed, leaves are fast superseding flowers in the parterre, and they have the advantage of producing decided effects from the moment the plants are in their place to the moment they are removed for the winter. Moreover, the colouring has unity of tone to commend it; there is no struggle for pre-eminence between the leaves and the flowers. Judging from the extent of the stock, *Iresine Herbstii* (*Achyranthus Verschaffeltii*) is rising in public estimation. It deserves to become a favourite, and will with artists in colour, but will probably never be a favourite with people who only attempt a few commonplace dashes of contrasted colours. It needs the eye of a Gibson to determine its place and proper surroundings; then its rich carmine and bronzy hues, its close resemblance in colouring to *Dracæa ferrea*, are qualities that assure it a high renown. There is a new one here called *Iresine aurea*, which has a richly painted leaf, the principal colour of which are orange, emerald green, and clear carmine. Here also are the best stocks we have yet seen of the three best of the new Brazilian omaranths. *Alternanthera spatulata* is richly tinted carmine and purple; *Alternanthera parymichoides* combines dazzling mixtures of orange and carmine; and *Teleianthera ficoides* is resplendent with carmine and claret lines. Of *Perillas* and *Amaranthus melancholicus* there are tens of thousands of plants; and there are fair quantities of the gorgeous *Coleus Verschaffeltii*, the almost jet black *Coleus nigricans*, and the new dazzling variety of *C. Verschaffeltii*, which has splashes of vivid green and yellow, mixed with crimson on the leaves. The old but good *Dactylis glomerata variegata*, which has become most celebrated of all the variegated grasses, has a formidable rival in the new and beautiful *Poa trivialis variegata*, the appearance of which seen en masse is most delightful, so chaste and pure and brilliant is the colouring, and the habit of the blade as elegant as a grass can be. The *Variegated Japanese Maize* is grown in great quantity, and the plants are now about four inches high, just showing their lines of variegation. This mode of dealing with it is preferred by many persons, as they can have plants from the nursery in which the variegation is already visible, and so make sure of the best forms; whereas if they sow seed, they must take their risk of a few green ones—a risk common to all seedlings of variegated varieties of *Ricinus*, *Solanum*, *Wigandia*, *Ferdinandia*, and other fine foliage plants of the "sub-tropical" class. These are all the best varieties, in such plenty as to press upon us the old question—"Where will they all go to?" But there will be very few of them left by the middle of May; in fact, they are going out now at a terrible pace, though it is full early yet for buying such things. The fact is, people are beginning to take our advice, which is to buy in bedding plants early and keep them in pits, frames, or greenhouses till planting-out time, as by this plan they are

better prepared for planting, and *we know* they are well hardened; whereas, when we buy at the last moment and plant immediately, we *may* happen to put out plants that have not been in cradles, and that consequently are in a soft condition, beautiful to look at, but not yet fit to brave the battle and the breeze.

VARIOUS BEDDERS.—We have not space sufficient to treat of bedders under their several heads, and must therefore rapidly glance at a few in each section. The Verbenas here are as healthy as the tufts of chickweed you will now see, green and flowering, on any sunny bank. The leading sorts agree pretty well with our selection published on the 16th of March last. At all events, there are plenty of the best of the bedding kinds, such as La Grande Boule de Neige and Blanche of Castile, the best of the whites; Mrs. Elphinstone and Ariosto Improved, the best of the rose class; Fire Brigade, and Brilliant de Vaisse, the best of the crimsons; Lord Clifden, Foxhunter, and Mrs. Woodroffe, the best of the scarlets; Junius, the best yellow; Lady Leigh, King of the Lilacs, and Napoleon Rossi, the best of the lilacs; Celestial Blue and Azurea superba, the best of the blues; and Ocean Pearl and Purple King, the best of the purples. As for Petunias, I saw a house full of seedlings that are all to be flowered, judged, and classified before they are sold; a most admirable plan for those who want them in quantities with none of the trouble of propagating, but with certainty as to the sorts of flowers they are to have. Of the named kinds plenty of those charming bedders Royalty, Queen of the Whites, Nemesis, Countess of Ellesmere, Shrubland Rose, and Prince Albert. The GARDENER'S MAGAZINE doctrine, that *small-flowering* petunias are alone fit for bedding, is fast becoming a law in the floral world, and very soon we shall find amateur colourists giving up the great floppy flowers in favour of small, neat, convolvulus-like bells of moderate size, but more plentifully produced, and which can stand against sun, wind, and rain, when the flops would be blown to pieces. Calceolarias are of course very hard by this time. In no well-ordered nursery do they dare push these in heat in spring. At all events, many thousands have long since been exposed to all weathers, night and day, at Forest Hill, and look as short and thrifty as can be desired. That fine old variety Aurea floiuhunda is the leading favourite; but there are good points about Tom Thumb, Canariensis, Bird of Paradise (one of Mr. Williams's best contributions to the parterre), and Prince of Orange; and hence these with others are grown in great quantity. A new Tropæolum, called *Perfection*, has been obtained from the Crystal Palace, and it happens to be one of the Gordon seedlings that we have reported on in our reviews of Crystal Palace bedding. The colour is vivid orange scarlet, the flowers are finely formed, and most abundantly produced. No one need fear planting this wholesale at once, without any preliminary trial; for a tropæolum that is A 1 on the strong clayey loam of Sydenham, where the wind is always strong, and the amount of care bestowed upon individual beds is reduced to the least possible, cannot be otherwise than grand in gardens better situated, or indeed in gardens anywhere; for the Crystal Palace garden is one of the most severe tests to which a bedding plant can be subjected. That gem of white-flowering Lobelias *Miss Murphy* has a most charming appearance now; the stock looks like a great bed of Saxifraga hypnoides, or something even greener than that, dotted all over with snow-white flowers on very short stems, so that the flowers almost rest on the foliage. All that we have said against Lee's Snowflake may be reversed in favour of *Miss Murphy*: it is a gem of the first order, and those who do not buy it lose a season with a plant that will be immensely popular, because it is wondrous good.

MISCELLANIES.—First and foremost among miscellanies must be placed the *Clianthus Dampieri*, of which there are some glorious plants in flower. One of them already covers a great breadth of trellis, and has about fifty heads of flowers, so that in the coming summer there may be as grand a sight here in this way as there was at Wellington Road a few years ago. The white-flowering variety is planted in the same house, but is not yet in bloom. Gnaphalium lanatum, the very silvery-leaved edging plant, is grown in great quantity. Hundreds of Tropæolum tricolorum, in 54-sized pots nicely trained, will be useful to amateurs who wish to grow fine specimens, as by purchasing these they avoid all the difficult parts of the business, and can easily shift into larger pots and train to larger trellises, with all the summer before them for growth. Great stocks of bedding pansies, such as Maggie (now known as Cliveden Blue), Gold Shield (now called Cliveden Yellow), and Purple Banner (now called Cliveden Purple). Scrophularia nodosa variegata, the plant that looks so much like a variegated Hydrangea when bedded out, very plentiful—whole cradles filled with it. Lobelia cardinalis, the much neglected but not forgotten friend of the old school of first-rate plantmen, in abundance here, which is another tribute to the advocacy of good things by the GARDENER'S MAGAZINE and the *Floral World*. There is a good variety of Anemone Japonica here, called *Marie Paré*, the flowers pure white. The aucuba-leaved daisy, richest and rarest of hardy herbaceous gems, in abundance, and as true as the gold with which their lovely leaves are lined. *Sedum Parmenteria* is to be a companion to *Sedum fabarium*, and we have booked it for the plunging system. Carduus Benedictus, and some other things, of what we may call the O'Shane type, in plenty; so there need be no lack of elegant forms in the flower garden, even if the proprietor has but a few shillings to spend upon it. And lastly, Aucubas and Auriculas by alphabetical arrangement come together, though not very much alike, and are here to be found in endless variety; the first having just set their berries as the result of persuasion, the second showing their velvety flowers as the result of being left to take care of themselves, which is one of the secrets of successful auricula-growing. Lastly, and to make an end of the story, Margehal Niel Rose is so much in demand that the side of a long house has been filled with it, and at least a fourth part of the plants have flowers on them. Thus our rosarian friends will learn that the brave Marshal is not ashamed of his epaulettes, but takes care to show them at the earliest opportunity. S. H.

THE DELPHINIUM.

I have always considered it a rich treat to have the pleasure of seeing a good bed of Larkspurs, and I love to see them now, although they belong to the class of plants considered old-fashioned. I am not an old man by any means, still I have a few old-fashioned notions, and one is my adherence to these beauties. I cannot imagine what our poets, both ancient and modern, have been thinking about, not to have tuned their harps to sing the praises of the Larkspur.

I can only account for it in this way, that a nice well-kept garden appears too cribbed and confined for minds which are always soaring in lofty flights, in imagining things that in all probability will never happen. I will not quarrel with them; but I think it a great shame to have neglected my pets. I expect I had better be practical and commence at once. Therefore, in this humble contribution, it will be best for me to say as little as possible about the history of the Delphinium, and also not trouble to inquire from what source it derives both its botanical and common name. Consequently, we will be satisfied with the supposition that the young buds do really resemble a dolphin, and it follows, as a matter of course, that it is legitimately entitled to the generic name of Delphinium. As regards its English, or common name, every body that grows them, and chooses to take the trouble to inquire into the matter, can satisfy themselves upon that point. I consider the perennial species to form as good a class of herbaceous plants as any other genus extant. We have no other blue that can in any way match such as is found in *Formosum*, *Hendersonii*, and others of that stamp; and those Delphiniums which more properly come under the appellation of Larkspurs are quite as good as the generality of annuals. We have the dwarf *D. agacis humile* in half a dozen colours—blue, lilac, purple, rose, striped, and white; then we have *D. hyacinthoides plena*, or hyacinth-flowered, with large heads of bloom, like that of a well-grown hyacinth, in several colours. These vary in colour from the dwarfs by having red and flesh-coloured amongst them, in addition to the other colours. If we want tall sorts in annuals, we must speculate in the varieties of *elatum*, as well as blues and whites and other colours, the same as in the preceding species we get lilac and rose. If those are not sufficient that I have mentioned, there is the *D. consolida*, or branching: for my own part, I prefer the hyacinth-flowered and the branching; but as tastes differ, I thought it best to point out what there are, and let people choose for themselves. Sown in clumps in mixed borders, at intervals of ten to twenty feet apart, in separate colours, they have a splendid effect, and in out-of-the-way places a bed of mixed colours has a charming appearance. They do not continue in bloom long enough to warrant their being used for the planting of beds in prominent positions, or when the bed is part of a design. Ordinary soil will suit them; but, of course, the better the supply of food the plants receive, so much finer and better will the flowers be. The seed can be sown where the plants are to bloom, or in pots to be pricked off. The latter way will make the most of the seed; but as it can be obtained from first-rate houses at the rate of from twopence to fourpence per packet, it is of very little consequence to talk about saving. Seed can also be obtained of most of the perennial species.

I have added the average height to the dozen comprised in this list; it may probably be useful in planting. *Alopecuroides*, four feet, white, edged with blue, fine new kind; *Azureum flore pleno*, four feet, light azure blue, a very fine kind; *Barlowi*, three feet, a most beautiful violet-blue; *Belle Alliance*, three feet, good blue; *Bicolor*, three feet, deep blue, with white centre; *Chinensis*, a foot and a half, light pale blue; *Donkelaari*, three feet, blue; *Formosum*, three feet, beautiful blue, everybody's favourite; *Grandiflorum maximum*, four feet, a most intense blue, superb; this does well in a peat soil, which, generally speaking, Delphiniums do not like. *Hendersonii*, three feet, rich blue; *Ultramarine*, fine large flowers; *Madame Rougier*, two feet, blue. To ensure a good and early bloom, the seed of these kinds should be sown in the autumn, early enough for the plants to get stout before winter; and they can also be increased early in the spring by dividing the old stools. A spit of rotten dung should be dug in when the plants are to be put in. If they are to be turned out amongst the shrubs in beds, let them be well manured and dug deeply. As soon as they have done blooming, the flower-stalks should be cut down. INDEX.

THE WILD FLOWERS OF SPRING.

Come, gentle Spring, ethereal mildness, come,
And from the bosom of yon dropping cloud,
While music wakes around, veiled in a shower
Of shadowing roses, on our plains descend.

THOMSON.

There is something so delightfully charming to the human mind to watch the return of spring, bringing in its train all the hosts of wild flowers. With what pleasurable emotion it causes the heart to throb, as we roam the fields again in all their freshness and beauty, leading the mind instinctively to look up from nature to nature's God; and to be able to gather to our hearts' content the wild flowers which now abound! It wakes up all the old memories of our childhood which long have been lying dormant, under the pressure of the cares of the world. It brings back some of our happiest days of youth, which were spent in searching for flowers in the fields and hedgerows. Wild flowers we dearly love. They have a charm over us which all the flowers cultivated in a garden fail to have. They take us back to the scenes we used to tread in childhood, and in imagination we see the same green fields, and

SUMMER ANTICIPATED.—A GLIMPSE OF THE PLUNGING SYSTEM.

Having occasion to call on our worthy Editor, on some matter of business connected with a flower-show, I was equally astonished and delighted to find myself, on entering the garden, in the midst of a most lovely and novel display of flowers. For the moment the whole affair appeared to me a mystery; it was like being suddenly wafted to a region of enchantment; but a few minutes' observation and reflection ere I attacked his citadel to demand admittance, caused me to ejaculate (I am sure audibly), "This, then, is a sample of the plunging system—most original, most surprising, most superb!" And I dare say you, good reader, would have made a similar ejaculation if you had just leaped out of an omnibus, after several hours' peregrinations in London, and had, by passing through a not very inviting gate, found yourself in the midst of a lovely galaxy of hyacinths, tulips, lilies, crocuses, diolytras, and other spring flowers, all appearing *au naturel*, as if growing in the ground, and all matching their sparkle of colour with a most delicious perfume. The fore-court was like a Rimmel bath, or a realization of Cowper's idea of a blissful place,

Where spices breathe and fragrant roses smile.

I discovered it to be the plunging system by observing that the beds and borders were remarkably clean, and their colour a beautiful dark-brown, which set off the green of the leaves and the colours of the flowers in a remarkable manner. Now I shall endeavour to give an idea of the scene; for though I have read about it more than once, I had no idea at all of its true splendour, and of the truth of the axiom the Editor has more than once uttered, that the plunging system is the system for all suburban villa gardens. Right before me in the centre of the court, I saw what I at first took to be a bed of Japan lilies, edged with hyacinths, tulips, narcissi, and lachenalias. This bed is supported by a handsome stone moulding. What I took at first for lilies proved at a second glance to be crown-imperials superbly grown, with an abundance of brilliant leafage and many shades of yellow, orange, and red-brown flowers. I afterwards learned from our friend that he has a collection of these Crown Imperials comprising some twenty or more varieties, and I saw many distinctions amongst them both as to height and colour, a certain few of the darkest kinds being truly magnificent. This lovely bed, with the blooms of lachenalias lying carelessly over the rim of the stone-work, would have been an ornament to the grandest garden in the country; and I doubt if on the 26th of March, when I made my visit, another such bed could be found in any part of the British Islands—that is to say, *in the open air*. On the left hand of the walk, up a narrow border, also supported by an elegant stone moulding and consisting of cocoa-nut fibre, and again, across the court next the front wall of the house, were hyacinths, tulips, narcissi, fritillarias, double snowdrops, and crocuses in abundance. Those in the little border under the house being such spikes as we only expect to see at flower shows, glorious examples of skilful culture, and displayed as few could display them. The mention of the mode of display reminds me that, in the bijou border next the house, the background to the hyacinths consisted of handsome pot specimens of ivies, beautifully trained, and very rich in their deep green colouring. The background to the other border was a rich breadth of evergreen shrubs, comprising hollies, aucubas, daphnes, rhododendrons, &c. All these were planted out as in any other garden, the plunging being in the front lines only.

My curiosity was as much aroused as my love of flowers was gratified by this display, and I made a few inquiries, that I might indite, for the information of my brother amateurs, these few lines respecting what I now regard as the *perfect* system of garden embellishment, more especially for all gardens in the suburbs of towns. I feel bound to say that Mr. Hibberd explained everything, answered every question readily and cheerfully, and showed me the machinery and material employed in working out the plunging system, which is in operation here all the year round, and demands about thirty sets of plants to keep it going.

The restricted space in which the work is done renders the result something marvellous. I counted four shelves, one above the other, on either side of a little Paxtonian house, the plants actually standing in a perpendicular series, deriving light only aslant, with the exception of those on the top shelves. Yet all were pictures of health and beauty: I know if I were to attempt to grow plants that way, I should lose half of them. A few frames and pits, and a hot lean-to, and a series of plunging beds filled with cocoa-nut fibre, are kept in active service. I noted as leading features among the plants grown the following: a collection of varieties of Ivy, very various and beautiful; a collection of coniferous trees, principally Cedrus Deodara, Cupressus Lawsoniana, Pinus cembra, Abies Douglasii, and Irish yews, with others the names of which I forget; in fact, I know nothing about trees, and therefore could not remember all the names given me. A long row of what I took to be auriculas proved to be Sedum fabarium, which had just been divided, and potted in 48-size. These I was told would be in perfection in September, and would then be of great value for plunging. Next I observed a collection of pompones, not yet touched; they are to be propagated immediately: the principal sorts were Bob, Brilliant, Autumn, Berroll, Salomon, Adonis, Mrs. Turner, Mr. Murray, Mr. Astie, Shirley Hibberd, General Canrobert. These are preferred for their distinct colours, and their requiring comparatively few ties. I was assured that many of the finest varieties were of little use for plunging, on account of their not holding up their flowers well during wind and rain. A lot of nice-looking roses in pots caught my eye, and I suggested that an extemporized rose-show with plunged plants would be a fine idea. I was informed that these had all been used for that purpose, but were now to be planted out to refresh them, and perhaps a fresh lot would be potted to take their place. A collection of Ixias had a charming appearance, so fresh and bright were they, and one or two were already in bloom. A small batch of shrubs in a shady corner were pointed out to me as of pre-eminent value for winter plunging: they consisted chiefly of Skimmias, from which the berries had been gathered and sown. The beautiful Pyracantha is grown in the same way—the trees are quite pictures of symmetry; also several kinds of Cotoneasters. I saw all the new aucubas, including male plants, and was assured that these plants would soon become of the greatest value for plunging, because of their red berries and the splendid leaves many of them have. The true female A. Japonica was pointed out: it was a pretty dark green bush, covered with flowers that had been fertilized. I regret I cannot hope to do justice to the subject on which I have undertaken to say a few words; but I thought the testimony of an amateur, who of necessity views the matter differently to a person engaged in horticulture as a profession, as

Mr. Hibberd is, and led on too by a passion for experiment and inquiry,—that the testimony of such a one to the reality and splendour of the plunging system, would be esteemed by many readers of the Magazine. When I thought I had seen all, and was having a last look at the beautiful ivies, which number some sixty sorts, collected from all parts of the world, it was proposed that I should see some other gardens Mr. Hibberd has, and of which of course I had no idea. I was taken amongst some new houses, then down a plank, and through a brick field into a wild sort of place where no one would suspect there was a garden. But here indeed there appeared to be more matters of interest than I had seen already; for it was the trial-ground on which the collections of peas, potatoes, broccolis, &c., are planted. Here I found a few rows of small plants of scarlet Ribes in a nursery-bed. When they are nice bushes, they will be potted for the plunging system. In the same place was a little batch of a dwarf sort of lilac, which flowers freely in a small state, making large bunches of beautiful blue flowers. Knowing nothing about seakale, asparagus, peas, potatoes, and the rest of the things here, I was glad to get away, though I felt impressed by the order, and I will even say the beauty, of the work, the plots being laid out in the most regular manner; and every collection is numbered all through, and the names, numbers, dates of planting, &c., all entered in a book. The department occupied with the trial peas is arranged so that there is a long row right through the piece at every eight feet distance, and between every two rows is a four-foot bed occupied with such things as broccolis, cabbages, &c. Of course many of the sorts were not yet above ground, but the system was easily comprehended by the pegs in the ground, and the glimmer of greenness where the seeds were coming up.

Supposing I had seen all, I was a little bit astonished when Mr. Hibberd invited me to see his fruit-trees. In a few minutes we were in another garden, not so wild a place as the last; in fact, a very snug spot, and crammed so full of trees that I wondered much more how they could grow than I had previously wondered at the way the shelves were put one above the other in the greenhouses. But there could be no mistake—the trees are doing well, for the greater part of them were showing such a promise of bloom that in a short time their appearance will be splendid. Many of the trees appeared to be all bloom, though none were out. There is in this garden several interesting trees of other kinds—a complete collection of plane-trees, some thorns, and other things of like nature. Mr. Hibberd assured me that he had really brought me here to see the roses, and presently I came to a quarter very irregularly planted, but stuck all over with huge tallies like young gate-posts. On every tally was a number, and nothing more. The meaning of the irregular state of the plants was this: the whole piece had been filled with cuttings of all kinds of roses in October, 1865, and to every batch a tally was attached with a number, so that the names of the sorts could be found when wanted. Some of the sorts had perished outright, and hence so many blanks. Other sorts had all rooted and had grown well, and were now nice little bushes two feet high, bristling with new leaves. This is called the currant-tree system of growing roses, as the cuttings are put in just as currant-trees are propagated. The proportion of those that perish is about a sixth part of the whole, and that can be well afforded, seeing how easily, and, with a margin of a sixth part for loss, how certainly roses may be multiplied in this way.

I trust what is amiss in this short account will be received by the reader with every indulgence. Mr. Hibberd objects, and no doubt properly, to strangers entering his garden; it is a part of his study, and he complains of being intruded upon by persons whose only object appears to be to gratify an idle curiosity, and make waste of his valuable time. But I felt that, having seen so much, I was bound to record my impressions, and I have done so, having the permission of my excellent friend to say whatever I please on the subject. I take advantage of that permission to say another word, and it is a word of great importance. To grow myriads of plants in pots, and make a change in the embellishment of a garden every two or three weeks all the year round, even on the restricted scale on which it is done at Stoke Newington, must be a costly business, and I question if there are many amateurs who really need the system who could afford to carry it out. Why, I am certain many of the hyacinths plunged in the borders, showing better spikes than we ordinarily see at flower shows, must have cost two or three shillings each, for many of them are scarce kinds; and when one particular subject is used in a lavish manner, even if the cheapest kinds only are used, one change is a matter of pounds. Then, it must be remembered, we cannot purchase or propagate plants as Mr. Hibberd can. He can enter the wholesale market, and he can multiply plants like magic, and with his brisk young men, with whom he is at work at all hours directing and arranging, the production of a display is not only a delight after his own heart, but an easy thing; whereas to many of us, lacking both the means and the skill, the thing is impossible. I venture, therefore, with all respect to my friend, to record my opinion that the plunging system will never become general. It demands more skill and more money than can be brought to bear upon it by persons of the middle class, and the rich, I suppose, do not want it. Such is my deliberate opinion from what I have seen. I hope I may be in the wrong, for it would be a grand thing to have our gardens kept as this is; but I feel fully persuaded I am right. What is a reality to our friend must remain a dream to the majority of his readers. J. E. SAUNDERS.

PROTECT THE BIRDS.—At a meeting of the Farmers' Club of the American Institute, Dr. Trimble said that he had recently visited the grounds of the Pennsylvania Hospital for the Insane at Philadelphia, where the good effects of protecting birds are very strikingly exhibited. About fifty acres are enclosed by a high stone wall, and for twenty-five years no one has been allowed to discharge a gun on the grounds excepting Dr. Trimble, who, for scientific examination, has been allowed to shoot two or three birds not to be found elsewhere. In consequence of this protection, all the birds that will live there are found in the enclosure in great numbers. There are cherry trees in the grounds, and when the cherries first began to turn red, the trees were swarming with birds, especially the grackle, or crow blackbird. But they soon became cloyed with the fruit; and, by the time cherries were ripe, had almost entirely ceased to eat them. Dr. Trimble visited the grounds in company with a number of naturalists, and they made a search for worms, but none were to be found; the birds had exterminated them. Two crow blackbirds were shot, and their crops examined; not a fragment of a cherry was found in either, but the crops were filled with water beetles from the neighbouring marshes, showing that the birds had learned to come to this enclosure for protection, even when they were obliged to seek their food elsewhere.—*Scientific American*.

Calendar.

WORK FOR WEEK COMMENCING APRIL 20.

Kitchen Garden and Frame Ground.

BET must be sown now if not done already. Choose poor soil that has been deeply dug, and is in a thoroughly pulverized state, the object being to obtain roots of moderate size and regular shape. All the dark-flesh and short-topped varieties are good.

ONIONS may be greatly benefited by a sprinkling of soot, which will both quicken the growth and drive away the vermin that usually destroy them. Onions for pickling to be sown this week on poor ground. The silver-skinned is generally used, but White Globe is also suitable. Sow thick, and if possible cover the seed with a sprinkling of fine siftings of charred rubbish.

SCARLET RUNNERS may be sown on dry sheltered borders, but it is early yet for the main crop.

CAULIFLOWERS may now be planted out, and will take care of themselves. Let the ground be abundantly manured; plant firm; give a drop of water to each if needful.

SPINACH to be sown again, but not in great quantity, as the later-sown breadths will be liable to get seedy before they are all used.

LETTUCES of all kinds may now be sown on open borders, the cos and quick-growing large kinds of cabbage being most useful.

GRASS LAWNS in need of improvement may be aided by sowing grass seeds. All the bare spots that are mossy and sour should have the surface soil removed, and its place supplied with fresh sandy loam. Places that are thin of grass, but the soil pretty good, may be sown over without any change of soil. Sow thick, and cover the seed with a sprinkling of about half an inch of fine dry earth. It is best to have a sufficient quantity of fine lawn grass seed, and some Dutch clover in addition, and to sow them separately, as they do not mix well. To promote the growth of clover, surface dress with superphosphate of lime during May and June, after mowing. The unsightly appearance caused by spreading this substance is soon removed by the growth of the turf. A sprinkling of half an inch depth will be sufficient at a time. Siftings of plaster and old mortar make an excellent dressing for lawns required to be in good a condition.

CELERY.—Any late sowings now coming on in seed-pans must be pricked out as soon as they are as large as the head of a young radish—say having four or five leaves each. The way to prick them out is to prepare first a frame, next tread the ground hard where it is to stand. On the hard surface lay turfs, grass side downwards, and on the turfs spread three inches of quite rotten dung and fine loam, equal parts, well mixed together. On this bed plant them in rows carefully; water, put on the light, keep shaded and rather close till they begin to grow; then take the light off during the day as much as possible, taking care to put it on in case of cold rains, or snow, or frost, all of which are possible even up to the middle of May. The plants from early sowings that were potted will have to be dealt with according to the weather, and other circumstances. They will soon fill their pots with roots, and when they do so—better, indeed, *before* they do so—shift them into 60-size, with one rather flat crock only in the pot, the soil half dung and half loam, and keep them in a frame, giving plenty of air and water, and exposing them fully to sunshine. By the time they fill these pots with roots, the season will be sufficiently advanced to allow of planting out; and this, like all other processes, must be done with care. The trenches should be made in the usual way, by throwing out the earth. A liberal allowance of fat manure should then be wheeled in, and the soil of the trench well chopped up with it, so that earth and manure are thoroughly blended together. It is astonishing the difference it makes to such plants as celery, cauliflower, and others that need abundance of manure, whether it is turned in anyhow, so as to lie in masses, or well chopped over, and mingled with the soil: in the latter case the growth is regular and good; in the other it is irregular—a plant here abominably coarse, and overtopping the next, which is as weak as if the ground had never been manured at all. For the planting choose warm moist weather, if possible; if this cannot be done, water the trenches liberally the day previous to planting, and after planting water again, and shade from midday sun. In the planting process the line should be put down, and the plants should be handled with as much care as if they were worth a crown each. Let them be turned out of the pots without bruising them; the ball of roots need not be disturbed, the earth must be closed upon them neatly, and while the planting goes on they must not be left laying about in the hot sun, to be half roasted. Those pricked out into the bed should be dealt with in a similar manner; but of course they will not be planted out so soon. In taking them out of the bed, it will be found that as they are well rooted into the turf, the bed itself can be cut into squares or strips; and if these squares or strips are carried carefully to the trenches, the plants may be transferred to their final places without damage to a single leaf or root-fibre, which is the proper way; the plants ought not to know, in fact, or indicate by any of their appearances, that they have been shifted.

Flower Garden.

ASTERS sown immediately will grow freely from the first, and make as fine plants as the earliest sown, though a week or so later to bloom. But this is the latest period for them, to do anything like justice to these superb annuals. The most useful sorts are Truffaut's Paony-flowered, the Chrysanthemum flowered, and the Quilled or German.

STOCKS sown now will give less trouble than those sown early, and the annual kinds will flower well this season, and the biennials acquire strength to stand the winter. The most useful kinds are dwarf German and Wall-flower-leaved Ten-week, English Scarlet Ten-week, English Intermediate, German Emperor, and English Brompton.

AURICULAS require the most airy position possible now, with shade and shelter and covering, as wind, frost, rain, sunshine, and heat are all alike injurious to them. There is no simpler method to deal with them than to stand the pots on a hard pavement of stone, tile, or coal-ashes, and place over them, at some height from the plants, old lights resting on pots, or rough frames made on purpose. In case of frost, mats can be thrown over at all times; there will be a free current of air through, and the lights can be taken off when desirable, and be replaced instantly. Another plan in general use is to place the plants under hand-glasses, the latter being raised very high up.

PANSIES sown now will bloom well at the end of July, when many herbaceous and annual flowers are over. Choose a shady spot for them.

HARDY HERBACEOUS PLANTS which may be raised from seed may be sown from this time to the middle of June. Usually there is at this season so much excitement about hedging plants that these things are forgotten. It is, however, the best season in the whole year to make up lists and order seeds, and, in fact, to begin with their cultivation. It may not be unfair to mention the seed-list of Mr. Thompson, of Ipswich, as full of interest for the lovers of herbaceous plants. Messrs. E. G. Henderson and Son, of St. John's Wood, have published a list of a very select character; Messrs. Backhouse and Son, of York, are rich in such things, and supply catalogues when asked for them; Messrs. Osborn and Son, of Fulham, have a good collection; and, lastly, certain generally useful subjects, such as *Arabis*, *Lychnis*, *Dianthus*, &c., may be found in plenty in *all* seed and plant catalogues.

CARNATIONS AND PICOTEES to have as much air as the state of the weather will allow, and not on any account to suffer through lack of water. As soon as possible place them in their blooming quarters, fully exposed to all weathers.

ANNUALS.—Continue to sow for succession. Half-hardy kinds not yet sown to be got in at once. A top shelf in a lean-to is a good place to bring on a few pots of seeds quickly, but take care they do not get baked there.

THE PHLOX.—The lovely flowers of herbaceous phloxes are distinct from those of all other plants of similar habit in their exquisite symmetry of form and delicacy of colouring. They are for the most part very hardy, though judicious cultivators do not leave their collections entirely to the mercy of the weather all winter. We do not see phloxes as often as we should; amateurs are so crazy about geraniums and verbenas, which many of them cannot manage in a way to be thoroughly satisfactory, that their minds are drawn away from such a subject as the phlox, which is hardy, requires very little attention, and never fails to make an ample return for whatever trouble is bestowed upon it. To grow phloxes, you need a mellow, deeply-stirred, and well-manured loam, and a sunny position. The plants should be set out one foot to eighteen inches apart, according to their height and robustness of habit, all the taller kinds requiring more room than the dwarfs. To propagate them is most easy. The best plants are those propagated from cuttings in March or April, but strong stools may be divided in April or May, and if planted again with care will flower well. Plants that have survived the winter in the ground, or that have been kept in pots, begin to grow in March. The shoots should be cut away when an inch to two inches long, one or two of the lowest leaves removed, and be dibbled in close together in pans or pots, filled with any light sandy soil. A mixture of sand and peat is the best, but it does not greatly matter what it is, if clean and sandy. These cuttings soon root if shut up close in a frame, and kept regularly sprinkled and shaded. The shortest mode of disposing of them is to allow them to grow in the pans till they are three or four inches high, and then to plant them where they are to flower. By this simple method they do well, and occasional watering and shading for a time after planting is, of course, beneficial. But a better plan is to pot them off separately in small pots as soon as rooted, and keep them in a frame till the pots are full of roots, giving them plenty of air, and planting out at last during moist weather. To obtain a fine bloom, occasional watering will be necessary, and liquid manure may be used with advantage. But this trouble may be dispensed with, for if the soil is good, and well manured in the first instance, they only want a little watering for a week or two after being first planted, and for the rest of the season will take care of themselves. When first planted, slugs and snails are very fond of them. To prevent the ravages of these pests, plant with them a batch of lettuce, and while there is a young lettuce left the phloxes will be untouched. When established, vermin will not touch them. Phloxes make a good third or fourth row in the rear of geraniums and other hedders. The older and hardier kinds are superb shrubby ornaments; some of the pure whites, and rose and purple selfs, make huge tufts if left alone for several years, and flower earlier than the choicer kinds which are annually propagated. But for a fine bloom fit for exhibition purposes, the system of annual propagation should be followed, and a luxuriant growth should be promoted by affording them abundance of food. Named phloxes are classed in two sections: the first bears more or less affinity to *P. suffruticosa*, which flowers in July and August; the second to *P. decussata*, which flowers in August, September, and October. As may well be understood, many of the varieties partake pretty equally of the characteristics of both sections. The selection which follows is made to comprise an equal number of each section; but it may be well to add that the late-flowering varieties are those which are in the highest repute. There is great sameness among phloxes, yet in the selection here offered the most distinct kinds only have been taken; and though in many instances the brief descriptions are the same, the varieties themselves differ sufficiently to make them individually interesting, as they are all extremely beautiful, and well adapted to engage the attention of discriminating cultivators.—*Twenty-four Fine Early-flowering Phloxes.*—Abdel de Lepidinum, shaded rose; Abdel M. Khan, white and rose; Addisonii, white, carmine centre; Atlas, light rosy lilac; Colonel Dundas, dark purple; Colonel Maclean, rosy purple, shaded maroon; Countess of Haddington, purple-lake, crimson centre; Countess of Home, white, dark crimson eye; Countess of Morton, pure white; Lady Abercromby, white, crimson eye; Lady Musgrave, white, rosy crimson eye; Lydia, French white, rose eye; Madame Breon, lilac striped; Magnet, shaded peach; Magnificia, shaded white, violet eye; Miss E. Spedding, white, crimson eye; Mr. Hollandre, white, pink eye; Mr. Lithgow, shaded rose-puce; Mrs. Bald, silvery white, crimson eye; Mrs. Gillon, silvery white, pink eye; Pearl, French white; Princess, deep peach; The Bride, white, light rose eye; Volcano, dark rose, red eye.—*Twelve Fine Early-flowering Phloxes.*—Duchess of Hamilton, white, rose eye; Duchess of Sutherland, white, dwarf, very fragrant; Marbroe, white, purple eye; Mrs. Buttar, white, shaded pink; Mrs. Collins Wood, white, rose eye; Mrs. Sinclair Wemyss, white, shaded rose, very fragrant; William Elder, rosy purple, dwarf; Clio, white, pink eye; James Niven, rosy purple; Mrs. Russell, white, rosy purple eye; Cormack Brown, white, rosy purple eye; Lady Margaret Wellwood, white, crimson eye.—*Twenty-four Fine Late-flowering Phloxes*, suitable for a first-class border.—The following average eighteen inches high: Baron de Bar, blush, and carmine eye; Felix Forard, rose, pencilled white; General Brea, bright red, and dark eye; Laurelia, white, striped violet; Leodame, rose, and white eye; Madame Boucbarlet, white, and lilac eye; Madame Fontaine, white, red eye; Madame Gouvain St. Cyr, peach, carmine eye;

gather the pale primrose from the same banks, with the same joyous hearts, and are led for a time to forget the world, its gold and tinsel, and to think of higher and holier things.

To me the meanest flower that blows can give
Thoughts that do often lie too deep for tears.

WORDSWORTH.

Amongst the first of the wild flowers of spring the Violet stands prominent, coming, as it were, to prepare the way for others, regardless of the cold winds and cutting sleet. How exquisite is the perfume! Long before you can find out its hiding-place, you know it is somewhere near by the sweet scent that fills the air. What a modest retiring beauty it is, peeping up beneath the masses of its lovely foliage,

That strew the green lap of the coming spring!

Our woods are now covered with that lovely little flower the Wood Anemone, or flower of the west wind. Its delicate white or blush-coloured blossoms must make it a general favourite with all who love spring flowers; then there comes the Wild Hyacinth, with its pure blue bells—it used to be a great favourite with me when a child, then known to me by its common name of "Blue-bottles," and always held a place in my nosegay. Primroses,—the lovely pale primrose, so beautifully and strikingly described by the Bard of Avon,—Cowslips, and other plants of this genus, may be gathered in great abundance from the sunny hill-side and hedges.

Now in my walk, with sweet surprise,
I see the first spring cowslip rise.

MONTGOMERY.

Well do I remember what an exciting affair it used to be with us in hunting for the Oxlip, and with what an amount of anxiety it used to be brought home and planted in our little gardens, with the roots covered with soot and turned bottom upwards, firmly believing in that old belief that goes among children, that the next year it would come up one of those lovely dark Polyanthus; but, alas, our expectations were never realized. There are the lovely Periwinkles, with their starry blossoms of ethereal blue: it always seems as though they had borrowed their colour from the sky. I never see the Periwinkle but I think of the Primrose—the pale yellow blending so harmoniously with the pale blue. *Oxalis acetosella*, or Wood Sorrel: this pretty little flower must be too well known to require anything to be said in its favour; it is one of the most attractive flowers of our woods, its pearly white blossoms streaked with pink veins, and its leaves are of so fresh a green that the herbage around it looks quite dull by comparison. I must not forget the Daisies and Buttercups, and because they are so common disdain to give them a little space; they are beautiful gems, springing up everywhere—

Coming in the spring-time,
Of sunny hours to tell.

Then there are the Daffodils, with their large golden heads nodding to the passing breeze.

We have also the elegant blossoms of the Sloe, or Blackthorn: much has been said in the praise of it; it is usually considered to be the harbinger of warmer weather. Then the Hawthorn, which we should sadly miss for the decorating of the maypole. I do not think there are any wildings which give a more beautiful perfume, and certainly none present a more truly magnificent appearance than an old tree with its tortuous stem, making it look as if it were ready to break down under its immense load of pearly white blossoms. It is indeed a rich treat to sit, on a warm sunny day, beneath its shade, and inhale the delicious fragrance of its myriads of snowy flowers, and listen to the hum of the bees sipping the nectar from them. Oh, how glorious is the spring! Who is there that does not feel glad to see the cold, bleak, and dismal winter die, to give birth to the beautiful spring? What new life it seems to impart, and how it fills our hearts with that deep feeling of gratitude to the Creator, who flings such countless blessings around us! Surely there can be but few who are incapable of appreciating the beauties of this season, for the whole earth seems suddenly to have awakened into new life: the trees are bursting into bud, the hedgerows, and in fact everything, seem as though they were all with one accord proclaiming, "God is good," and proving most truly the great and infallible truths of Holy Writ, and speaking clearly to our hearts and intellects, that "while the earth remaineth, seed-time and harvest, and cold and heat, and summer and winter, and day and night, shall not cease."

FAUST.

A PAPER OF ODDS AND ENDS.

EVERYTHING GOOD *versus* A FEW THINGS WONDERFUL.

A few days ago a well-known practical gardener said to me, "It's a great pity there are not more papers treating on the individual growth of particular plants, and that by persons who are famous

for competing at our horticultural exhibitions." So far the observation may be correct; but we who contribute our mite to gardening literature have to remember, that the majority of those persons who keep a gardener or gardeners do so that they may derive home enjoyments in their garden, and are not always so particular about the size, style, or shape of a plant; but the freshness created by the constant changes presented to their view is of much more importance, and this can be always maintained by treating nothing as too insignificant for our notice, so long as it contributes to the useful in gardening. At this season of the year there is no lack of flowers for making the greenhouse and conservatory look gay. Azaleas and Epacris are being fast succeeded by the Pelargoniums, in all their glowing but various shades of colour. But ere the month of July has gone the pelargoniums will have fulfilled their part for this year. Of course Fuchsias will not have then passed their best; still we shall want other plants to keep up the interest. Now there are a number of plants in every way suitable, when grown in pots, for that purpose, but which are overlooked as unworthy our attention, partly on account of their cheapness. In respect of Balsams, Globe Amaranthus, and Cockscombs, their worth as tender annuals is well understood by all the fraternity of gardeners, so as to need no remark from me; but there are other subjects that claim our attention besides the latter, which will more than compensate for the trouble bestowed on them.

PHLOX DRUMMONDI.

We will begin with Phlox Drummondii and its varieties. These are raised from seed sown in February. When they have vegetated, and are strong enough to be handled, they should be pricked off rather thickly into wide-mouthed pots or pans, and then put in a close frame till they have afforded signs of beginning to root freely. When they have completed sufficient growth to begin to crowd each other, then carefully remove them, singly. If you can take them up with a little earth adhering to their roots, so much the better. I transplant them into 48-size, four plants to a pot. These, by being syringed and grown quickly, will, with staking, make some pretty pots of brilliant-coloured flowering plants, for mixing with *Lilium lancifolium* and *Zonale Geraniums* during the autumn months. They are excellent to cut from, because among them are some distinct self-colours, including white, red, and purple, and other shades innumerable. They must not be allowed to get dry, or they will very soon become infested with red spider. Having more than I required last year for pots, I planted a number of them thickly on a vine border, the surface spit of which was rich with manure. They grew fast into thrifty plants, presenting a fine show of bloom, from which I used to cut and come again, till the frost blighted their beauty.

ASTERS.

Here is another class of plants, especially the *Dwarf Pyramidal Bouquet* variety. They are well adapted for being cultivated in pots, and have a very fine effect when in flower. Give them plenty of pot room and rich soil. The *Ranunculus-flowering German Aster* is also very suitable, and has a very neat appearance when in flower, looking somewhat like a *Pompone Chrysanthemum*. A first-rate plant to cut from, on account of the number of flowers it presents, and the length of their individual stalks.

SINGLE FLOWERING PETUNIA.

The parterre is in general considered the proper sphere for these varieties of plants, and the double sorts for pot culture. But with all that, I always make it a rule of purchasing and sowing in the spring a packet of about six assortments. These, as soon as they are up and sufficiently strong, are treated in every way exactly as the Phlox Drummondii, excepting that, should they grow freely, I pot them into larger pots, and train them to a neat trellis made of flower-sticks. Among the high coloured flowers the effect is charming when in bloom, owing to the mass of flowers they present at one time.

THUNBERGIA ALATA.

How few care to grow this pretty, free-blooming, climbing annual, and what can be the reason why? I think I can solve the question, *i.e.*, this—the seed is vegetated, the plants are well up in the seed pot; but what follows? Why, being at a very busy season of the year, when most gardeners are doing their best to provide for the planting out of the flower garden, then it is the Thunbergias are allowed to remain undisturbed, partly from want of room, and partly from lack of pots. Then it is they become starved, and a ready prey to the attack of the red spider; whereas if potted as soon as they require it, and subjected to a warm humid atmosphere, with a good use of the syringe morning and evening, then do these desirable plants grow and flower freely, and if trained to a medium sized trellis, they make quite a change among other plants in the house during the autumn months. There are several varieties of *T. alata*, and all are good.

ICE PLANTS.

Mesembryanthemum crystallinum, the "ice plant," ought to be more extensively cultivated than it is, especially where there is much fruit grown, on account of its fitness for garnishing the dessert, and also for packing some of the better kinds. The past generation of gardeners paid some attention to the cultivation of it in pots—so much so that in most gardens of any pretensions you would generally meet with some well-grown examples in pots. The best way to proceed, where there prevails a demand for garnishing, is to pot them singly into 60-sized pots, and when sufficiently rooted to transplant them into a well-prepared bed of soil, about four feet wide, on a south border. If it has a slope, so much the better. As the branches grow, strew a good thickness of short grass for them to lay on; this will keep them clean and free from grit, and also preserve a genial moisture to their roots. In sowing cover the seed slightly with a little silver-sand. As soon as they appear above ground, remove them to a warm dry part of the pit or house; for should you continue to keep them in a moist atmosphere, very few will survive.

LOBELIA ERINUS SPECIOSA.

Quantities of this useful plant are now grown true from seed for bedding purposes, &c., but it looks superb when grown in 48-size or five-inch pots, for furnishing the conservatory during the autumn months, or for standing along the edge of a terrace-walk, or in any other similar position, or if suspended in baskets. Now is the time to select a few from among the stock, and pot them on for the purpose.

LILIUM AURATUM.

In trimming some roots of this beautiful lily, a short time since, some of the scales dropped among some cocoa-nut fibre refuse, and, when turning it over yesterday in the cucumber house, I found a single one throwing out a number of rootlets, thus confirming Mr. Prosper's assertion, in his admirable paper on this noble plant, that it could be increased from single scales. I have at least one hundred Gloxinia leaves, which I inserted in the fibre about three weeks since, now forming bulbs and rooting freely.

JOHN F. M'ELROY.

EVERLASTINGS.

Most of the poets who have taken the endless beauties of Nature for their theme, have sung more or less to the praise of these singular and beautiful plants, which have the peculiar property of retaining for an indefinite space of time, after the blossoms are gathered, the beauty of their flowers, which has made them almost, if not quite, universal favourites with those who take both pleasure and interest in those gems which Nature has so abundantly studded our greenhouses and gardens with. I shall not indulge in poetical quotations on this occasion, in justification for any word of praise that I may in the course of my remarks bestow upon them, but rather confine my observations to the cultural part of the business, which is a matter of some importance. Under the head of Everlastings, there is a great number of plants, very dissimilar in their habits, requiring very different treatment from each other, and extending in their native habitats over a vast geographical range: some species requiring the shelter of the greenhouse, with careful attention bestowed upon them to ensure good specimens; others requiring merely a little attention in the early stages of development, and then, in ordinary soils and situations, the cultivator will have an abundance of flowers for in-door decoration through the cold and cheerless months of the year, when vegetation is at its lowest ebb, with nothing to enliven the out-door scene with colouring matter but the berry-bearing shrubs.

I will first of all introduce the greenhouse kind, and begin with the *Aphelaxis*, for it accords with alphabetical arrangement, and, moreover, is one of the very best that we have under this heading. I cannot bestow unqualified praise upon it; for I should say this genus is one of the most difficult to grow that we have amongst the hard-wooded plants in the greenhouse; it bears but little rough treatment or neglect; but very few times of getting too dry, or a few extra soakings of water beyond the proper requirements of the plant, will most assuredly send it to the home from whence no traveller returneth; but when well grown, it is most unquestionably a glorious thing, and stamps the grower as a master hand. The soil best suited for it, or rather what I have found it to succeed best in, is thoroughly good peat and plenty of sharp silver-sand—nearly one part of sand to three of peat—and a few finely broken potsherds: preference should be given to peat with the fibre divided from the roots of heather, for it is much better than when it is principally composed of decayed moss and brake roots. The peat should be chopped up carefully, to prevent the loss of a particle of fibre. It is quite useless to attempt to grow this genus, and expect any amount of success in its cultivation, unless they are potted in really good stuff. First of all, in potting, the pots must be well drained with crocks broken small—say, for

example, to the size of hazel nuts. It does not do to use drainage the same as for common soft-wooded plants. Some of the roughest part of the peat must be put immediately over the drainage, to prevent its getting choked up. If the plants should happen to be any way pot-bound, the roots should be carefully disentangled without breaking them, to enable the young roots to push freely into the fresh soil. They must also be potted sufficiently firm to prevent the water draining through without wetting the old ball. I have known plants to die through that cause. The collar of the plant should be elevated very slightly above the level of the soil, to give it greater facilities to resist any tendency to decay at the base of the stem. All the plants should be repotted sufficiently early to give them ample opportunities of getting established before winter sets in, otherwise the soil will probably get sour, and consequently injurious to the plant's welfare. The plant in question is propagated by cuttings of the half-ripened side-shoots, taken off with a small heel attached, and inserted in sandy peat, with a layer of sand on the top, and covered with a clear bell-glass, and placed in a warm corner of the house. At best it is a bad thing to propagate, and very slow in forming roots. I should recommend the young plants to be bought in from the nurseries.

The undermentioned kinds are all first-class, and can be depended upon: *A. humilis grandiflora* is a beautiful rosy purple; *A. macrantha purpurea*, a fine dwarf-habited kind, with lovely large purple blossoms; *A. rupestris grandiflora*, fine large rosy crimson flowers. These three are really good, and after the culture of them is thoroughly mastered, the list can be added to with decided advantage.

Another very splendid everlasting which I have down on my list is the *Phænocoma prolifera Barnesii*. The style of this plant is peculiar and pretty, and the habit of it quite distinct from the other plants. The flowers are rosy crimson, large, and similar in shape to the preceding genus. It is one of the best and most telling plants for collections of stove and greenhouse plants at late exhibitions. This and the *Aphelaxis* will succeed under similar treatment. Both require to be grown in a light airy house, for they are impatient of being kept in a close damp atmosphere; whilst, on the other hand, they must not be exposed to cold and cutting draughts. If want of space renders their being put out of doors in the summer imperative, the plants must be sheltered from all heavy showers, or quick work will soon be made of them. I should advise their being kept inside if possible.

Before leaving the greenhouse, I must not forget the lovely *Statice Holfordi*. The flowers are produced in immense corymbs of an exquisite blue colour. It is a very handsome plant when in bloom, and the flowers are very valuable for mixing with the other Everlastings, being quite distinct in shape and colour from the stary kinds. The flowers are, moreover, very durable. I have a little branch lying before me as I write that I made a present of seven years since, and it appears nearly as fresh as the day I gathered it: most certainly it has been preserved with jealous care, and, as it is now an object of great veneration, I had better say no more about this particular branch. A soil half loam and half peat, with plenty of sand, with similar treatment to the others, will suit it.

Amongst the out-door Everlastings we have *Acroclinium roseum* and *A. album*, two beautiful half-hardy annuals from the Swan River. They have a neat compact habit of growth. The seed of these sown in March in a little heat, and potted on in some rich soil, not too close, will make nice plants for the conservatory in the autumn. It is not too late now to sow them. If not wanted for in-door work, they should be turned out into the borders as early in May as the state of the weather will permit. The *Helichrysum* presents a very important group, and is indispensable when vases of any size are to be filled, or wreaths made. Four good varieties are the white, rose, scarlet, and yellow. It is much the best to keep to a few really distinct kinds. When the convenience of a frame or a house is not obtainable, they may be sown in the open ground, early, where they are to bloom. The *Rhodanthe* is really a beautiful genus, and all the varieties are worth growing. First we have *R. maculata*, a superb flower, ray-florets crimson, with yellow centre. Then for whites there is *R. maculata alba*, similar in growth to *maculata*, with the same coloured disc as in the flower of that kind; but the ray-florets are a pure white. This is one of the best white Everlastings. Lastly, we have *R. atrosanguineum*. This species has a more dwarf habit and longer foliage than *maculata*. The flowers are of the most beautiful purple. I prefer sowing these in-doors in a little heat, and transplant to their blooming quarters. These also make very good pot plants. Among the yellows none beats the *Waitzia*. *W. acuminata* and *grandiflora* are the best. These are hardy, and can be sown in the open border with every prospect of success. We now come to the *Xeranthemum*. *X. atropurpureum* is a fine double kind; colour, as its name denotes, dark purple. *X. album plenum*, a beautiful double flowered white kind. In gathering the flowers for winter, they should be cut in dry weather and just as they open, but before they actually are open.

GEORGE GORDON.

Madame Rollison, dark rose; Madame Hantin, peach, and white eye; Marquisant, rose, striped eye; Orientale, bright crimson; Rêve d'Amour, peach, rose eye; Triomphe de Twickell, rose, striped white.—The following average twelve inches high: Alice Allain, white, and pink eye; Can didissima nova, white; Comte de Chambord, white; Henri Lierval, red-purple; Jeanne Rouillard, blush; Léon Corbay, red-rose; Madame Itendatler, white, and lilac eye; Orientalis, dark red; Primuleflora, white; Vice-President Adam, red.—*Twelve Fine Late-flowering Phloxes.*—Anne Boleyn, cream and pink, dwarf; Apollon, purple, and rose eye; Bourbonnensis, lilac, varying to white; Cedo Nulli, bronzed salmon; Fulvie, pale rose, white eye, dwarf; Hebe, lilac-peach, and dark cherry eye; John Salter, blush, striped rose; Le Lion, lilac, tipped purple; Louis Lierval, red-salmon; Madame Girardeau, pale blush, dwarf; Napoleon III., deep rose, striped; Princess Alexandra, white, crimson eye.

Fruit Garden and Orchard House.

APRICOTS.—Wall-trees are showing good crops this season, and must be freely thinned. At the same time, every curled leaf must be examined, and the villainous worm that causes it to curl must be destroyed.

FRUIT GARDEN.—The cool moist weather of the past few weeks has been of great service to trees planted late, but unfavourable to established trees coming into bloom, and in many instances plums and wall-fruits have set badly. Very little can be done by the cultivator to assist out-door fruits at this season, but the fruit garden must not be neglected. Pruning is of course completed, and nailing too we should hope. Trees newly planted may require stakes to prevent them being rocked about by wind. Wall-trees will require to be freely disbudded, but only a skilful hand should be set to such work. The object of disbudding is to remove all useless buds at the first start, to lessen the after-labour of pruning, and to prevent the gumming that too often follows pruning with the knife; also to save the trees the trouble of producing shoots that are not wanted. Never thin any tree severely at one time; if there are many shoots to remove, let it be done in several operations, so as not to cause any serious check to the flow of the sap. Raspberries not yet mulched should have two or three inches of fat manure spread over the ground as far as their roots extend. Trees under protection to have plenty of air, but do not remove the material yet.

STRAWBERRIES in the open ground are growing freely. If they have not been manured, it is yet time to benefit them by spreading a thick coat of good manure between the rows, and treading it down firm. As manure is generally scarce just now, Standen's Gardener's Friend, which is the best of all artificial manures, may be spread sufficiently thick to make a gray surfacing on the ground. As this, however, is a rather expensive preparation, we can only advise its adoption in small gardens, where a few fine strawberries are wished for from plantations of limited dimensions.

Greenhouse and Conservatory.

CAMELLIAS not yet started into growth *must* have assistance now, if no more than keeping rather closer and more moist than usual. But much better to raise the temperature and syringe frequently. The earlier kinds that flowered before Christmas, and have now completed their growth, must have less water, more light, more air, but must not be hardened too suddenly, as the weather is cold yet for them while forming their blossom buds.

CINERARIAS want abundance of water now; if allowed to be dry for any length of time, the lower leaves will turn yellow and fall. To make the most of plants, that are showing fine heads, and which are in other respects good, give them a shift to next size pot, but without breaking the ball. Give plenty of air when weather allows, and shade only when the sun is very powerful.

FUCHSIAS require shifting on; keep them warm; give plenty of water at the root and overhead; let the soil be rich and light, the position rather shady; do not allow them to stand in a draught, and stop where they are growing freely. Never stop and repot at the same time.

PELARGONIUMS showing their trusses will be greatly benefited by weak doses of clear soot water, or cow-dung water. Tie out carefully as required, never neglecting this operation, as if the shoots get hard before tying, the operation is apt to snap them. Shade as little as can be helped; the sunshine acting now on the advancing buds will ensure brilliantly coloured flowers, which will not be the case with plants that are much shaded during the formation and growth of the buds. Scorching must be prevented by ventilating freely during bright weather. But better to shade a little than have the plants scorched; however, the remark above is "Shade as little as possible." Syringing is not good for rough or soft-leaved varieties, but those with hard leaves will be benefited by it. All our first lot of blooming plants that have been gay since February have lately been cut down, and set aside in a shady house to break again. When they start we shall give them a shift, and then allow them to grow as they like for autumn bloom. Gauntlet and Brilliant submit to this treatment admirably, and furnish two useful crops of flowers within the year.

Stove and Orchid House.

STOVE PLANTS are in most cases growing freely, and a good heat must be kept up, with sufficient atmospheric moisture. Our seasons are short and dark for tropical plants, therefore the cultivator must make the most of the summer before him by promoting a free and early growth of every plant that should be growing now. Shift, train, and stop whatever requires either of those operations, never delaying an hour longer than can be avoided needful attention when the time has come for it.

ORCHIDS of many kinds are now growing freely, and a moist atmosphere and generous temperature are imperatively needed. Shading must be used, but should be removed about three o'clock in the afternoon, and not drawn down again before eleven next morning.

Forcing Pit.

CUCUMBERS in bearing to be kept as nearly as possible at a uniform temperature—a difficult matter with such variable weather as we have now. Air-giving must be regulated by circumstances: the really careful cultivator will shift his lights half a dozen times a day as bursts of sunshine, driving showers, or cold whistling winds succeed each other. The careless cultivator will have his plants half blown away at times through leaving the lights down too long, and at other times quite burnt up through not giving air when needed. The results of these several modes of treatment

may be guessed at. Fork up the beds, and apply linings if necessary; and as air-giving is a pretty safe operation now, the heat may be allowed to rise to rather a high pitch—much higher than would have been safe a month ago, when it was often impossible to give air. Many cottagers are now making up their beds for a summer supply, and will depend for plants on the generosity of gardeners. We trust all our professional readers have a few strong cucumber plants in pots to give to their neighbours who are neither rich to buy nor skilful to raise such things.

CHERRIES changing colour to have as much light and air as possible, and less water at the roots. Gross shoots may be better checked by stopping once or twice than by hard cutting back, which only results in another growth as rank as the first. Search wherever the leaves appear curled, and deal promptly with the cause of curling.

MELONS must have all the sunshine possible, and to prevent scorching give plenty of air during midday hours on very fine days. Plant successions, taking care to make good beds for them, as with plenty of heat at command a little air may be given night and day in mild weather, and a free strong growth secured without any forcing. Do not not be afraid to syringe melon plants over the leaves; a little of it on fine mornings is good until the fruit is swelled, and it tends materially to keep down red spider.

PEACHES in the early houses are swelling fast, and the final thinning must be accomplished without delay. Give a good soaking of water at the roots, and from this time till the fruit begins to show colour use liquid manure freely. Syringe regularly twice a day, and if possible with water that has stood in the house some time first. Keep a good heat now, and give air freely—50° at night, 75° to 90° by day, with sun-heat.

STRAWBERRIES must have abundance of light and air, and a decidedly cool temperature by night as compared with the day temperature—say 65° day, 50° to 55° night. Renew the dung in the pans, if you suppose they have by this time taken all the goodness from it. Where they have rooted into a bed of dung—a very good plan, of course—leave them alone; they cannot be doing better. Be attentive to binning the fruit, if quality is a matter of the least importance. Remove runners as fast as they are produced until the crop is off, when a few runners will be useful to furnish early plants for forcing next year. In many places the first lot of runners are now rooted, and almost fit for removal.

VINES.—The various attentions requisite as to assisting growth, bloom, and fruit, as vines begin their seasonal work, have been described at some length in calendrical notices during the past two months, and we refer readers to the various notices, requesting them to apply to their own particular cases the instructions given. Vines in cool vineries and on walls are growing now, so it is too late to prune, and not a good time to plant. Bunches formed will want thinning. Muscats must have a good heat. Grapes colouring, no matter of what kind, plenty of heat and a free circulation of air, and less syringing.

HORTICULTURE AT THE PARIS EXHIBITION.

The year which is to witness the crowning attempt of the Emperor Napoleon in behalf of peace and concord has already commenced. We begin to reckon the weeks that must elapse before the inauguration of his magnificent project, while time—*inexorable tempus!*—rapidly diminishes the fleeting hours. Among the many novelties connected with this gigantic undertaking, not the least important is the Exhibition of International Horticulture. This interesting department has been partially developed on numerous other occasions, and, in fact, there is not a park, public or private, which does not contain many specimens of rare and valuable exotics. But a brief description of the prominent part it plays in the forthcoming Exhibition will demonstrate that it has at last obtained that degree of attention and consideration which it unquestionably merits. The display of international horticulture will take place in a reserved or special garden separated from the rest of the park by an iron railing. Those who are familiar with the position of the Botanical Society's Gardens in Regent's Park will be at no loss to form an accurate idea of the case in question. It is bounded by the avenues of Labourdonnaye and Piquet, by the principal walk of the Park, and by the circular railway. Its area is rather over 70,000 square yards, and the main entrance faces the junction of the two avenues alluded to. The price of admission will be half a franc, and no further payment will be required in any part of the garden. There is a point connected with the arrangement of the admission into this garden which, unless it is altered, visitors will do well to bear in mind. Suppose a person already in the park wishes to view the garden, he pays his half-franc and passes in; but if he does not care about seeing the garden, he pays no more than the sum he has already paid for entrance into the park. Now, a person entering the garden from the exterior—that is, by an entrance which does not open on the park—will be obliged to pay not only the half-franc for admission into the garden, but also the sum for admission to the rest of the Exhibition, whether he wishes to go there or not. Thus, if a visitor had seen the Exhibition, and wished to pay a visit specially to the Horticultural Garden, he would have to pay over again for what he had already seen and might not wish to see again. This unwise arrangement, which we hope never to witness carried into effect, will cut two ways: in the first place, it is manifestly unjust, and, secondly, it is a trap to catch the unwary, as many will probably enter by the garden entrance, and have to pay their half-francs without caring to see the garden at all.

Entering by the avenue of Tourville, a splendid panorama bursts on the view. Not a vestige of the Exhibition building or its numerous appendages is visible, but the limpid surface of a vast lake relieves the verdant hue of the expansive sward. From the centre of the former rises a lofty mass of superincumbent rocks, surmounted by a cascade, which in its never-ceasing flow restores to the lake the waters to which it owes its life. The sward is crowned by a small crystal edifice constituting the Winter Garden, and appropriated to the reception of exotics. On each side of this building are formed two artificial gorges or ravines, at the end of which the ground rises, and on the level spaces are a couple of greenhouses, surrounded by ponds filled with aquatic plants. The entrance to these gorges is guarded by masses of rockwork, and embellished with lakes and cascades, while through the falling spray can be dimly seen the gloomy mouths of grottoes and caves, alike inviting the curiosity of the visitor, and by their sombre appearance forbidding him to gratify it. Towards the right of the house devoted to the orchids stands a large semi-circular building with an elegant colonnade and portico. It is the diorama, and is a peculiar feature of the Exhibition, and was invented by M. Rouzzi. As it was impossible to collect all the known plants of the world in one spot, a number of photographs,

amounting to 4,000, of the most interesting specimens were obtained in different lands and forwarded to Paris. In order that these might be viewed of the natural size, fifty magnifying-glasses are provided for the purpose, to each of which is attached a handle. By turning this handle the visitor causes to pass in review before him about eighty different specimens of foreign plants. A natural fac-simile of the photograph is appended to each, where it has been possible to procure it. Passing the collection of fruits and vegetables, we find ourselves under the palm-trees, by the banks of a river. Following its sinuosities, they lead to a lake filled with rare and curious fish, while its banks are bordered with plants of a nature seldom seen in our northern climates. In the large lake previously mentioned are the famous carp which were brought from the ornamental water of Fontainebleau, by permission of the Empress. They are of an enormous size, and are said to be two or three hundred years old. The submarine chamber, although not strictly connected with our subject, deserves notice. It is about 60 feet in length, and the first impressions created by entering it are those of mingled astonishment, fear, and admiration. The sea is above, below, on all sides; the finny inhabitants congregate in myriads to gaze upon their unknown visitors, and sea-horses and dolphins sport and gambol above their heads. A large oyster-bed, and marine plants of every hue and shape, serve to increase the illusion. Near the marine aquarium is the building devoted to the reception of Brazilian orchids; an elegant kiosk for *bouquets à la main*; a hothouse for large forced vegetables; and a beautiful little crystal palace, where, surrounded by the fruits and flowers indigenous to their tropical climate, the humming-birds pass the livelong day, flitting from one flower to another with never-tiring wing.

Situated in the avenue parallel with l'Ecole Militaire is the conservatory appropriated to the reproduction and growth of plants, and which, of all others, claims the first attention of the horticulturist. Let those who are sceptical on the subject of rapid growth enter and observe how the flower is born, grown, and multiplied, not by a process contrary and inimical to the laws of nature, but by forcing her to proceed at full gallop, by compelling her to accomplish her results in the shortest possible space of time. It is not too much to assert that the present is a forcing age, no matter in what light it may be viewed. Men never forced their brains to so injurious an extent as they do now. The minimum speed of the race of life has changed from the post-horse to the locomotive, and a man lives now in twenty years more than his great-grandfather did in fifty. It is especially a fast age—fast for the mind, fast for the body. We not only force ourselves, but everybody and everything connected us. We force all our mechanical means to the utmost, we strain the steel and stretch the iron until they can bear it no longer, and lamentable catastrophes bear witness to the truth. Discovery and invention were never so rife as now, and man's intellectual faculties are ever on the rack to keep pace with the strides of scientific investigation and research. To take relaxation and repose is to be idle, to lose time; and thus the only chance for a man to attain to the "three score and ten years" is destroyed by the restless system of life of the present century.—*Farmer.*

HINTS ON THE CULTURE OF TRICOLORED PELARGONIUMS.

It may appear somewhat presumptuous for one who has had little more than three years' experience on the subject to give that limited knowledge to the world, but my apology is that, having been frequently solicited by ardent admirers of this interesting class of plants, and feeling desirous of helping on that cultivation and wide diffusion which their great beauty justly entitles them to, I have been induced to pen this article, in the belief that it may prove serviceable to some who are but beginning to collect and cultivate these illuminators of the garden and conservatory.

A retrospective glance of twenty years or less brings to mind but few instances of variegation of the Geranium, the white or silver-edged leaf being by far the more numerous, *Golden Chain* and *Variegated Nosegay* being the only yellow or golden-edged varieties generally known. From these (more particularly the former) most of the Tricolors first introduced were obtained; but about the same period there were raised some eight or ten other yellow variegated sorts, most of which are less conspicuous, and were brought out before *Mrs. Pollock* and *Sunset*; these two sorts may, therefore, be considered the first step in advance of real Tricolors of the golden-edged class.

At the same time, several decided improvements were being effected among the silver-edged varieties, *Burning Bush* leading the way (raised by Mr. Baskett); the *Italia Unita* is now considered the best of those yet distributed.

Without doubt, much of the progress of this interesting development of brilliant-coloured leaves is due to the skill and perseverance of the esteemed raiser of *Mrs. Pollock*, *Sunset*, and *Italia Unita* (Mr. P. Grove), to whom belongs the chief place of honour of leading the van in this work of beauty.

The writer of this article desires to point out the best method of cultivating these plants in the garden and greenhouse.

In commencing the former part first, it may be supposed that the middle of May having arrived, and a sufficient stock of plants secured for the purpose of planting in beds on the lawn, here two or three preliminary matters should be referred to: First, The Drainage of the Beds. If the surface soil lies on gravel, or any open substratum which permits the passage of water freely, it is well; if, on the contrary, the subsoil is clay, or of any other retentive material, it should be taken out, and nine inches of coarse brick rubbish or broken pottery put in, placing immediately over it some fresh turf from a meadow, the grass under; over this, fill in the upper soil, which should be a light sandy fibrous loam, to which add a good dressing of decayed leaves or well-rotted stable manure; if on clay land, the bed may be raised two or three inches, as a further security against wet and, consequently, cold, which is very prejudicial to the well-doing of the plants. Avoid sunk beds, they are so many small reservoirs for surface water in rainy weather; the soil then becomes saturated, the roots diseased, and that spotting of the foliage and rottenness of the young points occur; this effect is more certain if the atmosphere becomes cold for any length of time after heavy rain.

Many growers use a portion of peat soil in the compost for growing these plants; this has no other influence than lightening the soil—leaf-mould, rotten manure, and cocco-nut fibre refuse answer the purpose much better. Our experience is against the use of peat, on account of a greater portion of plants grown partially in it becoming much more

diseased than a corresponding number grown in soil such as recommended above. Where the natural soil is deficient of sand, a portion of river or any other clean free sand may be added.

Choose the situation for beds lying as much to the south as possible, and also protected from strong cutting winds, which have a tendency to turn the edges of the leaves brown.

Various plans have been adopted in order to show up the colours of the leaves when bedded out in masses—the neutral tints of the Centaureas have been used by planting them as edgings round the beds, and in mixing them among the plants. One of the best effects yet seen was when *Tobelia speciosa* was planted plant for plant among the tricolors, the blue forming a very effective and pleasing ground colour, on which the gold and crimson leaves of the tricolors shone out brilliantly in the summer sun. Many other experiments will be made during the season for this purpose: at present our experience is but limited.

The history of bedding out silver Tricolors has yet to be written. At present none of those distributed approach in excellence the golden-leaved varieties; there are several now in existence well adapted for this purpose—time alone will enable us to determine which are the best.

Having enjoyed the beauty of these plants during the summer season, and September drawing near, the utilitarian thought arises of securing the increase. If the season is damp, the cuttings should be taken off not later than the second week of the month; if the situation is warm and airy, the operation may be deferred for a week or two longer, but there is danger from frost and wet in so doing; in the earlier part of the month the cuttings are more fitted to root and get established before winter: these should be inserted in thumb-pots singly, using very sandy loam only. Place the pots on gentle bottom heat, using water very sparingly, and in three weeks they will be sufficiently rooted.

By the middle of October, at latest, the old plants should be carefully lifted, the soil shaken off the roots, which should be slightly trimmed; place them in as small pots as will conveniently contain them; put them on gentle bottom heat for a fortnight, when they may be moved to the greenhouse, on airy shelves, using water sparingly during the winter months.

GREENHOUSE OR CONSERVATORY CULTURE.

It is here, in a greater degree than in the open garden, the writer anticipates an increased amount of pleasure will be derived. Under glass the plants are unaffected by rain and storms; here the amateur may enjoy an uninterrupted survey of the wondrous changes wrought (instrumentally) by the hand of man. To the uninitiated it may seem enough to possess one or two varieties, but to the trained eye of the connoisseur the distinguishing characteristics of even one hundred varieties are plainly visible. And who can describe the huddling forth of the young foliage in spring? each variety unfolding its glorious colours in a greater or less degree, some more gorgeous at first, others attaining to their full tints at a later period of the season, deepening on even to latest autumn. The time will come when, for the proper cultivation of these gems of Flora, a whole house, properly constructed, will be devoted to them; they need this, and well deserve such convenience. Consider the enduring nature of their beauty all the year round—contemplate the vast variety of shades of colour, from white, silver, cream, to sulphur, lemon, yellow, and orange on the edges of the leaves; again, admire the rainbow hues of the zones, varying in the depth and shades of each colour from pale rose to pink, carmine, lake—even as deep as purple among the silver class; then glance at the zones of orange, deepening, in various varieties, to red, from red to rich brown and crimson in the darker, and to scarlet and vermillion in the lighter shades. How magnificent a well-grown plant of *Sun ray*, with its intense fiery crimson zone, clouded with jet black, the sight of which drew forth the simple yet natural similitude of the sun setting behind and shining through a black cloud, from the lipa of a working gardener!

There is yet another feature of these plants requiring notice. Some of the varieties produce leaves of a light hue, which intensify in colour as they advance in age; others, again, are dark in their first state and get lighter. Again, one or two varieties in our possession produce leaves both dark in zone and bright yellow on the edge of the leaf; these change gradually; the zone becomes scarlet, the edge of the leaf nearly white. Imagine these various shades on a single plant—how beautiful an object! But when a house is properly arranged, the varieties skilfully contrasted, so as to blend and harmonise their colours, however frequently you may visit them they never pall on the appetite of taste, for the simple reason that (unlike the most beautiful flower) they are ever changing: you walk through them to-day and admire; to-morrow they have changed; a development has taken place; young leaves have grown larger, colours have become deeper, paler, or brighter, and, if carefully managed (though, it must be admitted, in a diminished degree), the beautiful tints may be maintained throughout the winter. To obtain these results, let us proceed to describe the conditions necessary to their health.

The tricolor delights in light, free air, and during the winter months and all cold weather a dry atmosphere; in hot summer weather a thin shade is requisite from ten a.m. to three p.m. To describe a structure suitable for these conditions, let us propose a span-roofed house, as admitting the greatest degree of light: this should be at the angle of 45°, with a roof ventilator the whole length of the house—the width should be say twelve feet; side lights may be dispensed with, but ventilators, extending the whole length on each side, should exist. These may be near the ground, so as to admit the air under or opposite the pipes, thus warming it as it enters the house; the inside needs but a row of slate slabs, three feet six inches to four feet wide, on each side; the pipes for heating should be two rows, of four inches, on each side. It is, by far, better to have too much heating power than too little in this uncertain climate.

In regard to temperature, there is no doubt that most variegated plants are more tender than the same species green, and tricolors require from five to ten degrees more warmth than the ordinary zone. But to have them in colour in the autumn and winter requires air as well as heat; there must, therefore, be a corresponding amount of heat kept up to modify and warm the admitted outer atmosphere—fifty degrees is the minimum and sixty the maximum at which, with admitted air (without sun-heat), it is desirable to keep them—and if this can be done night and day (except in dangerous frost) the plants will grow more robust; in sunny days, of course, the heat will range higher, but if the ventilation is good, eighty degrees will not hurt the foliage or deteriorate the health of the plants.

The proper periods for shifting on these plants vary with the intention of the grower and the condition of the plants, but the first spring shift should not take place before the middle of February, and if the plants have

been kept at a lower temperature than here indicated, the operation may be deferred to the end of the month; these may be again shifted, according to their strength of head and root, into large pots for the season, about the end of April or middle of May. When autumn arrives, such as have been cut down may be disrooted and repotted in smaller pots, as before directed for out-door plants from the beds. All those plants intended for winter decoration should consist of young plants potted in July; these will not require to be shifted before February.

Watering should at all times be commensurate with their actual want at the time. Never water them so heavily as to last two or three days beyond their need; this is too frequently done by inconsiderate persons, particularly if the plant be rather dry and the day warm, whereas no one knows what a day may bring forth; many plants are ruined by this overdose of water, followed by cold cloudy weather, or an accidental lowering of the temperature of the house. If these remarks apply in summer, they have double force in winter, when very careful watering is requisite.

Manure of various kinds has been tried in liquid form, but without any apparent benefit or superiority over the plants grown in soils as before recommended, the conclusion arrived at being against its use, as detrimental to health, evidenced from a number so treated becoming sickly in winter in a much greater degree than those grown in sandy loam and decayed manure or leaves. In potting for winter, use a larger amount of drainage (say one-third), and pot rather lighter than for spring; it is a good plan to secure the main stem with a stick to steady the plant; tie out the laterals to admit light and air among the foliage, and be careful to remove all decaying flowers, leaves, and even the small leaflets; if not removed, they generate mildew or fungus, which attacks the bark, ascends to the tender centre of the shoot, and causes that punctured appearance on the foliage, frequently destroying the plant.

In conclusion, reference might be made to the new sorts now offered for the first time, but it is preferred that these should speak for themselves. About one hundred varieties will this season be kept on view, and every explanation required freely given. The structure in which they are grown will be found in some respects novel and useful for the proper cultivation of the plants, and a visit to Dulwich will well repay the cost and trouble incurred in obtaining a sight of the largest collection of Tricolors in the world.

Nursery, Park Road, Dulwich.

F. T. SMITH.

Miscellaneous.

AUSTRALIAN SPINACH.—At the commencement of last year Mr. Ramel, who introduced into the French colony of Algiers the *Eucalyptus globulus*, received from Australia a new vegetable. His friend Dr. Mueller, of Melbourne, had it sent to him as a substitute for Spinach; it is superior in every respect to that vegetable, easier of cultivation, and of an enormous and rapid growth, less subject to run to seed, and also of better flavour. He called the plant New Queensland Spinach. The New Australian Spinach is, however, a better name. It belongs to a group in which is comprised our common spinach; it answers botanically to the *Chenopodium auricomum* of Lindley, who described it in a few words in Mitchell's Journal on Tropical Australia. It grows abundantly in the east part, following the course of the River Narran, and it is again found in Queensland. The *Chenopodium auricomum* is an annual, with a long stalk rising to a metre. In its general appearance it resembles *Chenopodium hybridum*, that troublesome weed which overruns our fields, excepting in certain points, especially in the inflorescence, which differs. The stalk is erect, robust, angular, fluted, streaked with a violet kind of red. As regards the eatable qualities of the plant, we have recently gathered an abundant harvest of leaves from two or three plants growing in our garden. These leaves were put into boiling water to bleach them, and they were then cooked as an ordinary dish of spinach, with this difference in favour of the new plant, that there was no occasion to take away the threads which are so disagreeable in chicory, sorrel, and ordinary spinach. We partook of this dish with relish; the flavour, analogous to spinach, had something in it more refined, less grassy in taste. The cultivation is easy: sow the seed in April in a well-manured bed, for the plant is greedy; water it. The leaves may be gathered from the time the plant attains 50 centimètres in height. They grow up again quickly. In less than eight days afterwards another gathering may take place, and so on to the end of the year. —*Journal de la Ferme et des Maisons de Campagne.*

JAMAICA ARROWROOT.—The development of the arrowroot crop as a staple product of Jamaica, illustrates in a forcible manner the intimate relations that subsist between the arts of life and prevailing forms of government, or, in other words, between industry and politics. The Jamaica Cotton Company was formed for the purpose of restoring the fortunes of the island by the cultivation of cotton, the temptation to the experiment being the high price of cotton consequent on the American war. But scarcely had the company got fairly to work when their operations were arrested, and a considerable portion of their crop destroyed by the Jamaica riots. Fearing to proceed according to their original plans, they next tried the cultivation of arrowroot, and succeeded admirably; and through Mr. Wesley, of 81, Fleet Street, we have been favoured with samples of the produce. It is pretty well known that the cheap arrowroot commonly sold is simply a bad form of potato starch; but this genuine article is offered at an equally low price, and will, we trust, drive the spurious arrowroot out of the market. Thus there is a gain at last—to the public at least, if the Jamaica Cotton Company are not greatly enriched by the proceeding. Doubtless the business will pay them too; for the ordinary price of Bermuda arrowroot (2s. per lb.) is extravagant, considering how abundant is the production in suitable climates, and how simple the manufacture. The Jamaica arrowroot is sold in 10 lb. tins at 10s. each, and will no doubt be purchased by benevolent persons to give to their poorer neighbours, as well as by heads of families and managers of public institutions, amongst whom hitherto English arrowroot has been held in too much favour, because of its apparent cheapness. But a bad article is dear at any price.

THE CULTIVATION OF THE MULBERRY TREE.—The following information on the cultivation of the mulberry-tree in the kingdom of Siam will not be without interest. It is chiefly in Laos, or the kingdom of Lieng-Mai, a tributary to Siam, that the rearing of silkworms is carried on on some scale. The greater part of the silk produce is employed on the spot by native industry, so that very little of it comes to the Bangkok

market. The annual export of this product does not exceed 50,000 kilogrammes (50 tons). Of late years several lots of it have been shipped for Europe. The Laos silk is of an excellent quality, but the means used for spinning are very imperfect, so that this product is placed amongst the inferior qualities. The Annamese, who are established in the neighbourhood of Bangkok, rear silkworms, but in small quantities. They understand the method of their treatment better than the inhabitants of Laos and Cambodia, and their products are better able to compete with the good qualities of China and Japan; but the whole of the silk produced by them is used for domestic purposes, and none is found in commerce. The mulberry is the object of special care in Laos and Cambodia; but it equally succeeds in all the Siamese provinces, and the rearing of silkworms might be successfully carried on there, as proved by the attempts at Bangkok, which is less advantageously situated. It appears up to the present time that no epidemic disease has made its appearance either in Laos or in Cambodia. The Annamese, employed in the rearing of the silkworms from eggs from Laos, have observed, that after they have been re-produced three or four times a fresh stock should be obtained; this, however, seems to indicate a germ of disease. Should the worms a few days after hatching seem ill and not likely to succeed, the air is changed by taking them somewhere else; this often produces the desired result. If some crops are lost it is not due to the epidemic. The eggs are transformed into cocoons at the end of a month. Three or four crops of silk are usually produced yearly, during the months of May, June, July, and August. They can be reared during other months of the year, but with less success.

PEACH-TREES INJURED BY WASIL.—I am glad to see my old friend, Mr. Brady, endorsing your advice to a correspondent, not to disturb his injured peach-trees. Permit me to give the result of one of my many little mistakes made through life in experimenting. Many years ago I had the management of two very large peach-houses, one of which I resolved to force very early. The trees were large and excellent of their kind, but awfully infested with what gardeners call scaly bug. Now to get rid of this, I consulted several intelligent neighbouring gardeners, being then myself very young, and never having seen so desperate a case before. In doing so, I got as many different recipes as I had consulted parties. Among these compositions one contained common salt, and another spirits of turpentine. Whether it was that I exceeded the quantity in each of those ingredients or not, the fact was, I killed every young shoot on my trees down to the previous year's wood. The consequence was, I had no fruit that year, but the finest show of young fruit-bearing wood I ever saw, either before or since. The year following I had such a crop of fruit as surprised myself and all others who saw them in the market or elsewhere. The average price of those peaches sold in the market was 15s. per dozen. I could say much more on the danger of using strong chemicals in the cleansing of plants and trees, were it not the sciences being now so well considered and explained, both theoretically and practically, in the education of young gardeners and farmers of the present day—compared with the days of my early pupillage, supercedes such a necessity.—EDWARD CARROLL, *Glusnevin, Dublin, in "Irish Farmer's Gazette."*

TO PRESERVE APPLES.—Two years ago a farmer in the Palatinat found in the spring an apple in the most perfect state of preservation that had been lying all the winter in a heap of leaves of the maple tree in his garden. Last autumn he therefore packed his stock of apples in casks with dried leaves, and in the spring found them in the same state of preservation, and as firm and juicy as when first plucked. He has now published the result of his experience in the German papers for the benefit of the public.

EDUCATED SHEEP.—At the exhibition of fat cattle, sheep, pigs, &c., held at Stanley in the week preceding Christmas, 1866 (says the *Liverpool Mercury*), were two sheep, six months old, of an extraordinary size, and in splendid condition, reared entirely by hand, and born in the neighbourhood of Broad Green. Their food was cow's milk, oats, grass, and latterly mangolds, turnips, and hay. Their owner is a youth, who watched their growth with intense interest, and always personally superintended their treatment. They soon became greatly attached to him, and followed him like a dog for any distance. They were taught by him to jump and perform some gymnastic feats, and likewise to run well and steadily abreast in harness, in which the female by her action and graceful movements was particularly distinguished, the ram being occasionally somewhat obstinate and more difficult to manage. When the owner went to the exhibition, the female sheep, seeing him at a short distance, without any previous intimation of voice or gesture, made a sudden and desperate effort to get to him, but, as it happened, stuck fast half way in the attempt; both the sheep, however, immediately recognised him, thus displaying an amount of intelligence not ordinarily supposed to belong to these but too frequently much-abused animals. When the exhibition terminated on Friday evening, the sheep were returned to their owner, who intends to continue the course of instruction already commenced so successfully. It may be stated that no prizes were offered for specimens of this description, but the certificate of "highly commended" was freely awarded to them by the judges.

VILLAGE NATURAL HISTORY SOCIETIES.—In most places there is at least one person who takes an interest in nature's works. Very probably he is in humble circumstances; in all likelihood he is considered harmlessly insane by his compeers, or, as they would phrase it, "a button short." There are also usually two or three more who use their eyes, and know something of the habits of birds, insects, or plants. If these three or four would meet together and talk the matter over, they could arrange affairs according to their own convenience; and, all being straightforward, we may suppose them to agree in inviting as many people as they think likely to come, to attend at such a place on such a night. In villages it is always easy to hire a room for such a purpose at a trifling cost; and in them, as in towns, one or more of the parties interested will, in all probability, be able to lend a room or rooms, on one occasion at least. Where practicable, the sociability of the evening is much enhanced by having tea or coffee handed round before the real proceedings begin. The conversation which then arises serves to place at their ease those who might otherwise be prevented by shyness from taking part in the business of the evening. Indeed, our experience leads us to believe that naturalists seldom find any difficulty in conversing with one another, when once the ice is broken; and the pursuit of nature is so truly catholic that Churchman and Dissenter, Papist and Protestant, can alike join in it without any fear of treading upon one another's (mental) corns. The humanising influence of natural history is certainly not the least of its many charms; and it is pleasant to notice how the instinctive goodwill-feeling, which all true naturalists possess, enables them to avoid topics which are likely to be in any way distasteful to those with whom they are temporarily associated.—*Hardwicke's Science Gossip.*

Correspondence.

FORECASTING THE WEATHER.—A mode by which the weather could be certainly told—or, as the phrase is, forecast—would be a great boon, not alone to gardeners and farmers, but to all other persons, pleasure seekers amongst the number. I notice a remark you make as to Sir J. Herschell's opinion; in that I entirely concur, for I think there is very much sense in the old distichs and notions of world-long proverbs. For many years (six or seven) I have followed a weather guide which I have really found a guide—not *always* certain, but generally a most capital prognosticator. Why it should be so passes my art to discover. Why particular days should be indices to the weather to occur for some twenty days I have been unable to find out. To give you the result of my notes for seven years would take up too much of your valuable space. The general conclusion will be sufficient for the purpose. I met with somewhere (I think in the *London Journal*) the experience of a French general, whose name I forget, who was remarkable in having generally fine weather for his expeditions. The scene of his operations was Algeria. His good fortune as to the weather was remarked, and some friend, in conversation with him, joked as to his great intimacy with the clerk of the weather. The general, with a serious air, explained to him his mode of observation, and said he had remarked that the fourth, fifth, and sixth days of the moon were the indices to the weather to be expected for the remainder of the moon. As was the fourth and sixth days of the moon (as to wetness and dryness) so would be the following days of the moon, and this would be found a true guide eleven times out of twelve; and so of the fifth and sixth days of the moon nine times out of twelve; but if all three days were the same, then the guide was unerring. How true this might have been in Africa I cannot tell; the result of my observations leads me to believe that there is very much truth in the general's saying. I have found, as a general thing, that the days indicated foretell the weather until a few days of the end of the moon. If either the fourth or sixth days have only one shower during the time, then the remainder—say for about eighteen days—will be more or less wet (the day, of course, includes twenty-four hours), and so with the fifth and sixth days; but if it should be that the days pass without wet, however threatening, then may be expected fine weather. You have here my experience for several years past, and taking it as a guide, I have found it as a general thing one to be depended upon. There is a saying down here, and doubtless in other places, that we have two winters, the latter one lasting during the time the blackthorn is in bud and blossom, and by the people about here called blackthorn winter. I have noticed, however fine the weather may have been preceding this time, that when the time comes there is a change, and often an unpleasant one. I think of this latter case the explanation may be, that we have east and north-easterly winds about that time. This year appears to be a departure from the general rule, if it can be so called. The blackthorn is forward in bud; the weather is open and mild; what it may be when in blossom remains to be seen. Sailors have a rule which is said to be unerring—that according to the time of the new moon (*i.e.* the hour) so will the weather be wet or dry. I have a sailor friend who relies greatly upon this method, and when I see him, if it would prove at all interesting to your readers, I will get from him the exact data, and forward the same to you. S. B.

THE GARDENERS' COMPANY.—James the First was an eminent patron of gardening: he is especially distinguished in the annals of the art for having, in the third year of his reign, formed the gardeners of London, and those within a circuit of six miles round it, into a corporate body, consisting of a master, wardens, assistants, and commonalty. No one was to practise as a gardener unless approved of by this company within the above limits. They were empowered to examine all, and seize such seeds or other horticultural products as they might esteem defective; also to impose fines, and the offenders by the magistrates to be committed to prison until they were paid. This *charter*, as stated in its preamble, was granted on account of the great disappointment caused to persons having defective samples supplied to them. It was confirmed in the fourteenth year of the same reign. This manifests how widely and generally gardening was pursued, and that a disappointment in its products was esteemed by the monarch worthy of the exercise of his prerogative to prevent. An institution arose in the same reign that required no such restricted approbation. An academy was formed in Scotland for the improvement of gardening, which was in existence as late as 1724. It had professors, who delivered lectures. The same monarch appointed a royal botanist in the person of M. de Lobel. W. G.

GARDENING IN AMERICA.—In answer to a "Young Gardener," who requests information as to gardening prospects in America, I beg to state that a friend of mine, who has had great experience as a gardener in this country and in America, writes to me that gardeners are much in request in Virginia and the Carolinas. "Young Gardener" should write to Colonel Cannon or Mr. Macdonald, of Cannon's Vineyard, Portsmouth, Virginia. These gentlemen are establishing vineyards and large fruit-gardens in various parts of the States, and could employ well-qualified men as superintendents. The average wages are about 400 dollars per annum, with board.

Montrose.

P. MACDONALD.

ARABIS LUCIDA VARIEGATA.—Will you kindly inform me whether it is possible to get this for bedding purposes at any of the nurseries near London, for I have been unsuccessful up to the present time? It is very distinct from the other varieties. You would hardly credit it, but on writing to a nurseryman who advertises largely in your pages for it, he sent me two plants of variegated and four of the common Arabis. It has been used for two seasons at Kew as an edging with excellent effect, but it does not seem to have got into the hands of the trade to any extent up to the present time.

A VARIEGATED ALPINE.

[*Arabis lucida*, whether in its green or variegated state, is so distinct from every other Arabis, that for a nurseryman to supply another for it is unpardonable. Two years ago we saw a great stock of it at Mr. B. S. Williams's Nursery, Holloway; whether he has any stock of it now we do not know. Lately we have seen it at the Hale Farm Nursery, Tottenham, but cannot say if there is any quantity of it there. It thrives on the sandy soil of Kew, and that is the only great place near London where it may be said to do well. Usually it is a bad grower, and too much of an Alpine plant to do well on level ground and in heavy soil.]

* * * SUBSCRIBERS requiring back Numbers or Parts of THE GARDENER'S MAGAZINE to complete sets, are requested to order them through their bookseller, who can always procure them from the London publisher. At the same time, instructions should be given that in case some of the numbers required are out of print, as many as can be had should be sent, it being a rule with the book collectors, if they cannot obtain all the numbers wanted not to take any, saying they are "out of print."

Replies to Queries.

Plants for Borders.—Sea View.—You may plant any and every kind of herbaceous plant now; in fact, they may be planted at almost any season, especially when purchased in pots. It is difficult for us to advise people what to plant. We are always treating of good things, giving lists of good things, describing them, offering directions for their management, and so on; but to make our information applicable to particular cases is not always possible. If you really want to embellish a wide border, begin at once, and continue all the summer long to buy and plant, as opportunities offer—that is the way to do the thing well. Procure now plants of yellow Alyssum, white Arabis, a few Aubrietias, Aquilegias, Delphiniums, Geranium sanguineum, Geranium aconitifolium, Sweet William, Campanula alpina, Barbelieri, carpatia, persicifolia, trachelium, a few Convolvulus and Polygonatum, a few Pinks and Carnations, Lychnis flos cuculi, Chalcedonica and Ilaeana, Lysimachia thysiflora, half a dozen Potentillas, a collection of double Primula vulgaris, Rudbeckia grandiflora, a few of the Saxifragas, Statice, Anemone Japonica. It is not the best time in the year to plant such things, but there is a rule followed by experienced collectors and cultivators of herbaceous plants to this effect: the best time to plant or propagate is whenever you can get them. In some good nurseries, collections of herbaceous plants are kept in pots; but some things, such as Irises, for example, cannot be dealt with in that way. Consult the O'Shane's lists in the issues for May 27, 1865, and June 23, 1866. In the GARDENER'S MAGAZINE volumes for 1864 and 1865, will be found a series of papers on all known hardy herbaceous plants, arranged alphabetically, with advices on cultivation and selections of the best varieties. The fact is, we have written so much on the subject, that past issues of this work contain an absolute plethora of information.

Planting Beds.—S. W.—Better two kinds of Geraniums than mix Perilla with them. If these are small beds, Christine, with a scarlet, would look well in them, and be better adapted for the position. Wellingtonias may be planted as easily as any other trees; there is just no mystery at all about the matter. The best time to plant them is October. Next time you plant, knock all the earth from the roots, and spread them out carefully. Somewhere about a year ago we advised on the planting of Araucarias; if you can find the paragraph, you may take it as your guide next time you plant a Wellingtonia.

Books.—C. B.—"The Botanical Magazine" is issued monthly at 3s. 6d. per number; any bookseller can obtain it, but you must not expect to get it anywhere without ordering it first. The monthly with pictures you inquire about is not a good book; it is, in fact, almost defunct. As everybody reads French now, Verschaffel's "L'Illustration Horticole" is becoming a favourite in this country. You can obtain it free by post by ordering it through Mr. Silberrad, Harp Lane, Tower Street, London, E.C.

W. D.—The "Rose Book" will initiate you in the art of propagating roses. **Rellaw Maharg.**—Possibly an opportunity may occur during the summer to give attention to the enigma you propound, but just now it is impossible. It appears that many situated as you are make but a poor use of the numerous practical advices that have been given for years past in the pages of the Magazine.

Cyclamens.—S. B.—It is but the other day one of our contributors gave a paper on Cyclamens. Beyond what was therein stated, there does not appear to be much required. There is one thing certain, that Cyclamen Persicum may be grown on fast in a warm moist house, and he full of flowers within twelve months of sowing the seed, the bulbs being then two inches wide. This method of growing them was first made public in the "Garden Oracle" for 1863. By this method the bulbs are full grown within six months of the time the seeds were sown; thus they have time to rest before being pushed on again to flower.

Major H.—Your apple appears to be a seedling from the French Crab. If you have no history with it, the name for the present may be Pentlow Crab. It is evidently a good keeper, and for that reason valuable.

Dasyllirion acrotrichum.—R. H. N. B.—From your description of the treatment your plant has received, we are not at all surprised that it should appear as if half burnt and dying. Stove-heat is more than it can bear, and the fear of giving it too much water last summer operated greatly to its prejudice. The plants of this genus are very nearly hardy, and should be wintered with as little heat as possible; and during the summer they should stand in the open air exposed to all weathers, and while making their growth should have abundance of water. Begin at once to cool the plant down, and get it out with no other covering but the heavens by the beginning of June at least. Had it been wintered in a cool house, it might go out of doors now.

TRAVELLERS SEE STRANGE THINGS.—A gentleman was recounting his travels one evening after dinner to a friend, and commenced in this way: "When I was travelling in Russia, I was attacked in crossing a forest by a pack of twelve wolves, and from my post-chaise window I fired my revolver and killed the first wolf, and, strange to say, his companions stopped and devoured him, and then came on again to the fight. I shot another and my postilion killed a third, both of which were devoured; and so we went on until only one wolf remained, and I killed him as we were entering the town, and I observed that he was immensely fat. He, of course, had devoured all his companions." "Dear me," said the friend, "that's very odd." "Very odd," said the traveller, "but not nearly so odd as that which happened on the following day. I was out shooting antelopes, and fired at one as he stood on the top of a Craig, and, odd to say, the ball passed through his neck, and killed another which was standing on a Craig a quarter of a mile off." "That's very odd," said the friend, "Yes, but the odd part of the story is to come. The report of my rifle so alarmed an old bear which happened to be up in a tree, that he fell to the ground, broke his neck, and died on the spot." "Well," said the friend, "upon my soul, that's very odd." "Yes, odd," said the traveller, "but not so odd as the sequel to my story. A thunderstorm came on, and I sought refuge in a hollow tree, and, to my horror, I descended into a nest of young bears, where I had not been very long when I heard a strange tapping, the unmistakable signs of the return of the she-bear. She ascended the tree and was descending the hollow. With the rapidity of lightning I seized her by the tail and plunged my hunting knife into her haunches, upon which she started upwards, dragging me with her, and as she went down one side of the tree I escaped by the other." "Now, really, that's very odd," said the friend, "for it's the first time in my life I overheard of a bear with a tail." "Yes," replied the traveller, "and it was the only time I ever met with one, and that's very odd."

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon		WEATHER NEAR LONDON, 1865.			M. temp. avrg. of 43 yrs. Gravh	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D		
			rises.	sets.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.				Rain.	
1867			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.				
28	S	Low Sunday.	4 41	7 10	2 6 a.m.									Oncidium ampliatum majus	Guatemala	1867
29	M	Length of night, 9h. 21m.	4 39	7 17	2 35 "			1 24 p.m.						O. saccolobos, M	Brazil	28
30	T	London University founded, 1527	4 37	7 19	3 2 "			2 30 "						O. vesalioi, M	"	29
1	W	Prince Arthur born, 1850	4 35	7 21	3 23 "			3 48 "						Oncolobium retusum,	India	30
2	Th	Length of day, 14h. 56m.	4 33	7 23	3 56 "			5 3 "						Aerides odoratum coriutum	"	1
3	F	Jamaica discovered, 1495	4 31	7 24	4 25 "			6 21 "						Aerides virens	Java	2
4	S	J. J. Audubon born, 1782	4 29	7 26	4 58 "			7 39 "						Aerides grandiflorum	India	3
																4

The Gardener's Magazine.

SATURDAY, APRIL 27, 1867.

BEDDING IS THE ORDER OF THE DAY, and within three weeks from the present time there will be a greater number of plants committed to the earth than in the remaining weeks of one whole year. The system has acquired popularity through the perfection it has attained in great gardens, under the hands of men skilled in colour, and required by their position to produce the grandest possible effects. The geometric garden is an ancient feature of the *hortus anglicus*, but the fashion of the embellishments now adopted is essentially modern, both in expression and material. Where there is ample space, variety of scenery, and the means can be afforded for this kind of display, it is appropriate and acceptable. The love of colour is as general as the love of music, and a display of bedding plants ordered consistently with the laws of chromatic harmony is full of delights for the artist, and admirably exemplifies the capabilities of decorative horticulture. Excesses and mistakes are common in all the pursuits of life, and in the practice of bedding excesses and mistakes are made occasionally. We have said much against the bedding system, on account of its frequent usurpation of all the means available in the embellishment of a garden, so that, instead of occupying a subordinate place in the scheme of operations, it came to be the sole object of the cultivator's thoughts; all his glass was occupied with bedding plants, all his time taken up in collecting and cultivating them, all his space was used for a display lasting three months at the utmost, and which was so gaudy while it lasted that the gloom which followed and preceded it was made the more profound by contrast. The remedy for this is a restriction of the space appropriated to bedding plants, both within doors and without, the furnishing of borders with good herbaceous plants, and especially with such as flower in the spring, and the improvement of the shrubberies by the introduction of choice trees. In other words, we require to subdue the bedding mania, but not to abolish bedding—in fact, to suggest its abolition would be to furnish a good reason for the incarceration of the suggester in a madhouse. Even in great places, where everything is done on a large scale, there is often too much time devoted to bedding, to the neglect of other departments of decorative gardening, and even to the detriment of the fruit and vegetable gardens.

One of the most prevalent mistakes is the idea that bold contrasts are chiefly to be aimed at in the colouring of the parterre, whereas the true artist will rather seek for harmonies. We trust we have done something for the improvement of the colouring, by directing attention both to good examples and to the laws which should regulate the practice of the garden colourist. The once fashionable but always vulgar repetition of scarlet, yellow, and blue, has given place to softened shadings and gentle transitions, to the use of leaves as well as flowers, to the larger adoption of half tints and secondary shades—to, in fact, the pretty general acceptance of the suggestions offered us in the painting of the rainbow. We may see now such combinations as Stella and Christine geraniums, Purple King verbenas, and Tom Thumb geranium, which the superficial lover of violent contrasts would fear to adopt, under an impression that such colours would kill each other. Nature affords us many examples of harmonies easily imitated in bedding plants, as, for example, in the several shades of orange shading to red, and red shading to purple in a sunset, and the combinations of colours in individual flowers, and in the plumage of birds. Contrasts are not only allowable but desirable; but they must all be subordinated to the general tone and complexion of a scheme of colours, not predominate throughout as if they had fallen together by chance, with no modulations to unite them. The reports on good examples of bedding that have been published in these columns during the past six years have not been published in vain; there has been a great advance made towards the development of the true principles of art, and we may reasonably expect that as the materials for bedding colours have been of late years vastly increased, so we shall see still further improvement in their appropriation.

A great and common defect of the bedding system is its flatness, and the tendency of the practitioner to act as though he were colouring a carpet rather than embellishing a garden. Combinations of colour require the relief which form alone can afford them. The eye soon wearies in travelling over mere circles and oblongs, and as for complicated designs in the arrangement of beds, they are for

the most part puerile, and fitted to please only on paper. There is wanting material to interest the mind where the display consists of colour only, and the remedy is in the introduction of plants of distinct and noble or graceful outlines. The feathery *Humea*, the tropical-looking *Aloe*, *Yucca*, *Palm*, *Arundo*, *Ricinus*—such things impart to colours a new beauty, and there is abundant opportunity, in every garden which is at all adapted for a bedding display, for the introduction of beautiful forms without the indulgence of any excess of what is called the "sub-tropical movement." It is desirable that, during our short summer, our gardens should not only be gay with colour, but should afford interest by their variety; and this cannot be accomplished without the aid of subjects other than those that are ordinarily designated "bedders." Moreover, we are anxious to promote any and every style of embellishment that will tend to render the garden interesting and beautiful at all seasons, and therefore we think it not improper to remind our readers at this season, that, amongst the many plants that may be grown in English gardens, there are thousands that are beautiful, and yet are not included in the ordinary category of "bedders."

PERENNIAL OR HERBACEOUS LOBELIAS.

Variety, they say, is charming, and that is one of the reasons why we should perform the part of revivalists, by searching after and introducing to the notice of the public plants that are in themselves beautiful, and in every way deserving to be extensively cultivated in every good garden collection, though some of them, through neglect or otherwise, are almost consigned to oblivion. Yet, if they are worthy, we must restore them to popularity if we can. The disappearance of many good things may to some extent be caused by the attractions possessed by the great number of novelties that are being annually introduced into our gardens, and which take our attention away from subjects of sterling merit that have long ceased to be novel. The genus *LOBELIA* may be reckoned among the many whose culture has been almost forgotten. It must be understood I do not confound with them the dwarf blue varieties used so extensively in bedding, such as *Lobelia erinus* and its progeny, including *Speciosa*, *Paxtonii*, and others, but I refer to the large-growing sorts which in my early days of gardening were cultivated as specimen plants for adorning the conservatory or greenhouse during the autumn months. Among these are some most brilliant flowers, and when well grown they have a very imposing effect. But before we proceed further we need say that the genus is poisonous, and bears considerable repute in medicine. I think every gardener should know which amongst his many plants are poisonous. As many young gardeners may not perhaps ever have had an opportunity of witnessing the larger varieties when in flower—as *Lobelia cardinalis*, *L. fulgens*, *L. splendens*, *L. purpurea*, and others—I will endeavour to describe their beauty. They generally commence to flower about the latter end of July; therefore they prove an excellent companion for *Lilium lancifolium*, as plants in flower at the same period. Their average height when in flower is from two to four feet, according to the encouragement given to their growth and amount of pot-room afforded them. They produce very long spikes, thickly studded with flowers, and continue to maintain their freshness and brilliancy of colour for a long period, if carefully attended to. They require plenty of moisture when in bloom—in fact, through all their stages of active growth. If, when in flower, the pots are supplied with saucers to stand in, it will benefit the plants, as then the roots will be enabled to have a continuous supply of moisture; for should they be allowed to suffer from drought when in bloom, it will tend to diminish the length of the flowering season.

It is a matter of regret that the culture of this class of plants has been somewhat neglected of late years, for their colours not only embrace scarlet and purple, but rose, blue, white, and various intermediate shades; not only are they adapted for pot culture, but they can also be used for bedding purposes. And here I may observe they make as grand and as effective a bed, where one is required to be planted with tall plants for a background, as any of the few good tall bedding plants. They are first-rate to mix with gladioli, tritomas, &c. They are specially adapted for large pleasure grounds, because their rich colours, when viewed in the distance, have a very dazzling and splendid appearance.

Being perennial plants, and belonging to the herbaceous section, of course the stocks of any particular variety can be increased

annually. As soon as they have ceased to bloom, let the flower stalks be cut down. This will impart strength to the young suckers or plants which are throwing up from the roots. The pots are then stood out of doors, not too much exposed to the scorching rays of the sun. Should frost or heavy rains continue, they are then put into the frames. You may separate them and pot them singly into small pots either in the autumn or early in the spring, according to the accommodation you have at your disposal for housing them. Of course, the sooner the plants are parted and potted after they have done flowering, the stronger and better they will be when the blooming season commences, as compared with those potted much later. When I have had plenty of plants of any particular variety, my practice has been to put three pieces or plants into a 48-size pot. By this means, with liberal shifts, extraordinary specimens may be expected. They do not require heat to grow them in, as they are almost, if not quite, hardy in some situations. Being gross feeders, they require a very rich soil after the first potting.

The following list comprises some of the very best varieties known:

Name.	Colour.	Remarks.
Cardinalis	Scarlet	Good old variety.
Carminata superba ..	Brilliant carmine	Robust habit.
Ru'ra sanguinea. . .	Fine scarlet, white eye. . .	Branching habit, good for beds.
Belle pyramidalis ..	Rosy purple	Strong growth.
King of Blues	Lavender blue	Very long flower.
Alba grandiflora	Tinted blue	Large and fine white tube.
Cercs	Pale rose	Very pretty.
Purple standard	Reddish purple	Good.

JOHN F. M'ELROY.

[It is with great pleasure we find Mr. M'Elroy calling attention to these beautiful plants, the princes of the herbaceous border. Last year we had an opportunity of inspecting a set of new varieties sent out by Mr. Bull, of King's Road, Chelsea, and we wish to add to Mr. M'Elroy's paper, without making him responsible, that the following twelve of Mr. Bull's seedlings are far in advance of the best average kinds in cultivation, and well deserving the attention of such of our readers as are desirous of possessing first-rate herbaceous plants: *Annihilator*, deep rose, shaded with warm violet, novel and good; *Distinction*, rose cerise, with beautiful pink shade, distinct, a pleasing variety; *Excellent*, a very fine variety, bright magenta colour, with white eye and broad lobes; *Garland*, rosy purple, flowers large and well formed, very attractive; *Glitter*, bright glowing scarlet, huge flowers, upwards of two inches across, each lobe measuring an inch and a half long; *Matchless*, rich purple, with bright rose suffused through each petal; *Mulberry*, flowers of large size, with fine compact habit, colour a deep mulberry; *Nonsuch*, upper petals violet rose, margined with vermilion, under petals intensely bright, very showy; *Peach-Blossom*, one of the most attractive kinds ever offered, beautiful peach colour, with fine broadly-shaped stout petals; *Progress*, bright violet magenta, blossoms of good substance, large and fine; *Ruby*, one of the most beautiful of all herbaceous Lobelias, quite new in colour, being a very rich ruby, one of the best varieties ever sent out; *Theodosia*, bright carmine, flowers of gigantic size, a superb variety.—*ED. G. M.*]

TAGETES SIGNATA PUMILA AS A BEDDING PLANT.

So many inquiries have been made as to the adaptability of this plant for bedding, and as a substitute for Calceolarias, that I have thought it desirable to give it a special notice, this being the most speedy and convenient course to adopt to meet the wishes of those who have made inquiries respecting it. In the first place, I may say that I think our correspondents ought to have a little more compassion than to ask us to tell them if *Tagetes signata* is an annual, when, if they had only taken the trouble of consulting any ordinary seed catalogue, they would have found it was, and thus saved themselves the trouble of asking, and us the time of answering their question.

But as to the adaptability of this *Tagetes* for a bedding plant, there cannot be but one opinion by those who have seen it under favourable circumstances, for it is less trouble to raise than calceolarias, and when once it begins to flower—which, if raised early, is about the beginning of July—it continues to produce one continual mass of flower until the frost cuts it down in autumn. I remember seeing it early in the season of last year at the seat of the Earl of Clarendon, and at several adjacent places, in fine condition; and I also saw it at more than one of those places late in the summer, with myriads of its pale yellow flowers, when the calceolarias were bereft of every bloom. But, to be candid with my readers, as it is my invariable custom, I cannot say that I like the *Tagetes* as a substitute for calceolarias, for this reason only: it looks poor, or, in other words, to my mind it has not sufficient character about it to make it a fit companion for other bedding plants, more especially in the first part of the season; but, as a question of utility, it is a most deserving subject, and when looked

upon from the distance its adaptability for the parterre cannot be disputed. It is quite true that even here it may be out of place, when used largely by those who are not masters of the art of balancing colours, and I could point to an instance where such was the case last year; yet the mistake was made by one who is well known in the horticultural world as a perfect master of the art; but it so happened the party was dealing with a subject he had never properly proved for the position it occupied. The consequence was, as soon as there was a little lack of colour in other plants which surrounded it, to tone it down, there was a preponderance of yellow belts, which grated upon the eye—if I may use such a harsh expression—and from which there was no relief, on account of the predominant yellow tint; so that those who have not previously used it in the parterre or other handsomely designed flower gardens, should proceed with caution for the first time, or a failure the first season may perhaps be the means of disgusting them with what is really a good thing, in the hands of those who know its character and how to use it.

Having used, and seen it in use, for several years past, I can say in full confidence that the only plan to secure a good strain is to save your own seed from year to year, as the majority of the seed we get from the seed-shops is gathered in a haphazard manner, and is sure to produce amongst the plants some of such a straggling habit as will be sure to disfigure a bed. A bed of this plant, to look well, should be even in its growth, compact in habit, and of a uniform height; and, to secure these desirable ends, the seeds only of such plants as combine in them all these useful qualities should be saved. The plants should be raised under glass early in April, potted off either singly or two or three in a pot, gently started again in heat, and then be gradually hardened off. They like a light rich soil, and no coddling after they are once started in the new soil of the pots. It is, strictly speaking, a half-hardy annual, but, like many other bedding plants, it will endure more cold and rough usage at the end of the summer than it will at the commencement. I may remark, too, that at the time of planting out it is very impatient of a hot sun, therefore it should be shaded until its roots have got hold of the soil. In the mixed border, or in the front of shrubberies, it is a useful plant; so it is when grown in pots, but it is not many that are called upon to do such things for in-door decoration; but, for whatever purpose it is used, it will be found useful if only liberally cultivated, as it will endure both rain and drought better than anything I know in the same way of colour.

J. C. CLARKE.

THE TRITOMAS FOR MASSING AND LINES.

Those who have seen the magnificent beds of this delightful flower at Battersea Park, must confess that for massing in beds they are the most gorgeous subjects that can be used where subjects of any height are admissible. I must confess I looked with astonishment when I saw, for the first time, the striking effect they made, towering up, as they do at Battersea, to a height of some six or eight feet, and carrying such luxuriant foliage that showed up to the best advantage the brilliancy of the colours of the flowers. I have many times since regretted not seeing them growing in numbers, for, however pleasing and effective single specimens may be, they can bear no comparison to those that have numbers to assist in making an effect. Then there is another very effective way of using them, and that is to plant them in lines. Can any of your readers imagine anything more striking than a long line of these for the back row of a ribbon border, and for which they are eminently adapted, as they flower at a time when the ordinary bedding plants are in their best attire? consequently they increase the effect to a degree that can never be thoroughly appreciated until it is seen. Let me urge upon those who are extensively engaged in bedding-out plants to give them a trial, and I feel sure they will not be disappointed in the result, if the plants are liberally cultivated. But, as single specimens, they are not to be despised when grown in some conspicuous spots; for as their large heads of scarlet and yellow flowers tower up above their graceful foliage, they are sure to be admired by every lover of a garden.

Now is a good time to make fresh plantations. Secure strong plants that have not been too much mutilated by dividing, choose an open well-drained spot, and make the soil rich and deep. It should consist of leaf-soil, loam, and rotten dung equal parts. Or, if it is not convenient to prepare a mixture for them, dig in plenty of good manure before planting. Having prepared the stations, plant them at once, and place the crown of the plants just under the surface, but not more than an inch below it. The effect of this slightly deep planting I have found to considerably increase the number of suckers or offsets, and the more of these that can be secured the more effective will the plants be, if not in the first, at least in succeeding years. That they should be grown in a rich fertile spot is self-evident, from the mass of foliage, and the length and substance of the flower-stems the plant has to support. In April of last year I planted out two clumps of them, which were specially prepared by liberal manuring. From one plant I got seven spikes of flowers, and from another nine, in the early part of

the autumn of last year. The principal cause of the weak and unsatisfactory samples we sometimes see, is the absence of two essential elements—food and water. Now, in the first place, they are, as above stated, luxuriant-growing subjects, and unless they are liberally supplied with a rich soil they cannot arrive at that state of perfection that they do when their requirements are studied. Then an absence of water in sufficient quantity during the active season of growth, will do much to check that vigorous healthy development which is so essential to a high state of cultivation. When the plants are well established in a rich soil, they will not need water unless the weather is very dry; but, as soon as the first flower-spike is visible, they should have a good deluge at least every other day; never mind if it has rained the day previous, they will bear it, and continue this supply as long as a fresh flower-spike shows itself. If after following these instructions the cultivator does not succeed, I shall be tempted to say there is a spell against him, for what I have said includes all that need be said to enable any one to grow this magnificent plant to perfection.

THE MAN WITH THE BLUE APRON.

THE THUNBERGIA.

I am very fond of the species of this genus, for amongst them there are some very useful and at the same time beautiful plants. The Thunbergia has its drawbacks, like other plants, most undoubtedly, and one of them, and a very important one indeed, is this, that enemy of the garden, and most detestable pest, the red spider, is so terribly partial to it; and, as a word of advice and warning, I may as well say here, that unless "war to the knife," or more correctly speaking the syringe, is proclaimed immediately the plants are a few inches above ground, and carried on with relentless severity, the destruction of the beauty of the plants will most assuredly be effected. Against this drawback I have a capital "set off." The varieties of the Thunbergia are somewhat, if not entirely, distinct from other things in flower in the conservatory towards August; and unless one has a goodly collection of *Liliums*, and other plants of that class, there is a decided difficulty in keeping up a good show of flowers in the conservatory with plants really distinct from those grown out of doors at that season, a practice which cannot be too strictly guarded against—as much, at all events, as ever it possibly can be; for what may please out of doors in the flower-bed during the summer looks too common grown indoors through a like period; and besides, people want to see something different in their conservatory to what is grown probably by their neighbours out of doors—a very right and proper feeling too, for it gives such a common and uninteresting appearance to a place to have out and in doors both alike. Now for a word of advice respecting the management of these plants. They are readily propagated both by seed and cuttings. The best and easiest way of raising varieties of *T. alata* is by seed, and I like to sow the seed this month in some light sandy soil, and plunge the seed-pots in a strong hotbed to get the seed up quickly. As soon as the young plants are strong enough to be handled, they should be potted off into the sized pots they are to flower in, which saves a vast deal of trouble—four or five plants in a pot—and the trellis to which they are to be trained should be put to them immediately, for they are quick-growing plants, and soon entwine themselves into an inextricable mass, clinging to everything within reach. A very pretty way to train them is to stick in a few branches of wood cut like a miniature pea-stick, and let them run over that in the young state. Grow in a warm and moist atmosphere, and pot in leaf-mould and loam, and also supply the roots liberally with water. *Alata* (yellow), *alata alba* (white), and *aurantiaca* (orange), are good and suitable for this kind of treatment. As soon as they begin to flower, the plants should be removed to the conservatory and shaded carefully. There are others which are best increased by cuttings, and treated as stove plants. *Harrisii* is a magnificent species with immense flowers, measuring upwards of three inches across the corolla; colour porcelain blue shading off to white towards the mouth of the tube, which is orange yellow inside. The blooms are produced in immense racemes, most suitable for training on the walls and roof of the stove. *Laurifolia* is a rapid grower, blooming early in the spring, with beautiful blue flowers. These two last should be planted out to have them to perfection, and to enable them to be shown off to the best advantage. Soil for these should be peat, leaf-mould, and loam, with a little sand to keep it open. I have said all that is necessary, and will now ask those who derive profit from this not to forget their humble servant

BOB.

THE MAGIC RING.—Some two years a married woman at East Lulworth lost her wedding-ring in her domestic duties. A few days ago she was peeling potatoes, and on dividing a sort of double potato she found in the inside of the potato the lost wedding-ring, which she was able to identify. The potatoes were grown in a field some half a mile from the cottage, where it is supposed the ring had been carried in the manure, and the potato had grown through it.

CAMELLIA CULTURE.—No. III.

BEST KINDS OF SOILS.

On the selection of a suitable soil depends much of the success of the cultivator; therefore it is particularly essential that we should endeavour to secure, not only a suitable soil, but in such a condition as will be likely to ensure success in this particular part of the management. The essential elements of a compost are a good mellow loam, leaf-soil well decomposed, and rotten dung from a hotbed, with silver, or, what is better, either road or river sand. These ingredients, mixed in equal quantities, will grow Camellias to perfection. These substances being secured, care should be taken, previous to using them, that each is in a fit condition for use. In the first place, the loam should not be fresh from a pasture, but should have been laid by for some time exposed to the weather, and turned over at frequent intervals: the advantages of this exposure and frequent turnings consists in the fact that when so exposed it renders it sweeter, and consequently more agreeable for the roots of plants to ramify in. Besides, this exposure to the elements increases the fertility of the soil, as when all parts are equally exposed it becomes thoroughly pulverised, and the inherent crudeness of previously uncultivated soil is dissipated, and the decomposition of the vegetable matter it contains is hastened by being brought directly in contact with atmospheric agency. Consequently, as above stated, while the process of turning and exposure is going on, the fertility of the soil is constantly increasing, thus rendering it more acceptable for the purpose it is intended to serve. Such undisputed facts ought to convince every cultivator, when I urge the adoption of such precautions, that they are features in the details of camellia culture that ought to be rigorously attended to, if there is any pretensions to grow them in a skilful manner. The above remarks will apply with equal force to the other ingredients, and if each component part is thus dealt with in a systematic manner, the cultivator cannot fail to be rewarded for his pains.

Having thus far prepared them, and secured them in a tolerably dry condition, each part should be carefully broken up with a spade or some other instrument, *but not sifted*. I have placed the last sentence in italics because it is important to remember that the camellia does much the best when its roots are allowed to permeate in an open, porous, rather lumpy soil. When the ingredients are sifted, the minuteness and cohesion of their particles will be found so far impervious to atmospheric agency as to be ill adapted for the production of those fine healthy roots which vigorous camellias are noted for, and without which they soon fall into ill health.

Having endeavoured to condense into as short a space as possible the principles which should be observed by the cultivator in the selection and preparation of the soil, it only remains for me to add in connection therewith that all should be well mixed; and if any part of the collection should require shifting before or during the month of March, the soil should be warmed by being placed in a forcing house, or some other warm place, a few days before using it. When the potting occurs later in the season, if the soil is taken into a warm potting shed a week before it is wanted, it will get sufficiently warm for the purpose. These are all details that in themselves may appear trifling to the inexperienced reader, but they are all essential to success, and ought to be scrupulously wrought out by those who wish to excel their neighbours in camellia culture.

Next I may refer to the importance of using clean pots at every potting, and if new ones are used, to the importance of well soaking them in water some days before, and in every case to use them sound and dry. The crocks, too, should be clean; for dirty crocks only tend to encourage vermin, which will choke up the channels the crocks are intended to afford for the unappropriated water to get away.

Having previously cautioned the reader against the common practice of over-potting, I shall confine my remarks in this paragraph to the few details that belong to the work of

POTTING.

In the first place, I cannot too strongly impress upon inexperienced cultivators the importance of securing perfect drainage. This can only be secured by a careful packing of the crocks used for the purpose, and the placing of a bit of moss or some of the rough soil over them, to prevent the finer soil from finding its way down into the drainage, and so stop up the ordinary means of escape for the water. Next, they should be potted firmly; but never resort to the use of a rammer, as some people advise, as it renders the soil too close, and checks the spreading of the young roots so freely as they would do in a more open medium. Neither should the pots be filled to their rims with soil, but sufficient space must be left to hold enough water to gently soak the whole ball of earth through at one watering. But the cultivator must be guided in this case entirely by the size of the pot, as the larger the pot the more space must be left—say for a 10 or 12 inch pot two inches at the least. For the want of sufficient space to hold water, many large plants

suffer from drought to a degree not generally admitted, because very few will take the trouble to go round and water a plant the second time. The consequence is, that when a large plant is very dry, not more than half of the soil the pot contains is moistened; and then people wonder why their plants are infested with insects, and otherwise in an unhealthy state, when at the same time their own management is at fault. The time of shifting offers a good opportunity for the cultivator to clean his plants of all dirt and insects with which they may be infested. It is necessary, too, that this should be done if any such thing exists, as without being free from all pests of that description no plant can thrive.

INSECTS.

If there should be more dirt than can be effectually got rid of by the use of the syringe or garden engine, let each plant be carefully sponged, for the sponge is the most effectual and sometimes the most speedy method of cleansing them from all dirt. Very troublesome insects are the white and brown scale and the mealy bug. To eradicate these, the safest and surest remedy I have found is the Gishurt compound: about four ounces to a gallon of water, applied with a paint-brush. Two, or at the most three, applications of this composition, of the strength indicated, will be sure to effectually cleanse the plants of vermin.

We have now to consider where is the best position to place them after potting to induce them to make an early and vigorous growth. Undoubtedly the best is ainery, as the shade of vines that are at work is very agreeable to the camellia when making a new growth. But if ainery is not to be had, then a peach-house at work would do, or, indeed, any place where the light is not too strong, and the force of the sun's rays does not strike directly upon them, and where the temperature does not go below 60° at night, nor above 75° by day. Their chief delight is in a warm humid atmosphere, where the light is somewhat subdued, and where they can be copiously syringed night and morning. Generally speaking, from eight to ten weeks is long enough for them to remain to complete their growth in such structures, and then they may be removed to a more airy house, that they may be assisted in the formation of their flower-buds by an abundance of fresh air. Water must be given liberally during this time, and avoid the use of stimulants in the case of all newly potted plants. But the after—or, more properly speaking, the summer—treatment of these plants I must leave for my next paper.

J. C. CLARKE.

THE CALADIUM.

Crack growers of hard-wooded stuff are very apt to labour under an impression that no plant, unless it takes the greater part of a lifetime to get up a creditable specimen fit to grace an exhibition table, is worth the room it occupies. Such people are often inclined to look rather with contempt upon this genus, simply because it is easy to manage. Well, I will not dispute the point with them, for they are now met with in nearly every good collection of fine foliage plants, and I shall not be counted at all singular in sticking to my favourites. Most undoubtedly the Croton, and other hard-wooded foliage plants, are extremely beautiful, and both have their respective merits and claims upon our attention. Those kinds which retain their foliage during the whole year are lovely through the winter as well as the summer; but of course they take up space, and to preserve the plants in health they require a proper stove to keep them in; while the Caladiums we dry off, and they can be packed away in a very small corner, which is of vast importance in places where room is limited. In the spring we have nothing to do but to start them into a new growth, and we have plants fit for a king in next to no time. It is not every one who is so fortunate as to possess a stove and other houses, for particular purposes and objects. Very many who grow a considerable variety of plants have to grow the whole of their possessions in one or two houses, and these, in all probability, are already devoted to the culture of fruit. Notwithstanding the limited space contained in two or three little houses, they may be desirous of enjoying some of Nature's charms in the shape of ornamental-leaved plants. Now the Caladium is just the plant to suit them, for the bulbs can be, as I said before, stored away during the winter; they can be started in the cucumber pit or house, as the case may be, and afterwards grown in theinery, provided, of course, they are being brought along early. I wish to be understood, that I am by no means an advocate for mixing up a lot of plant-growing with the fruit department; but when it has to be done, and every inch of glass has to be taxed to the utmost of its capability, I contend that this plant is decidedly better than lots of things that I have in my time seen growing in ineries and other fruit-houses. The cultural directions could be summed up in a very few words, if I were merely giving directions or advice to those skilled in plant culture; but, as I presume this will be read by numbers who know nothing further about them than the beautiful appearance the plants present at the flower-shows, and in their neighbours' conservatories, I am naturally enough compelled to

enter into more minute particulars than would otherwise be necessary. I am in a difficulty as to what time of the year will be best for us to take for our starting-point. Suppose we begin from now, for this is the best season to begin with a new stock. Generally speaking, the young plants are by this time advanced in growth sufficiently to enable us to see the shape and colour of the foliage; and, another important consideration, there need be no fear of any risk being incurred in starting them, as there would be if purchased in the dry bulbs; while at the same time it gives us ample time to grow them to good-sized plants by the autumn. This month is the second anniversary of my taking the genus in hand, and I started in a very small way indeed. I had some little offsets given me, no thicker than the top of the penholder with which I am writing this. I had seven or eight species and varieties; I forget at this moment the exact number, and now I have more than a couple of dozen of sixteen and twenty-four sized pots as full of young shoots as they possibly can be. They have just burst into leaf, and in a few days, probably before this is in the hands of the subscribers of the Magazine, they will be shifted into No. 4's and 6's. I am not writing this with any egotistical feelings, but simply to show that it is by no means necessary to purchase large and expensive plants. They are the identical specimens which were rather highly spoken of in the report of the Kingston Flower Show last June; but through, I presume, a typographical error, a Mr. Gower had the credit for them.

On second consideration, I think we had better step back to the first of March; a week or two sooner or later is of no consequence. I fix that date as a good starting-point. The bulbs are potted in rather small pots, a bulb two or three inches in diameter in a 32-size; but, of course, when several are put in one pot the size must be in proportion, and also when the bulbs are seven or eight inches through them. For the first potting I use loam, leaf-mould, and plenty of sand. The soil should be rather moist when used, as I never give a drop of water until the young shoots have pushed an inch or so above the soil: I need scarcely say that the pots must be well drained. The pots are filled with compost, a hole is made large enough to insert the bulbs; but before doing so I put a good layer of sand, and in filling the soil round them I fill sand up the sides, to give the bulbs every opportunity to emit roots readily, and cover about half an inch of soil over them, and on the top of the soil two inches of cocoa refuse, to keep the mass from getting dust-dry. I give the refuse an occasional skiff with the syringe, to keep it slightly moist. As soon as the plants have filled the pots with roots, and are pushing through, the refuse must be removed. I give them a bottom-heat of about 75° or 80°. I consider it essential to their safety to employ bottom-heat in starting them, for there is really a very great danger of their being lost if they lay in the soil too long before they commence growth. As soon as the plants get a foot or so in height, they should be repotted immediately into the pots in which they are to remain the whole season. I believe the plants do better this way than if they were put into the larger pots at first; neither do they take so much space when they are plunged, an important matter with me. For the second shift turfy loam and rotten dung are the staple commodities. Unless the loam is lumpy and full of strong fibre, they will not grow, and nothing will induce the roots to run in it. When the loam is deficient in these respects, use half loam and the same proportion of peat, broken up into rough pieces. After this shift they can be put into the most convenient position, without the bottom heat, and as soon as the pots are full of roots; and, provided the soil is open and the drainage perfect, it will be almost impossible to over-water them. The Caladium luxuriates in a thoroughly moist atmosphere of about 70°. You can very nearly see them grow when they are properly treated. It also likes shade; but I do not consider it advisable to grow them in too dark a place; it makes them too tender and unable to stand the conservatory in the autumn. At the beginning of July mine go into the conservatory, and stop there until the beginning of October, and are kept rather dry at the roots, particularly towards the latter part of the time. The plants are not exposed to any more cutting draughts than it is impossible to avoid. As soon as they come from the conservatory, they are dried off, and the pots laid on their sides in a temperature of 55° to 60°. A lower temperature is attended with danger. They must be kept quite dry until the following spring. I examine the bulbs during the winter, if I can do so without shaking them out; and if one should be decayed, if ever so little, I cut the rotten part away and rub some perfectly dry sand on the wound, the sand drying up the moisture nicely. It is a bad plan to shake the bulbs out in the autumn and keep them in sand, for they stand a very good chance of the dry rot, which, in my opinion, is decidedly worse than the wet rot. The winter is the most critical season with the Caladium, more than all the other parts of the year put together.

A good half-dozen is embraced in this list, but there are several other really good kinds.

Argyrites, neat and compact; habit small; foliage beautiful, marked with irregular blotches of puro white.

Belleynceii is stronger growing than the preceding; white, with green veins, which give it the appearance of being covered with green network.

Bicolor picturatum, a strong grower; fine large leaves, with lovely red centre.

Brogniartii, very similar to *Bicolor*, but quite distinct; a very fine kind.

Chantinii is a noble object, and the best of the *Caladiums*. It is a strong grower; fine large leaves, beautifully marked in the centre with red, and surrounded with irregular blotches of white.

Wightii is very good; large green leaves, speckled with red and white spots, which give them a very pretty appearance.

GEORGE GORDON.

NOTES FROM THE WEST.

THE WINTER, TENDER TREES, COTTAGE GARDENS, PEACH-TREES.

When travelling the other day in the west of England, I was forcibly struck with the impartiality of the late severe winter, in its effects upon different trees and shrubs that are commonly grown in this country. Passing, by the South-Western Railway, through that famous country for rhododendron growing about Weybridge and Bagshot, where the soil is poor and sandy, I could see the effects of the severe frost had not been so much felt there as it had in places I had hitherto visited. As I had seen much devastation in other parts of the country, I thought it worth a passing remark, as the fact that many plants and trees remain untouched upon this poor soil, demonstrates most clearly the fact that, if we wish to acclimatize many of the beautiful exotic trees and shrubs that are believed to be adapted to this climate, we must be prepared, if we would have them remain uninjured from frost, to select sites for them where they will stand high and dry, and to furnish them with a soil that is not likely to create a late autumn growth.

It may not be such an easy matter to accomplish this, for two reasons: the first is that a poor, peaty, dry subsoil is not always to be had, and the second is contained in the fact that people generally are not satisfied with a close sturdy growth, especially in such tribes of plants as coniferae. If they do not make a rapid growth, and soon become trees, they are looked upon as worthless. But, to my mind, this is a mistake, and I think the experience of the past winter bears me out in the remark; for in almost every case where young trees were in a strong luxuriant condition in the autumn, they have been more or less affected by the late winter, while those occupying less favourable positions—that is to say, positions such as would conduce to a slow growth—remain untouched.

When approaching the more western counties, I certainly was disappointed in the appearance of the whole country, and traces of the intensity of the frost were on every side visible amongst occupants of gardens, while vegetation generally was extremely backward—the pasturage especially, in those counties noted for its abundance, was devoid of that rich refreshing hue so agreeable to the eye, which we are accustomed to see in the middle of April. The same remark will apply to the appearance of the wheat-crop; true, I saw in a few instances, where the land was well drained and highly cultivated, some excellent promises of a crop; but the majority of the fields were a yellow and weak appearance, and looked as if they stood much in need of a drier subsoil and a much warmer atmosphere. The wheat-plant, indeed, everywhere looks as if perishing for sunshine, while the spring corn, which at this time of year usually delights the eye on every side, is now conspicuous by its absence, as in comparison to the number of acres generally seen. The breadth of land sown appears to be very limited. Of all the sights that delighted me most, as the train hurried me still farther westward, were the allotment gardens cultivated by the poor. Having lately read with some pleasure the remarks of one of your able contributors on the subject of cottagers' exhibitions, I felt much interested when from time to time my eye alighted upon numbers of these gardens; and their clean well-ordered condition bespoke much for the industry and intelligence of the cultivators.

One thing only I regretted to make note of in reviewing these gardens, and that was the absence of good spring vegetables, such as broccoli and early cabbage; but I was assured, when making inquiries upon the subject, that it was no fault on the part of the cottagers, but was to be attributed entirely to a wet autumn, followed by a frost of unusual intensity. I said above, I was disappointed in the appearance of the country. Perhaps it was because there were but few enlivening subjects supplied by nature to greet the eye, as, being an ardent admirer of British plants, I thought to have seen more of my old favourites in their spring garb; but in this I was disappointed, as even in these reputed warmer districts there were but few showing themselves.

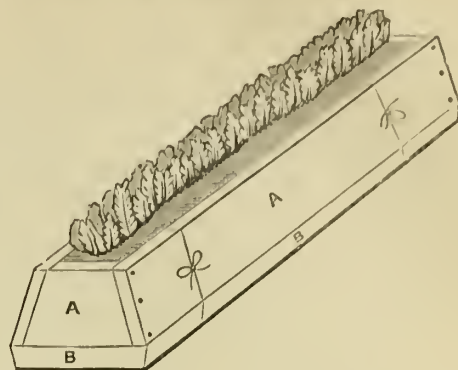
I must relate one other circumstance in which I was much concerned; and, to make myself understood, I must first say I had the pleasure of inspecting the gardens of Cothelston Park; but, to my surprise, I found that the cultivation of the peach and nectarine was almost a failure on the open walls—so much so, indeed, that large orchard houses had been erected to grow them under glass. To me this was a most discouraging thought; for as I began to look about me, and to get somewhat to understand the position of the place, I felt an inward desire to give expression to my opinion that, of all the positions I had ever seen as likely to be favourable for their culture, this was eminently superior to any I had yet visited. Standing, as the gardens do, on the gentle slope of a high hill, sheltered from the north by extensive plantations, and enjoying the salubrious air of one of those favoured districts of Somersetshire, one would have thought a failure in peach and nectarine culture impossible. But, unfortunately, years of careful attention have proved it to be so; and, as the most sure means of reaping any benefit from the labour bestowed, the proprietor has found it necessary to erect glass houses for them. I stated above I was interested in this subject, because I remember reading in these pages a statement by one of your coadjutors, that it was impossible for any one unacquainted with the spot to say that peaches could be successfully grown until it had actually been proved; and in the above instance we have sufficient evidence that his views are correct.

I saw also at this place a useful garden structure, which I must some day sketch out and send to you, for the benefit of the readers of the GARDENER'S MAGAZINE; but I must wait a more leisure-hour, having already extended these notes to more length than I intended.

WESTWARD HO!

EARLY PEAS.

The following is a sketch of a contrivance I have adopted with success for raising early peas in a frame, and establishing them in the open ground, so as to avoid the check which the ordinary method of transplanting from pots or boxes necessarily entails.



A A (drawn 1-6th the actual size) represents a wooden frame or box, with loose bottom B B, made of rough 1/2-inch boards, and of the following dimensions—2 1/2 inches in vertical depth, 2 inches wide at the top, 3 1/2 inches wide at the bottom, and 3 feet long, inside measurements. The bottom is simply a loose 1/2 inch board, about 4 1/2 inches wide, temporarily attached to the box by two pieces of string. The box is filled with light rich soil, and the peas sown from the narrow side.

The transferring of the ready-made row of peas to the open ground is a simple process: a drill, rather deeper than is necessary for sowing peas in the open ground, is worked out with the hoe, and the boxes, each containing a yard of peas, are placed end to end in it. The strings which attach the body of the box to the loose bottom are released, and by slightly raising it on one side the bottom board is easily slipped from under. The frame from being bevelled readily delivers itself from its contents, and the row of peas is left *en masse* in the drill without the soil being broken or disturbed, or any check being given to the peas.

These narrow seed-boxes really occupy but very little space. They can be stacked two deep (the edges of the bottoms of the upper layer resting on the top edges of the sides of the lower layer), and a cold frame of 6 feet square would contain 40 lineal yards.

For the earliest crop little more than half the seed that would be sown in the open ground is required, as the boxes are under protection till past injury from birds and slugs. I believe that the saving of seed (which, at from 1s. 6d. to 2s. 6d. a quart for first crop, is a consideration) will quite counterbalance the extra trouble of transferring to the border.

On February 19th I sowed a number of these boxes with Carter's First Crop, and at the same time made a sowing in the open ground; the latter are not yet up (this is a high and rather a late situation), but those in the boxes, after being hardened off in a sheltered place for a few days, were transferred to the open ground, earthed up and stuck on the 28th of March, at once forming two very regular and vigorous rows, which I doubt not will be a fortnight in advance of the others sown in the open ground.—Geo. Maw, F.L.S., Benthall Hall, Broseley, in "Gardener's Chronicle."

THE RADISH AS A TABLE VEGETABLE.

The late Mr. Knight very justly remarked that in spring, about May, the old turnips were gone, and the new ones not come, and he proposed forcing turnips to supply this deficiency. Here the radish steps in to supply, and from year's end to year's end the veriest clown of a gardener may have an excellent succession of radishes. I have had some cooked in the plainest manner possible, with only a little salt in the water, and they are delicious to eat, and very beautiful to look at upon the dish. To say anything to gardeners on the culture of radishes would be superfluous; but, for the sake of cottagers, let me add, that those I ate were as thick as my finger, and were only about thirty days old from the day of sowing. The potato ground will yield millions of radishes, both before the potato-tops cover the ground in spring and after the potatoes are harvested in autumn. I have long tried to get cottagers into the way of growing salad, being convinced of the comfort and importance of it in every family, not to speak of its economy; and when I see poor people with large spaces of ground in their gardens lying idle in summer for two or three months, I cannot help thinking that their poverty is a good deal to be attributed to their own fault: if "ignorance of the law excuses no man," surely the ignorance of culture is equally inexcusable in those who pay rent for the use of land for a certain number of growing days, and then give a number of the best of these days to the growth of weeds. If, therefore, thirty days of growing weather can be got, good cultivation will secure a crop of radishes in that time; but as I do not like to leave things vaguely, I will just weigh the crop, and measure the land, and thus count the cost of this crop and its capabilities.

"It is but a small root," the lazy man will say. True, friend; but its top is small too, and it will stand the closer on the ground, and its time is but short in coming to perfection, as compared with other crops. Three crops of radishes may be raised in the time necessary to grow one crop of potatoes; perhaps six in the time of one crop of corn. "Six crops for one year's rent!" Ay, friend, and here lies the rub; and every bit, both top and tail, of the radish is good pig food when boiled, for both have been eaten raw by Christians. The average weight of each radish is one ounce and a half, and about half an ounce of this is top or leaves, thus leaving one ounce of root; and the average of the space occupied by each plant is sixteen square inches, or nine plants in a square foot. Now this gives five pounds of roots per square yard, one hundred and fifty pounds to the perch, or about five tons fourteen cwt. per acre of roots; and if we add two tons seventeen cwt. of tops, we have eight and a half tons per acre in thirty days, and even four crops a year of this weight gives twenty-two tons of roots and eleven tons of tops per acre.

Perhaps the only way to bring this valuable root into use among cottagers (I had almost said among gardeners and farmers, for they will all have it), is to give it a fair trial, on a small scale, after potatoes, and forgetting that it is a radish, count it as a small carrot.

A. F.

SARRACENIAS.

There would be enough excuse for the collecting and nurturing of the North-American Pitcher Plants for their curiosity of structure were they not possessed of beauty. But of beauty they are so notable, that every lover of plants should procure a few examples of this most interesting family, and treat them well as I shall describe in this paper. Let me not attempt to convey to persons who know nothing of plants any idea of the structure and peculiarities of these plants. Rather I would advise all who are curious on the subject to visit some garden where they are grown at this season; and the sooner the better, as many of them have now fresh and exquisitely pencilled pitchers, and also richly painted and curiously formed flowers. In truth, they are now in perfection; but the flowers do not last long, and consequently those who only see them at the exhibitions do not see all the points that make them interesting. Leaving the physiological structure, and the botanical affinities, to be studied from the books where all these things are elaborated better than is possible in periodicals, I will direct attention to a few particulars essential to a superficial understanding of the source of the interest we take in these plants, and as properly introductory to what I have to say on the growing of them.

It will be observed, then, that the leaves of the Sarracenia are hollow cylinders, which terminate on one side in a trumpet kind of lip, like a vessel out of which fluid is to be poured, and on the other in a leafy appendage or lid. In the fully developed leaf we may notice that the principal beauty of the colouring is in this lid, which is sometimes of a dull purplish red, sometimes snow-white pencilled with carmine lines, and sometimes a delicate greenish yellow. The leaf in its whole length is strengthened by an angular stem, which is very curiously produced; and when this is cut through, it is seen to be exogenous, or an outside grower, a most surprising circumstance, botanically speaking, because, from what we are accustomed to in the forms of the vegetable kingdom, we should, until the fact were demonstrated, say that for certain these were endogenous or inside growers. It will be observed that the young pitchers have the lid fitting down quite close; but as the pitchers increase in size, the lid gradually rises, and then

we may suppose it possible that water can find its way into the pitcher, by means of condensed dew or the fall of rain. Not that water does find its way in; no, no. I will tell you how it gets there; it is secreted by the plant. If you will dissect a pitcher, you will find that the epidermis, both within and without the pitcher, is pierced with stomatoes, and the cellular tissue beneath is of a spongy texture, the cells large and destitute of spiral vessels. Inside the pitcher are numerous hairs, which project downward; and it is found that when an insect enters its downward course is easy, but escape is almost impossible; hence, we not only find water, but also flies, wood-lice, and even beetles. Ah! the way to ruin is smooth, and sometimes pleasant, and to go down is easier than to go up; so perhaps the flies find it in the pitchers, as we do also in the conduct of our life. Well, about the water and the insects. I have seen water in the pitchers long before the lid was opened to catch it. I have seen many pitchers full grown with not a drop in them; and I have seen some pitchers full that never were exposed to rain, and that were not filled by the syringing of the plants by the cultivator. I was puzzled by these phenomena, and I took some plants and kept one half of them plunged in pans

of water, and the other half I kept as dry as I could so as not to kill them. Now what was the result? Why, the plants that stood in water had full pitchers, and the plants kept dryer than they should be had empty ones. I concluded therefrom that the plant has the power of storing up surplus water against the day of want, and that what we find is usually secreted, though that they should be filled by rain is of course possible. How could it be otherwise if rain happened to fall when the pitchers were open? As to the flies, I consider they are attracted by the moisture, and perhaps a little sweetness. Put a jar of water in a house where there are crickets, and it will contain plenty of drowned crickets next morning. What, then, is the wonder that flies, finding the pitchers open, and smelling the moisture, should be tempted to their destruction? I once read, but forget how or where, of an English naturalist who considered the ichneumon fly would drag other flies and hurl them over the edge of the pitcher to destruction, as a human murderer might throw a victim over a bridge. I do not say ichneumon flies are not found in the pitchers. It is my rule to speak by knowledge, not by guess; but I think it was very illogical of the English naturalist, who mixed up the ichneumon and the flies as cause and effect in this case. There is no

mystery about the flies being there. I have seen them go down; but what use they are I do not know. My belief is, they are of no use at all to the plant; but we are not required to explain everything in nature.

As to the flower of the Sarracenia, it resembles a *Quersattel* (side saddle), and is not only curious but beautiful. Look at the picture of *S. variegata*, and you see five large petal-like segments, and behind them five sepal-like segments of smaller size; and within these organs is a sort of button. When further examined, it will be seen that the button is a kind of shield in five divisions, all else is understandable; but this particular mystery is solved when I say that the five-parted shield is the stigma, spreading over like petals, and concealing the stamens. If you look at the back of the flower, you will see three bracts, which is a slight violation of the arithmetical arrangement which prevails in the structure of plants. These flowers do not last long in full beauty; but while they do last they are beautiful objects.



SARRACENIA VARIOLARIS.

I was much pleased, at your great International Exhibition, to see two fine collections of these Pitcher Plants. One collection was representative of the skill—I will say the great skill—of Mr. Baines, gardener to H. L. Nicholls, Esq., of Bowdon, Cheshire; the other was from Mr. B. S. Williams, of the Victoria Nursery, Holloway, near London, in whose nursery I have seen many species in admirable keeping; and I am glad that amateurs who wish to grow these plants may be sure of obtaining them from this spirited collector of things noble and curious. It is the more pleasure to name these two collections because they are properly grown, and it is not often we see the Sarracenia except it is nearly dead with the worst of treatment; for the cultivators will insist that they are difficult to manage, whereas they are only the more injured the more you do for them. They are natives of the North-American continent—some of them (*S. purpurea*, most certainly) range as far north as Canada; but for the most part they inhabit the warmer parts of the temperate zone, and are always found in bogs. Thus we have a key to their culture in their habitat, and such a key is always a true one; for Nature sorts her plants into their suitable zones and climates, and we have but to take

notice of the way she places them. It is certain that Nature does not stew these plants in such a steam as the hottest of the orchids thrive in; yet many of our amateurs think there can be no place hot enough for them, and the consequence is the plants have no beauty, and, instead of spreading fast and forming great tufts, they dwindle away and are pronounced difficult plants to cultivate. The soil generally used is peat, and as a rule this cannot be surpassed, though I have grown the beautiful *S. variolaris* in pure sphagnum, in the coolest and ariest part of the stove; and I have also found an admixture of soft stone with the peat or sphagnum useful. The orchid grower will understand their requirements when I say that the soil which suits a *Cattleya* will suit a *Sarracenia*.

But this is not all. They want a certain degree of warmth with air, but must never be exposed to wind, more especially a drying wind, nor, as before remarked, to a great heat. "Water, water, everywhere," seems to be the song they sing. They must have water, and they must have light. Shading is most injurious, and quite destroys the beauty of the pitchers. I always place them on a shelf of an intermediate house or greenhouse, very near to the glass, and every one stands in a pan of water. *Purpurea* does not need so much heat as even an intermediate house, and it may be grown as well in a frame as a greenhouse. As to the standing in water, neither Mr. Williams nor Mr. Baines follow this plan; but they place their plants in the fullest light and comparatively cool, and keep them always wet by means of the syringe. I can testify that this treatment answers, for I have lately seen Mr. Williams's stock, and the fine colouring of the pitchers, and the plenty of flowers borne on stout stems, are proofs that the pan of water is not a vital question. Still I say to my practical friends, follow nature—she knows best—and you will do better than the best you have done hitherto; for, remember, perfection in plant growing is a comparative, not an absolute matter. When I think on these things, the songs of my country recur to my mind; for here is a plant that in its love of sun and air and water is like the eagle, the swallow, and the swan; and of such has Schlegel sung, as I would be fain to sing again in the English, though it is but poor after the German.

THE SWAN.

My tranquil life is passed the waves among,
Light ripples tracing as I glide along;
And the scarce-ruffled tide, as in a glass,
Reflects my form, unaltered, as I pass!

THE EAGLE.

In the clefts of the rock my wild dwelling I form,
I sail through the air on the wings of the storm;
'Mid dangers and combats I dart on my prey,
And trust the bold pinion that bears me away!

* * * * *

THE SWAN.

For me the heaven's blue arch hath charms serene and bland,
And odorous flowers attract me to the land;
While basking in the sun's departing beam,
I stretch my white wings o'er the purpled stream!

THE EAGLE.

I exult in the tempest, triumphant and bold,
When the oaks of the forest it rends from their hold;
I demand of the thunder—the spheres when it shakes—
If, like me, a wild joy in destruction it takes!

As the tenor of the poem will not further suit for quotation in this connexion, I proceed to say that it is very essential to keep these plants cool in winter, that they may rest naturally, as they do in their native bogs, where they are sometimes subjected to much cold,—to freezing, in fact; though such as *variolaris*, which goes farthest south, as *purpurea* goes farthest north, will not bear frost when under cultivation—at least, to speak with strict regard to truth, I never had the courage to put it to such a test—and find it needs more warmth than many others. At all times, winter and summer, a current of air should pass over these plants. I do not mean a rush of air, but something the reverse of being in a close place. A moist air is good for them at all times. All about them should be frequently made wet, to cause a plentiful dew; and as to what they stand on, let it be a solid bench, not a bed of soil or a trellis, for in either of such positions they may be subjected to excess of evaporation from the too rapid movement of the air around them. Keep in remembrance that they are bog plants; they stand in water, they are bathed in vapour, yet they have fresh air and sunshine. These conditions they need when under cultivation.

Of the species there are not many. The most lovely is *S. Drummondii*, of which there are several varieties, *alba* being perhaps the best. This is of tall growth. The pitchers are nearly a yard high. The lid is most delicately veined with carmine, on a creamy pale green or snow-white ground. The flowers are dull purplish red, handsome and peculiar. The variety of *Drummondii* called *rubra*

has a most majestic habit. The pitchers are richly veined, red and pale green; the flowers mount high above them, and are of a great size, and a most beautiful purplish red colour.

S. flava is also a tall kind, the pitchers being two and a half feet high, and the flowers a trifle taller. The latter are yellowish green, quite transparent; the pitchers also are the same colour. It is a fine species. There is a variety of this called *picta*, which is more distinctly veined than the species.

S. purpurea is very dwarf, with large pouch-like pitchers distended in the middle. The colour of the pitchers is reddish, shading to dull green. The flowers are a fine red colour. This is the easiest to obtain, and the hardiest of them all. In a sheltered position in a bog, it would live through the year in any part of England.

S. variolaris has the lid of the pitcher bent over the mouth of the tube in a manner different to all the rest. It is a beautiful variety, of large growth, and has yellow flowers. The lid of the pitcher is purplish red, spotted with white.

S. psittacina is a miniature, with small pitchers which spread horizontally, with a kind of inverted hood for a lid. The appearance of a perfect pitcher of this is that of a parrot's head reversed, as when a parrot suspends itself head downwards from its perch. The pitchers are dull red, spotted with white, and the flowers are deep sanguineous red. This is very scarce at present. As for seedlings, I do not suppose any one has reared them. I have not been curious on that subject, and they are easily increased by division.

KARL PROSPER.

EDITORIAL NOTE ON MR. PROSPER'S PAPER ON SARRACENIAS.

Our able and entertaining contributor is evidently not familiar with the latest intelligence on the subject of *Sarracenia*. A better code of cultivation than that proposed by him cannot be desired, it is perfect; but we may add a few particulars that he will gladly accept, even if they should prove tedious to some of our readers. Taking the last point first, it is a matter of some interest that seedling plants of *Sarracenia variolaris* have been grown on two occasions at Glasnevin, namely, in the autumn of 1850 and the spring of 1851. Mr. Orr sowed the seeds on the surface of rotted sphagnum, covered them with a bell-glass, and kept the pan and the soil saturated with moisture, and in about a month the plants appeared so plentifully that it was conjectured all the seed had germinated. These plants did well, and were distributed by way of exchange. Dr. Moore described them as having slender awl-shaped seed-leaves, such as left no doubt that the plant is strictly exogenous. The other matter Mr. Prosper refers to is equally interesting, and therein he is undoubtedly right. He laughs at an English naturalist for supposing the ichneumon fly could have anything to do with the insects found dead in the pitchers, and properly, though the naturalist was no less a person than the usually far-sighted Sir J. E. Smith. We have, in a search through the "Horticultural Register," lighted upon the following, from the pen of Mr. Murphy (vol. i. p. 214), which deals with the case in a summary and satisfactory manner:—

The late Sir J. C. Smith, having probably examined the plant when young, and observing that the aperture of *S. adunca (variolaris)* was so completely closed as to exclude water, gave it as his opinion that the tube must have been intended to serve some other purpose; and having stated, on the authority of one of the young men in the Liverpool Botanic Garden, that the flies are deposited in the tubular leaves by a species of sphex or ichneumon, concludes that the flies are deposited by this insect, unquestionably for the food of itself, or its progeny, probably depositing its eggs in their carcases, as others of the same tribe lay their eggs in various caterpillars, which they sometimes afterward bury in the ground. I cannot avoid observing, that this quotation betrays greater inaccuracy in the late venerated president of the Linnæan Society, than one would have supposed compatible with the known industry of that close observer, and ardent lover of nature. We are not acquainted with any species of sphex or ichneumon which, in its perfect state, feeds on dead flies; and to place the fly in which the ichneumon had deposited its eggs in a situation where it must at once cease to exist, would be to frustrate the end designed in laying them, and is contrary to every thing that is known of the habits of these insects; for although the caterpillars often fall victims to these parasites, it is not until the latter have lived for some time, and have reached that stage of existence when they assume one of their metamorphoses.

A leaf of the *Sarracenia flava*, now before me, and from which the sketch was taken, contains no less than thirteen flies, principally the blue-bottle fly (*Musca vomitoria*), with two or three of the common house-fly (*Musca domestica*). I have frequently observed the former of these species, after having penetrated some distance into the tube, struggling in vain to extricate itself; but no sooner had I enabled it to escape than it flew off with its wonted strength and activity. Now, supposing it possible that any species of the sphex or ichneumon, which are occasionally observed in in hothouses, should possess the strength necessary to compel the common house-fly to enter the tube contrary to its inclination, it is far beyond the reach of probability to imagine that it could oblige the blue-bottle to do so; and, however easy it may be for the ichneumon to deposit its eggs in the sluggish caterpillar, it could by no means deposit them in the body of this strong and restless insect. But, if the flies are not deposited in the tubes of this plant by these insects, what is it that induces them to enter? Possibly, as suggested in Kirby and Spence's "Introduction to Entomology," the effluvia emanating from putrid animalcule, in the lower part of the tube, may induce the flies to enter in search of a fitting receptacle on which to deposit their eggs, or they may enter in quest of food; but, whatever be their inducement, repeated observation has convinced me that their ingress is voluntary; and having descended some length, the gradual contraction of the tube, assisted by the short stiff hairs which clothe its inner surface, and which point downwards, effectually prevent their return.

Calendar.

WORK FOR WEEK COMMENCING APRIL 27.

Kitchen Garden and Frame Ground.

CABBAGE, CAULIFLOWER, &c.—Hoe between to loosen the surface and destroy weeds. The frequent use of the hoe will obviate the need of watering in dry weather. It is only where the ground is allowed to bake into an impervious crust that kitchen crops suffer by drought.

PARSLEY.—Sow on a rich border, very thin, and cover the drills with tiles or stones for about ten days; then remove the covering, and the parsley will be found peeping through. This plan hastens the germination of the seed, which is generally very slow.

KIDNEY BEANS may be sown in the open ground now; sow also a few in pots, to make good any that miss in the rows. Sow also in pots or pans sufficient seeds of scarlet-runners for a first planting, to give an early supply. They will be a fortnight earlier in fruit than those sown in the open ground next week. The old scarlet-runner is the best for general purposes: the best white is the Case Knife.

WORK OF THE SEASON.—In cutting asparagus, take only the strongest shoots. Give plenty of water and weak liquid manure. Transplant from seed-beds as fast as the young plants get at all thick, and use the hoe wherever weeds appear, so as to keep them down, before they have time to flower. Plant out capsicums and tomatoes under a hot wall, and cover with bell-glasses till rooted. Sprinkle soot over the ground, and hoe it in a few days afterwards. Sow broad beans, peas, radish, celery, onions, cabbages, cauliflower, horsecole, beet, kidney beans (main crop), lettuce, small salads, spinach, turnips, carrots, endive, and cucumbers for planting out on ridges early in June.

Flower Garden.

ANNUALS will require thinning out, and the straggling kinds will be the better for topping. There are very few who know all that may be done with annuals by giving them a rich soil, plenty of room, and occasionally pinching out the points of the leading shoots.

SPERGULA planted this season will need constant weeding and rolling. Until the turfs join together, weeds of all kinds have their own way, unless kept in check; but after it has closed and begun to form a turf, grass is the only weed that troubles it. Established lawns of spergula need frequent rolling, and that is about all the trouble necessary to keep them in perfect order. If there are many worms in the ground, water with lime-water in damp weather, when the worms are near the surface, to get rid of them, as they not only injure but absolutely destroy this plant, by throwing their casts up in the centres of the turfs.

FLOWER BEDS are supposed to be turned once or twice during winter, and to be manured if necessary in spring. Supposing them to have had such proper attention, now is the time to turn the soil once more, and break the clods, and make all tidy. But beware of making the ground over fine. When muddled into fine powder with rake and hoe, it will either exclude air and rain from the roots of the plants, or if the rain forces admission the soil will become a sort of paste. We are no advocates for raking beds to the fineness of peat-dust, and would sooner see the surface rough with clods broken to the size of one's fist than looking as if it had been run through a sieve. Plant out Lobelias, Pentstemons, Calceolarias, Verbenas, and all the hardier kinds of variegated edging plants. If very hot sun, or very cold nights, shelter with inverted pots or branches, or if trouble and expense are not thought much of for the sake of an early bloom, hoop them over with tiffany, as tulip-beds are treated.

PLANTS ADAPTED FOR ROCKERIES.—The plants that flourish on a sunny rockery with a good depth of sandy soil are many, and easily obtained. A good wide clump of perennial Iberis would delight in the situation, and look a neat green bush all the year round—white as snow about the beginning of May. The Pink, both the species and the florists' kinds, will be less ragged and longer-lived on it than on the level by far, and the colour of its leaves would contrast well with the delightful green of the mossy Saxifrage, so well developed in mid-winter, when almost every other plant is in rags or at rest. The Aubrietias run up and down the chinks, and look far better wrapping themselves round the stone than ever they do on the level. Alyssum saxatile, which is so indispensable to the spring gardener, but which usually rots off on the London clay during the winter, would form a dense imperishable bush on it, and of course the Arabis would not object to it, that being at home everywhere. Then the variegated Arabis lucida, and the still brighter and prettier Arabis procurrans variegata would look very smart on a select spot, and contrast capitally with their neighbours. What could equal the position for the more select kinds of hardy variegated plants? The purple Shamrock, purple Oxalis, variegated Cocksfoot, Festuca glauca, silvery Artemesias, dwarf Gnaphaliums, and a dozen other good things, would look well and do well on properly constructed rockwork. The Houseleeks, of which it is not difficult to get half a dozen thoroughly distinct and hardy species, would be a great help, particularly Californicum, arachnoideum, hirtum, and the common one. Sedums might be had in sufficient profusion to make a beautiful bed of themselves, so great is the variety of form and colour that exists among them, from Sieboldii on one hand to sexangulare on the other, and all hardy as stones, and some very pretty in flower; all are pretty as regards the leafage. S. Ewersii, glaucum, album, Rbodiola, Kamtschaticum (a fine orange-flowering species), and anglicum, may be named as among the most distinct and easily obtained. Many people find a difficulty in getting good things in this way, but the fine collections now accumulated and accumulating at the York and several other nurseries will furnish nearly everything that may be required by the most fastidious which may not be obtained in a local nursery. Calandrinia umhella, well grown, would make a brilliant effect. Of the Saxifragas, pyramidalis, oppositifolia, Andrewsii, crustata, Stansfieldii, and rosularis, should not be omitted. There are nearly 150 species of this genus now in cultivation in England, and all neat and pretty in habit. The following grow as free as grass on sensibly made rockwork: Silene alpestris (pure white, and very dwarf and hardy), Dianthus petraeus (rose, the best of the whole tribe for the rockery), Achillea tomentosa (bright yellow), Campanula (several dwarf species), Erica carnea, Linaria alpina, Phlox verna, frondosa, and stolonifera, Alyssum spinosum, Veronica candida and saxatilis.

PLANTS IN FLOWER GARDEN.—Saxifraga purpurascens, S. caespitosa, S. rotundifolium, S. Pennsylvanica, S. oppositifolium, S. cymbalaria, S. aizoon, S. geraniifolia, Stactea fortunei, Aquilegia alpina, A. Skinneri, A. glandulosa, Gentiana angustifolia, Nemophila paniculata, Symphitum echinatum,

S. asperillum, Thalictrum aquilegifolium, Leontodon aureum, Ranunculus ficaria, Echium violaceum, Phlox subulata, P. ovata, Tragopogon porrifolius, Lychnis diurna plena, Papaver croceum, P. orientale, Trollium Europaeus, Cerastium tomentosum, C. Biebersteinii, Ajuga genevensis, Gentiana altaica, Anthemis tomentosa, Linum sibericum, Geranium Lancastriense, Salvia chamaedrifolia, Saponaria ocyroides.

Fruit Garden and Orchard House.

FRUIT GARDEN.—The east winds that have blown so keenly all the past week have done good for old-established trees, for there is nothing like a dry east wind to set the bloom; but recently planted trees are all the worse for them; what these most want is a leaden sky and occasional light rains. Where the garden is exposed to the east, newly planted trees should be safely staked, and the ground be liberally mulched about their roots. Protection is still needful on fruit walls, but at the first change to westerly winds it may be removed. Meantime let the trees have air as much as possible. Dry borders in gardens where the soil is rather thin and hot require now a good soaking with water. Small quantities will do more harm than good, but a heavy dose will do immense good. On deep and fat loams the trees will do very well till rain comes again.

ORCHARD HOUSE.—Trees in pots will have plenty of water and plenty of air. A good breeze through the house will do them good, and it will be a help to shut up with a little sun-heat. If this house is now over crowded with all sorts of odds and ends that have been brought in through the overcrowded state of other houses, say at once farewell to the fruit crop. The crowding of fruit houses with things that have no right to a place in them is a common cause of failure. Renew the top-dressing now, and let it be good. Trees in horders must have plenty of water. Look out diligently for the little fat grubs that cause the leaves to curl. They must be caught in detail; there is no certain manner of dealing with them wholesale.

STRAWBERRIES that have been forced require to be carefully hardened off before removing them from the protection of the glass. Place them in a cold pit for a fortnight, and then plant them out, and they will do well. Those now fruiting to have plenty of air, or the fruit will lack flavour. Discontinue the use of liquid manure as the fruit advances to ripeness.

FRUITS IN SEASON.—Apples: Ashmead's Kernel, D; Brownlee's Russet, K D; Coe's Golden Drop, D; Cornish Gilliflower, D; French Crab, K D; Hamheldon Deux Ans, K D; Holbert's Victoria, D; Minier's Dumpling, K; Nonpareil, D; Norfolk Beefing, K; Northern Spy, D; Ord's Apple, D; Reineette du Canada, K D; Reineette Van Mons, D; Ribston Pippin, D; Royal Russet, K; Spring Ribston, D; Striped Beefing, K; Sturmer Pippin, D; Winter Quoining, K D.

Pears.—Bergamotte d'Hollande, Beurré Bretonnean, Beurré de Rance, Crassante de Mars, Fortunée, K; Josephine de Malines, Léon le Clerc de Lanté, K; Van de Weyer Bates.

Grapes of last year's crop are quite over now, and the only supplies are those furnished from the early vinery. The following are now in season:—Early Chasselas, Golden Hamburg, White Sweetwater, White Frontignan, Red Frontignan, Chasselas Masqué, Muscat Hamburg, Purple Constantia, Black Hamburg, Black Prince, Trentham Black, Lady Downe's Seedling. It is early yet for Muscats to be in fine condition, but Bowood Muscat, Canon Hall Muscat, and Muscat of Alexandria will be coming in soon from first-class heated vineries.

Strawberries.—The forcing-house and pit will supply Black Prince, Keen's Seedling, Wilmot's Prince Arthur, Swainstone's Seedling, Sir Charles Napier, Ingram's Prince of Wales, May Queen, British Queen. The last, if forced with skill, has its proper flavour now.

Peaches.—The early peach-houses should now supply good samples of Small Mignonne, Ahec, Acton Scott, Early Grosse Mignonne, Early York.

Nectarines.—Bowden, Hardwicke, Hunt's Tawney.

Cherries.—Adam's Crown,* Baumann's May,* Belle d'Orléans,* Black Tartarian, Bowyer's Early Heart, Early Purple Gean, Knight's Early Black, Werder's Early Black.* The best four of these for forcing marked with asterisk.

Figs.—Angélique, Brown Turkey, White Ischia, Early Violet, Mar-seilles.

Greenhouse and Conservatory.

HERBACEOUS CALCEOLARIAS coming into bloom may be put in the coolest place that can be found for them; currents of cold air, and a close stifling atmosphere are equally prejudicial to them. Green-fly will probably be found clustering at the base of the trusses, and instead of fumigating, it will be better to remove the fly with a moist camel's-hair pencil. Young plants for late bloom must now be shifted on, and, by planting them deep in their new pots, encouraged to make roots from the stem—a plan which keeps them short and healthy. This is a good time to take cuttings, as the propagating bed is not much occupied, and a little heat suffices for these plants.

AZALEAS OUT OF BLOOM must be set growing freely in a warm moist air. Give manure-water to old plants that have filled their pots with roots, and shade during midday. Any pruning needed should be done at once, to bring the plants into shape for next year. Taken at the right moment—that is, just as they are about to break into new growth—Indian Azaleas may be very hard pruned, if required to give them any desirable form. At the same time it will be well to turn them out, reduce the ball, and repot in smaller pots with peat and turfy loam as firmly as possible. Shut them up with a moderate bottom-heat, and syringe frequently; but give very little water at the root till they start away; then give plenty of water, and keep growing till the points show the formation of bloom-buds; then harden off, and in due time put them out of doors to ripen the wood.

BEDDING PLANTS to be got from under glass as fast as possible, to harden off in the open air. Never plant immediately after removing from warm pit or greenhouse; but let them have at least a week in the open air, kept rather dry, and with some protection at night in case of frost.

CALCEOLARIAS for exhibition must now have abundance of water, and be shaded during midday; as the trusses rise give manure-water twice a week. Keep the plants cool and airy, and tie in time to keep them from getting out of shape. The herbaceous kinds will be eaten up with fly unless care is taken. Fumigate at night when the plants are dry, and next morning syringe freely. We find Gilroy's self-acting fumigator a most useful instrument; it has but to be filled, and the spirit-lamp lighted, and the house shut up, and it delivers the smoke in a cool dense cloud as long as there is a particle of tobacco left.

Roses under glass are in grand condition this season. It is of no use

to expect good flowers if vermin are left to eat them up. Fumigate twice in succession, and give plenty of air. Most of the good perennials and teas are now in full bloom in unheated houses. This is a good time to plant out roses in conservatory borders, and to prepare beds for turning out plants from small pots in May.

FUCHSIAS not yet repotted must be attended to quickly. Large shifts suit these admirably. Young plants recently struck from cuttings grow fast in cocoa-nut dust for the first shift. Those advancing to bloom must be frequently looked over, to keep down vermin, and must have plenty of syringe.

FERNS in pots require either a shift or a renewal of the soil. In either case turn them out, and break away some of the old stuff from the outside of the roots, and repot either in the same or larger pots, using good turfy loam for all strong-growing kinds, and those that must have peat to have the best peat in rough lumps. Ferns are too often starved, owing to the common but erroneous notion that a poor sandy peat is sufficient for them, which is a mistake.

GREENHOUSE PLANTS IN FLOWER.—*Clostris quercifolia*, *Cianthus puniceus*, *C. carneus*, *C. Dampieri*, *Sempervivum aizoides*, *S. canariense*, *Leptodactylon Californicum*, *Diosma succulenta*, *D. subulata*, *D. rubra*, *D. corymbosa*, *Epacris grandiflora*, *E. miniata*, *Diplacis glutinosus*, *Entaria pungens*, *Gastrolobium speciosum*, *Dillwynia sericea*, *D. junipera*, *D. speciosa*, *Olea dioica*, *O. Americana*, *Euchilus obovatus*, *Berchemia floribunda*, *Gardoaquia multiflora*, *Habrothamnus elegans*, *Grevillea acuminata*, *Bignonia capreolata*, *Gompholobium angustifolium*.

FRAME PLANTS IN FLOWER.—*Deutzia scabra*, if not forced, is now in its full beauty. Double wall-flowers in pots are now at their best; *Ornithogalum thyrsoides*; various species of *Genistas*, *Cytisus*, *Coronilla*, and a few of the early-flowering *Ixias*; also *Diclytra spectabilis*, *Sempervivum arachnoideum*, *Echeveria secunda*.

ERICAS IN FLOWER.—*Andromedaeflora*, *daphneflora*, *cinerascens*, *Coventryana*, *Lawsoni*, *crassifolia*, *viridi purpurea*, *dumosa*, *erubescens*, *ferruginea*, *longiflora*, *primuloides*, *procera*, *refulgens*, *Russelliana*, *tubiflora*, *turgida*, *vestita blanda*, *ardens*, *floribunda*, *celesiana*, *baccans*, *calycina*, *capitata*, *perspicua*.

SEEDLING CYTISUS.—All these seed freely, and the seedling plants come generally true to their parents, even in the case of peculiar varieties. The amateur cultivator will find it an agreeable recreation to raise seedling stock of the choicer kinds of *Cytisus* and *Genista*, and there will always be the incentive of an expectation of something novel and valuable; for though they are so little apt to vary from the original type, there will be found many variations of habit and vigour in a batch of seedlings. The seed should be gathered before it is dead ripe, for fear of loss by the spontaneous opening of the pods, and should be sown in a mixture of peat and leaf-mould, and placed on a gentle hotbed. If early sowing is not convenient wait till the middle of May, then sow in shallow pans, cover the seed with the sixteenth of an inch of soil, lay a square of glass over each, and place them on a back shelf of a warm greenhouse or in a frame, and in three weeks there will be plenty of small plants. The seedlings from the early sowing will be potted in thumbs singly in May; the soil to be peat and leaf-mould and silver-sand, equal parts. In July they will require a shift to 60-sized pots, and the soil is then to be peat, leaf, and turfy loam, equal parts. They will require a little care as to watering from the first, because of the tendency of peat to dry quickly, and from the 1st of August or in a frame with the lights off night and day to harden them for the winter. When housed for the winter the majority will be handsome plants of from four to twelve inches in height, and some will show such a naturally bushy habit as to require no stopping or training. Seedlings raised by sun-heat in May will only need one shift, and as they will be less forward by winter time than those from seed sown in January, it will be advisable to prick them all out into shallow boxes, which will secure them from risk of drought, and lessen very much the trouble of keeping them. The next year, in April, they may be potted into 60-sized pots.

CYTISUS FROM CUTTINGS flower much earlier than those from seed, and for market growers cuttings are always to be preferred. The cuttings should be taken from the end of April till the end of May; short young side-shoots of two inches length are the best. These stripped of their lower leaves and dibbled into a pan of silver-sand, covered with a bell-glass and placed on a gentle heat of fermenting tan or hops, will be well rooted in about four weeks, and will then require to be dealt with in the manner described for seedlings. It is a waste of time to put in ripe shoots of the previous year, or indeed any hard and mature wood, for cuttings. The robust-growing kinds, such as *Cytisus Alleeana* and *Everestiana*, make handsome standards, if well managed. Select plants from the cutting pans which show extra vigour, and in potting use from the first a fifth-part of very rotten dung with the peat and loam otherwise recommended. At the first potting insert a straight stick in each pot, and train the leader to it. The leader must not be stopped, but all side-branches must be nipped in rather close, and those nearest the bottom be cut clean away, a few at a time, as the leader advances. If the side-shoots are cut away too fast the stem will be weak and slender, so a moderate amount of side-growth must be allowed for the sake of strengthening the stem, and these shoots are to be successively removed from the base of the stem upwards, as others are thrown out above them, to maintain a vigorous growth. When the stem is as high as desired—say from two to three feet—nip out the point of the leader, and form the head by carefully stopping and training as the growth advances. Seedling plants will always produce a fair proportion of vigorous growers, which may be grown to clean stems, and used as stocks to graft choicer varieties upon to form the head.

Stove and Orchid House.

ORCHIDS THAT MAY BE IN FLOWER.—*Saccolabium retsum*, *Arides odoratum* *cornutum*, *A. virens*, *A. virens grandiflorum*, *A. virens superbum*, *Coryanthes macrantha*, *Stanhoepa grandiflora*, *Brassia maculata* *major*, *B. verrucosa*, *Epidendrum cinnabarinum*, *E. Stamfordianum*, *Chysis bracteescens*, *Saccolabium ampullaceum*, *S. curvifolium*, *S. guttatum*, *S. præmorsum*, *Calanthe veratrifolia*, *Cattleya citrina* and *quadricolor*, *C. Edithiana*, *C. intermedia violacea*, *C. lobata*, *Cypripedium villosum*, *Dendrobium Delavonianum*, *D. Falconeri*, *D. longicornu majus*, *D. transparent*, *D. tortile*, *Laelia grandis*, *L. purpurata*, *L. purpurata Williamsii*, *Chysis Limminghii*.

ORCHID-HOUSE.—While we have fierce sunshine with east winds great care is requisite in regard to shading and air-giving in the orchid-house. Remove the shading as early in the afternoon as circumstances will allow, so that, in fact, there will be some amount of actual sunshine on the house

at the time of shutting up. Damping of walls, floors, and stages must be assiduously attended to, and plants growing freely must have water enough.

BEONIAS to be repotted if required. This is a good time to propagate. STOVE PLANTS recently potted to be kept on a good bottom-heat. Shift *GESNERIACS*, *Gloxinias*, *Clerodendrons*, and other fast-growing plants. Justicia out of bloom to be potted in peat, rotten dung, and loamy turf, equal parts. As fast as plants come into bloom, remove them to a cooler atmosphere. There must be no crowding in the stove now. Whatever can be propagated now will be better done than in autumn, as the young plants will have a long growing season before them to fill their pots with roots. Therefore buy in any new varieties of choice subjects which it may be desirable to propagate from.

Forcing Pit.

PINES showing fruit to have clear liquid manure given warm and weak. Syringe to be used before shutting up. After they have been shut up for an hour at 85°, give a little air before night, but cautiously for fear of a chill. As soon as the fruit shows colour, discontinue the syringing, and give very little water at the root. Succession plants to be kept liberally ventilated, to induce a robust growth, so that when they fruit they will not require stakes.

CUCUMBERS in fruit may be kept going now by linings of grass mowings. We have for many years used grass mowings, mixed with dry straw and other such waste, in trenches on either side of the beds; and though the heat is sudden, fierce, and of brief duration when grass is heaped up by itself, when mixed with dry litter it is more moderate and lasting, and one dressing will last well until the next mowing takes place to furnish a fresh supply.

MELONS to be kept regular in growth, and the vines some distance apart, to ensure a healthy leaf development. Plenty of sun and moderate water are essentials of success in the early growth; and we practise syringing early in the morning, and find it advantageous. As soon as a crop is set, soak the bed with tepid manure-water, and continue syringing until the fruit is fully formed; then discontinue it.

VINES from eyes this season should be shifted on as fast as they fill their pots with roots. They may have large shifts now, and be kept constantly syringed, to ensure a growth of strong rods. Muscats in bloom must have a liberal temperature till their berries are set. Vines with fruit beginning to colour to have plenty of air when weather permits, and especially for a short time before the sun gets on the house, so that the first vapours that rise may be carried off at once. All outside borders that are covered now are the worse for the covering. Remove it, to allow the sun to warm the roots.

ON THE HYBRIDIZATION OR CROSSING OF PLANTS.

By ISAAC ANDERSON-HENRY, Esq., F.L.S., of Woodend.

Read at a Meeting of the Edinburgh Botanical Society.

This may be truly characterized as the age of inquiry and investigation. Into every department of natural science men, well qualified for the work, have of late years come forward, most of them honestly intent on the pursuit of truth, to stick by its revelations, uninfluenced by theories of others, or the natural bias of their own minds. But few men who have proceeded far and discovered much are wholly free from yielding to the latter tendency. None have made such progress in discovery in this field of practical botany, or by better-tested experiments, perhaps, than our great countryman; and if ever man was more enticed than his fellows—I should rather say, his followers—in that field to run ahead and be drawn into speculations, he is that man. Dissent as we may, and will, from the conclusions to which his speculative generalizations lead, all of us must, with pride, acknowledge that Darwin has thrown more light into this department of natural science than was ever done before by any, or by all, who preceded him. What Newton was in the starry spaces, he has been in the fields below. And if Newton enunciated no theory to which his fellow-men refused assent, the same could not be said of some other philosophers scarcely less distinguished. We have all heard how Kepler, having made his extraordinary discoveries in the motions of heavenly bodies, since known by the laws which bear his name, which, though he could not at first establish by proof (yet their truth has since been amply confirmed), gave loose to fancy so far as to believe that the planetary bodies, even this earth on which we live, and move, and have our being, were themselves living creatures; and have we not all heard of the theory of Laplace, who even led Sir John Herschell, and after him a train of master minds, into the faith (which it was utter heterodoxy even to question) of innumerable creations going on, on every hand, in the remoter heavens, till Lord Rosse, one fine night, with his powerful telescope, resolved the nebulae in Orion, and dissolved the nebular hypothesis for ever? In fact, it seems the besetting sin of great and original minds, just by seeing farther, and discovering more than their less enlightened brethren, to run astray, and get bogged in erratic ground; and that either as a sequence of such discoveries or as a prelude to them—some starting with the truth and steadfastly adhering to it so far as facts will carry them, and theorizing for the rest; while others, to attain remote conclusions by a jump, boldly set forward in pursuit of the *elixir vite*, or that stone by which all metals might be transmuted into gold. And these last, pursuing an *ignis fatuus* from the beginning, stumbled in the end upon discoveries, which, however, have since been turned to good account.

If running into error, either at the outset or in the end, give any just title to distinction, I too might put forward a claim, securely based upon these double grounds; for were I to contrast my successes with my failures, it would be as setting off units against thousands.

I started in my experiments about or before the year 1840, and in firm reliance on the truth of the *Lamarckian doctrine*, as I subsequently wrote in an article I furnished, on Hybridization, to McIntosh's "Book of the Garden." I stated my belief that "nature in the beginning, as conjectured by Linnæus (I should have said Lamarck), was occupied by but few original types of the innumerable vegetable forms which have been transmitted to us. How these few first types have become varied and multiplied from classes to tribes, from tribes to genera, and from genera to species, and endless varieties, belongs to those mysteries of divine agency which set all inquiry at nought," &c.* Yet I could not discard the faith (natural enough) that by skilful manipulation and studying the times and seasons favourable and unfavourable to such operations, I could make nature

* "Book of the Garden," vol. ii., p. 319.

stretch a point so as to restore union, if not unity, between and among things related by consinship some fifty times removed; and by this means transmit among flowering plants all that was beautiful in colour, and elegant in habit, from any one vegetable form to any other at all akin to it. In like manner, among fruits, how easy did it appear to infuse the rich *aroma* of the strawberry into every cognate thing! When I look over my *notanda* of fifteen or twenty years back, I see veritably recorded in my experiment books such and such things to be done in this way—of which, perhaps, the simplest might be to cross certain species of the *Rubus* with the *Fragaria*, among which genera the raspberry in the former and the *haulbois* in the latter tribe looked promising. Again, having got a small trailing species I raised from Andean seeds (*Rubus glabratus*), I meant to cross it with *R. arcticus* or with *R. Chamamorus*—in short, I formed great designs of intercrossing the *Rubus* family, one with another, on a large scale, and felt certain of a successful issue. Though I failed in all of these, I never doubted my ability, and certainly it looked among the most feasible of things, to improve the hramble by crossing it with the raspberry. And although I have heard that such a union has been accomplished, I remain an unbeliever; for, among all the most intractable things I ever took in hand, I found the intercrossing of any one species of *Rubus* with another (and I have tried them in all possible ways, and under the most favourable circumstances) the most impracticable, and, as yet, I have only to record universal failure. I may, however, return to this tribe hereafter.

Some of my earliest efforts, however, were among what have been since denominated "florists' flowers," such as the calceolaria, the dahlia, the fuchsia, &c.

At that time every colour had been brought out in the dahlia save blue; and some began to speculate upon such a colour being realized, though none, so far as I was aware of, ever suggested the means of accomplishing it. This, however, seemed to me no great matter to achieve. I looked over the tribes bearing the nearest affinity to it, among its natural family, the *compositæ*, having the desired colour, and I found many flowering plants, such as *Aster*, *Agathaea*, *Kaulfussia*, &c., having various tints of blue, sufficient as I thought for my purpose. With the pollen of these upon a white dahlia a blue might, I believed, be obtained; but it was calling spirits from the vasty deep, for neither blue nor even white, not even a ripened seed ever came of it.

I need not allude here to similar efforts with similar results among other tribes; for, as an untaught experimentalist in hotany, I felt fettered by none of its laws, and became a law unto myself, believing that failure now might be success again, and so I went forward. Unvarying failure, however, damped my zeal bit by bit, and I began to see that I could not transfer a colour alien to any one genus from another genus remotely akin to it, to which such colour was common. Yet ere I leave this subject I may observe a rather unusual freak of nature, which I set down as due to an experiment of a somewhat similar kind. At the period I refer to, now upwards of twenty years ago, we had few species of fuchsia save *F. globosa* and *fulgens*. It was the rage then, as it partly is still, to bring out large blooms; so, with that object in view, as well as to infuse some intermixture of colour, I crossed, or attempted the crossing, of *F. globosa* with a yellow-flowered *Enothera*. I cannot vouch for the cross being true, for the progeny was a plant to all external appearance a fuchsia, like *F. globosa*, its female parent, having flowers of the ordinary *globosa* form and size, but with lightish green tips on the tetrapartite calyx. Now, although I could not regard this plant as a hybrid or mule, yet I could not reject the evidence of these light tips so far as to believe the *Enothera* had not influenced them. The fuchsia and *Enothera*, though so unlike, stand in no remote degree from each other in the tribe *Onagrarieæ*, a tribe, he it remembered, of but few genera.

Well, this was like the "glorious nibble" to the zealous angler, who fished all day on the faith of it. But it helped to keep me from further seeking to outrage the modesty of nature, as in my effort to change a white into a blue dahlia. Yet for that wild dream of fancy I was not wholly without warrant, or without a colourable pretext, for ere I gave into it I had, by crossing a red-flowered calceolaria on one with purely white flowers, produced a change in the purity of the untouched flowers of the latter plant, many of which, soon thereafter, became flushed with a roseate tint. I communicated the result to Dr. Neill, who, I remember, felt great interest in it, instancing something of a like nature produced by grafting operations, communicated to him by Mr. Brown, of Perth.

(To be continued.)

Replies to Queries.

Amaryllis.—R. W. Johnson.—Those that come most under the notice of gardeners are *A. belladonna*, *A. pallida*, *A. blanda*, *Brunsvigia grandiflora*, and their hybrids, all natives of the Cape, and as such the easiest divisions of the tribe to manage, being strictly seasonal in their growth. From these *Hippeastrum*, generally confounded with *Amaryllis*, stands quite apart. *Amaryllis* will go to rest when its season of rest comes, or will punish its possessor in some way or other; but *Hippeastrum* may be grown and bloomed at any season, and being thus without a very distinct law of its own, it requires care and judgment to manage it effectually. Respecting the *Belladonna* lily, we only need remark that it is as hardy as a tulip, that it loves sand, and when out of doors should, if possible, be planted under a wall in a shady but sheltered place, and left to take care of itself. The other species and their varieties are more tender, and we obtain a key to the treatment of them by calling to mind the climatal influences they are under at the Cape. They grow wild where the soil is very sandy; they bloom before the heat of the season has reached its maximum. After flowering, their foliage begins to die down, and just as their bulbs get to rest the heat rises to 100°, and the hulbs ripen in the natural hot-bed of dry sand, which burns the native *pelargoniums* to sticks. These points must be borne in mind by the cultivator, or he cannot expect to succeed; but once get a few good sorts, treat them as Nature treats them at home, and you will not only have a splendid bloom, but an abundance of offsets, which very soon take to a habit of flowering. But under pot culture sand alone will not suffice as a source of nourishment for *amaryllids*. The best mixture is turfy loam, thoroughly rotted and pulverized, one part; sharp sand, one part; leaf-mould, sweet and completely rotted, one part. If the loam is poor, add decomposed cow-dung, not more than one-sixth of the whole bulk. When rotted, put in a steady bottom-heat at once, the average to be 55°, the most effectual drainage

possible, and plenty of water. The flower scapes will rise in a fortnight, and the stately flowers will produce their colours and rich perfume in perfection. A tan-bed, or the coolest part of a tank in any sweet plunging material, will just suit them, and the best time to pot them is when they begin to start of their own accord. When the bloom is over, every possible encouragement should be given to the growth of the foliage, a warm moist atmosphere and an increased bottom-heat being most essential. As soon as the foliage shows signs of having done its work, dry them up, and increase the bottom temperature to 70° for a fortnight, and let them cool, and finally store away in the pots without disturbing them on a warm dry shelf, the pots laid on their sides. They ought to rest two months at least, and then may be left untouched till spring in a dry corner of the stove, or may be potted at once for early bloom. Where there is no stove they must have the warmest place in the greenhouse for flowering, and be roasted to rest on a top shelf, the bottoms of the pots turned towards the sun. A thorough maturation of the foliage, and a complete and dry rest, are of the first importance. Bearing these two points in mind, it will not be found difficult to flower them in frames and pits later in the season, and thus keep up a succession of these esteemed flowers.

Myrtle Hedge.—R. W. B.—A myrtle hedge must be managed in the same way as a stock of geraniums, or any other tender bedding plants. In October they should be taken up, and either planted out in a hed of loam in a cold pit, or potted separately and placed in a pit or greenhouse. This would be the only safe and certain method of keeping them for ever. To keep them for a few years more or less, they may be left in their places, and in a mild winter would not only take no harm, but look beautiful, and be doing good, for the annual lifting is not altogether beneficial to them. But there is a way of hitting a medium course. Plant out your little myrtles when two or three years old. Plant them early in May in strong loam, abundantly manured. In the month of June immediately following put in a lot of cuttings, and grow on a stock of young plants, and keep these plants in pots as a reserve, and if there comes a severe winter, and the hedge or ribbon line is cut off, you wait for spring, plant out the reserve, and again raise a fresh stock. The main reason why so many scrubby, leggy, and shrivelled myrtles are to be seen is because it is very seldom they get food enough. Order in large myrtles from a nursery, and what yellow-leaved, lanky, poverty-stricken plants you get! That must be borne with, because the trade are compelled to keep these things in as small pots as possible. But plant them out in a deep yellow loam with abundance of rotten dung worked in previously, and give them manure-water once a week from the end of May till the end of July, and what bouncing plants they soon become, the foliage dark and as glossy as if varnished, and the bare stems abundantly clothed with leafy twigs! and if they are in a hot position (as they ought to be) they will flower abundantly, and perhaps grow to the dimensions of trees, if allowed, before they are hurt to the extent of a leaf by any severities of weather. For a hot wall a few large myrtles are every whit as useful as the best of roses, pomegranates, or even magnolias, and the best way to train them is to allow of the free growth of breastwood, so that they will present bow fronts.

Begonia fuchsoides.—R. W.—It is scarcely possible to succeed to satisfaction with *Begonia fuchsoides* in a greenhouse. In an intermediate house it may do pretty well, but we will just say how we used to manage it years ago, and we certainly never saw it so fine as we used to have it. Cuttings were put in in April, and grown on liberally all the summer in the stove, and kept them moving all the next winter, and the following spring until June, when, if they had gone on well, they were in 12-sized pots, and fine pyramids six feet high, well furnished with branches from the pot upward. The first week in June they were set in a corner where they were sheltered from the sun and wind on the south and west by a nine-foot wall, and from the north and east by a thick shrubbery. Here they remained till the first week in August, when they were set in the greenhouse, with *gloxinias*, *achimenes*, *cockscombs*, and other things. In this situation they began to show flower immediately, and before the end of the month they were one mass of bloom, and so remained until the beginning or middle of October, when they were thrown away, as others were coming on for the next season. Our plants were the admiration of every one who saw them. We attributed their abundant flowering to the partial rest they obtained the two months they were out of doors, and the sudden excitement caused by being placed in a large airy greenhouse, under the grateful shade of vines, which partially covered the roof. We used to treat in the same way very successfully several members of the lovely genus *Æschynanthus*.

Plants for Baskets.—Brown.—The easiest and most effective basket plants are easily discovered. All the trailing *Tropæolums*, and especially those of the *Lobbianum* race, are suitable. *Campanula garganica* makes a beautiful blue fringe on the edge of a basket. *Pilogyne suavis* and *Mikania scandens* make elegant green wreaths four or five feet long. *Thunbergia alata* is peculiar as well as elegant. There is nothing else like it either in style or colour. Then there are the ivy-leaved geraniums, and the pretty variegated geranium called *Manglesii*, with *petunias*, *verbenas*, and *Lobelia erinus*, all suitable for baskets. After stopping *pelargoniums* at this time of year, you must expect to wait six weeks ere they will be full of bloom again. Later in the season, five weeks will be about the time.

ARTIFICIAL CULTIVATION OF TRUFFLES.—After a long and diligent study of the locality and natural conditions under which this esteemed delicacy is produced, M. Rousseau, of Carpentras, in France, has succeeded in his attempts to cultivate truffles, and has already raised a very fair crop. There is no reason why they should not be grown with equal facility in England, and it might well be worth the serious attention of some of our scientific agriculturists to devote a few acres of their land to give it a fair trial, the more so as a plantation of oak-trees is of importance, both in a national and pecuniary point of view. The truffle grows exclusively under oaks standing not too closely together, and free from underwood, and in a soil of chalk or light clay, with a southerly aspect, and on a slope. M. Rousseau had a suitable piece of very inferior waste land ploughed up as it for a vineyard, and then planted in distant rows, running north and south, with acorns gathered from oaks under which truffles were known to grow. After five years he was rewarded for his patience by obtaining a small quantity of truffles, which increased so much every year that the produce of his plantation, which was only four hectares or ten acres in extent, amounted, in the five years from 1862 to 1866 inclusive, to no less than 1300 kilogr. or 2,600 lb., equal to 260 lb. per acre for the five years, or 52 lb. per acre every year.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun.				Moon.				WEATHER NEAR LONDON, 1867.				M. Amp. avg. of 43 yrs. Growth	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D
			rises.	sets.	rises.	sets.	Barometer.	Thermometer.		Rain	Max.	Min.	Max.	Min.			
1867			h. m.	h. m.	h. m.	h. m.	Max.	Min.	Max.	Min.	Max.	Min.					
5	S	2nd Sunday after Easter	4 58	7 27	5 37 a.m.	8 54 p.m.	30.13	30.04	60	39	49.5	01	51.8	<i>Acerides virens superba</i> ...	India	1857	
6	M	Savings Banks introduced, 1815	4 50	7 29	5 23 "	10 4 "	30.21	30.19	62	43	52.5	00	51.8	<i>Corynthes macrocha</i> ...	Ceylon	5	
7	T	Napoleon I. made Consul, 1804	4 24	7 39	7 18 "	11 5 "	30.72	30.99	68	32	50.0	00	51.8	<i>Stanhopea grandiflora</i> ...	Trinidad	7	
8	W	Length of day, 1 h. 10m.	4 22	7 32	8 21 "	11 57 "	30.6	29.48	61	41	51.0	05	51.6	<i>Stanhopea maculata major</i> ...	Jamaica	8	
9	Th	Schiller died, 1805	4 21	7 33	9 28 "	"	29.80	29.77	70	49	55.0	02	51.4	<i>Stanhopea</i> ...	Mexico	9	
10	F	President Jefferson Davis taken, 1865	4 19	7 35	10 40 "	0 40 a.m.	29.94	29.91	70	44	57.0	11	51.3	<i>Epilobium cinnabarinum</i> ...	Perambuco	10	
11	S	Pitt, Earl of Chatham, died, 1783	4 17	7 36	11 51 "	1 16 "	29.63	29.55	61	39	51.0	15	51.3	<i>Epilobium cinnabarinum</i> ...	Guatemala	11	

The Gardener's Magazine.

SATURDAY, MAY 4, 1867.

SPRING FLOWERS HAVE A FEW MORE ADMIRERS NOW than they have had for some years past. We begin to be persuaded that our advocacy of their claims, and our criticisms of their merits, have not been in vain, and that possibly we have turned the tide of fashion in favour of the many beautiful hardy plants that are adapted for the embellishment of our gardens, but which have for many years past been neglected, owing to the fanatical rage that has prevailed for plants that are tender in constitution and ephemeral in their attractions, and comparatively destitute of interest. In a certain sense, every plant has a claim upon our admiration of its structure, and some points of interest arising out of its history, physiology, uses, or distribution. But the general question is not raised when we direct attention to hardy plants as admirably adapted to gratify the tastes of amateurs who keep gardens and gardeners for purposes of recreation, the embellishment of the home, and as means of education for their children. It is not a general but a particular question that arises, whether all the resources of an establishment shall be directed to the production of a gorgeous display during the months of June, July, and August, to the exclusion of numerous beautiful and interesting subjects, or whether the best means shall be taken to secure interest and beauty for all seasons, even if the bedding display should have to be reduced in magnitude and glory. And, as a rule, the bedding display will be contracted, and hardy plants will have more attention and be better appreciated, and gardening will become less costly, more delightful, and will secure thousands of new votaries. In this cold and unusually late spring, when we see on every hand evidences that this is a fickle clime, the good old spring flowers have been as beautiful as ever, though later than their usual period of flowering. Even now the shady banks are everywhere dotted with primroses and violets, the open meads are poor in grass but rich in cowslips, and the cold has so retarded the bloom of pear, plum, and cherry, that in many cases we find these trees to be in bloom with the apple in the same garden, a rather rare sight, for the rule of the apple is to bloom the latest of all. There was a rather dull trade last autumn in bulbs, owing, doubtless, to the depression of trade and the general scarcity of money, consequent on a great financial crash and a small harvest. Yet several notable displays of spring-flowering bulbs have been made this year; we have remarked upon the charming display at the Temple, and we now have to notice a display of early tulips in Hyde Park, the bulbs for which were supplied by Messrs. G. Gibbs and Co., of Down Street, Piccadilly; and a display of the same beautiful flowers at the Wellington Road Nursery of Messrs. E. G. Henderson and Son. Our horticultural amateurs are scarcely aware of the vast variety and exquisite beauty of the hardy plants that flower at this season of the year. It is but in a few gardens they are to be met with; it is but in few gardens they are cared for and understood. But there is much inquiry about them. Trade cultivators, who a few years since cleared them out from their nurseries as weeds and rubbish that "did not pay," now wish they had been more wise, for they would have "grown into money" if they had kept them; and the demands of the time compel them to make purchases, at comparatively high prices, of things that ten years ago they considered as rubbish. It is a fickle climate, but not more fickle than the tastes of the people who endure its rough usage, and thrive under its assaults of heat and cold, and wet and dry, that have no rule and change from one to the other without warning. Yes, there are thousands of persons who are interested in gardening who can now see beauty in hardy border flowers, though a few years since they spurned such things as fit only for cottagers, and thought Mrs. Pollock geranium the most recherché object in the vegetable kingdom, and entitled to a garden "all to itself," with an acre of glass and a large staff of gardeners to keep it through the winter. The plain truth about the matter is that for some time past the cottagers have had the best of it: their great patches of white arabis, and yellow alyssum, and purple aubretia; their velvety and richly-laced polyanthuses, their double varieties of *Primula vulgaris*, and their sweet-scented stocks and wallflowers,—have made a mockery of the rich man's parterre, which is a mere desert, made ridiculous by being cut into ovals, diamonds, spirals, and zig-zags, all blank and bare when the cottager's garden is brimming with flowers and

eloquent with perfume, and every tree is a bower of sweets and a musical academy. Now and then we come across a cottage garden where the "bedding system" reigns supreme, and we pity the poor man who cannot be happy without aping those still poorer people who delude him with a bad example. But, as a rule, the simple-minded has the peculiar faculty of holding tenaciously to truths of permanent value, and so, while fashions change in big gardens, one good old fashion rules in little ones, and that is the fashion of loving beautiful objects without respect to their money value, or any momentary excitement that may be raised about them. There will not be seen this season amongst all the bedding displays anything to surpass a good tuft of the double crimson primrose, such as we have before us at the moment of writing this. We shall visit the great gardens, and report upon their splendours, but we shall see nothing more beautiful than our own double white, crimson, and yellow primroses, our own laced polyanthuses, our advancing tufts of elegant iris, our delicate saxifragas, our broad patches of snow-white iberis and gold-embossed alyssum. These and a thousand other beauties of not less merit take care of themselves, fetch all their own water, constitute themselves a mutual protection society, and are as proof against frost as *Lichen Islandicus*, which hugs the cold as its life and joy.

The display of auriculas at Regent's Park on Saturday last met with more general appreciation than has been the wont for some years past. The charming collections of these indescribable flowers presented by Mr. Turner, of Slough, in all the freshness that we associate with the idea of spring, and with almost more of the perfections that are looked for by the florist, were admired by many who have heretofore affected to despise such things as "florists' flowers," but have at last discovered that beauty is better than prejudice, and nature a better monitor than fashion. We have seen in our journeys westward some charming collections of spring flowers in old gardens and neglected nurseries. The time is at hand when the old gardens and neglected nurseries will be regarded as the Alhambras of floriculture, and we shall turn from ephemeral displays that are costly to things of permanent value and beauty that are as cheap as sunshine and fresh air, and wonder that the horticultural mind could have been so long under the influence of a delusion. These remarks are not intended to be antagonistic to the bedding system. Promenades and parterres need as much to be furnished, and richly furnished too, as do dining and drawing rooms. Where the bedding system is in keeping with its surroundings, it is one of the necessities of first-class gardening, as essential in its place as carpets and pictures are within doors. But when small gardens and contracted purses are enthralled by it, when an open space called a garden is kept destitute of beauty and interest nine months in the year that it may be absurdly gay during the remaining three, we can only say that such an abuse of the bedding system brings disgrace on the art of gardening; and all who are jealous of the honour of our art should pronounce such an abuse to be obnoxious, ridiculous, offensive, paltry, peurile, and inimical every way to the cultivation of what by sensible people is understood by the word *Taste*.

AMONGST VARIOUS INTERESTING EXAMPLES OF SPRING FLOWERS lately brought under our notice, we feel bound to remark upon two distinct strains of polyanthuses. Messrs. Dillistone and Co., of Sturmer Nurseries, have been for some time past diligently improving the race of border polyanthuses, and have some noble varieties. One of these at present before us has a truss of twelve flowers, each the size of a florin, thick and velvety in texture, and the form good. The centre of the flower is rich orange, heavily laid on and mealy in texture, the edge is blackish maroon crimson, marked at intervals with radiate bars of the centre orange or paste colour. The effect of a good plant of this strain in bloom is not only pleasing, it arrests attention, wins admiration, and compels the sceptic to acknowledge that after all there is some beauty and nobleness to be found in the hardy old English plants of the common garden border. Another example, of quite a different strain, has been received from Mr. Richard Dean, of Ealing. These are beautifully finished flowers, with smooth circular outlines, heavy body colours, clear bright thrum-eyes, and sharp brilliant lacing. It is a pleasing circumstance in reference to these, that they, when grown from seed, are remarkably uniform in character, but few of them sporting back to rough flowers, and the majority being of the true florists' type and exquisitely beautiful in the border. The cry everywhere is, "Who can supply polyanthuses and auriculas?" Well, we leave those who want such things to discover for themselves how to obtain them; but we cannot pass by the fact that Mr. Dean has shown that well-saved seed is not to be despised, and those who grow it may expect a good share of exhibition varieties; and those that are not perfect in their properties will nevertheless be full of beauty, and a delightful change out of the monotony, tameness, and same-

ness, which hitherto have been considered the acme of perfection in flower gardening.

Mrs. Pince's BLACK MUSCAT GRAPE has been described in these pages, and in the "Garden Oracle," as invaluable both in respect of its fine flavour and its late-keeping properties. We have lately seen the original vine, and the stock of young plants in the nursery of Messrs. Lucombe, Pince, and Co., Exeter, and wish to add to our former recommendations of this variety, that it is one of the most distinct late grapes we possess, and also one of the hardiest and most fruitful known. Only a few days since we took berries from a bunch which still hangs on the parent vine, and found them only slightly shrivelled, and remarkably rich and *croquant*. It may not make an end of the early forcing of Muscats, but it will certainly be of great service in lessening the cultivator's anxiety for an early crop, seeing that this grape hangs so well, and is so good that a last year's bunch is to be preferred at the present time to the best new grapes that are available for the dessert. In habit this grape is peculiar; the leaves are deeply and elegantly lobed, and their colour is a peculiar bluish shade of green, and the wood is of a purplish colour. The stock prepared for sale is considerable, and the plants are now growing freely in a quite cool temperature. We can only hope, as it is a pleasure to recommend a good thing, that Messrs. Lucombe, Pince, and Co., will find it difficult to make their supply meet the demand; at all events, we fully believe that Mrs. Pince's Black Muscat will, as soon as it has been fruited in a few private vineries, take the lead amongst all the newer kinds of table grapes—certainly it deserves to do so.

RICHARD HEADLY, Esq., of STAPLEFORD, NEAR CAMBRIDGE, invites tulip growers to inspect his valuable and interesting collection of these flowers, from the 18th to the 21st of this month, when he anticipates they will be in their prime. The 23rd is the date fixed for the Cambridge exhibition, when we expect and hope to see exhibited many of Mr. Headly's seedlings, of which he has a large number, and amongst them many of great promise.

STEPHANOTIS FLORIBUNDA is considered a rather tender plant, but we are enabled to place on record that in one instance at least it has proved as hardy as a myrtle or a camellia. When visiting the interesting nursery of Mr. Drummond, of Western Road, Bath, a short time since, we observed a Stephanotis in the stove just breaking nicely, and were informed that the plant had been left in a pit throughout the past winter, and that its capability of resisting frost was measured by a thermometer. It withstood 15° of frost without harm, and has now all the appearance of being in perfect health, though later in making its new growth than when housed with the usual amount of care.

A BRILLIANT DISPLAY OF SPRING FLOWERS may be seen at the present time in Hyde Park, on the walk which extends from the gates opposite the Wellington statue towards the Marble Arch. We propose to make some remarks upon these flowers next week. The object of this note is to suggest to our London readers that the scene of this display is well worth a visit.

ROYAL BOTANIC SOCIETY.

THIRD SPRING SHOW, APRIL 27TH.

In the midst of ungenial weather there were just a few bright hours to favour this the last Spring Show of the season. The contributions were comparatively few in number, but of the very highest order of merit, comprising subjects of great value and interest, such as at least were pleasant to the eyes of practical cultivators, whether of hotanical or floral proclivities. Mr. B. S. Williams was strong in foliage plants; Mr. Turner and Messrs. Lane came forward with pot roses and auriculas; Messrs. Paul and Son presented new roses; and there was a charming collection of polyanthes from Mr. Wiggins, of Isleworth, whom we welcome most heartily into this new field of labour, as a practical vindicator of the old florists' flowers.

STOVE AND GREENHOUSE PLANTS.—Under this head we shall notice both flowering and foliage examples. Mr. B. S. Williams made a grand group, consisting of *Azalea Perryana*, *Imantophyllum* *miniatur*, *Eriostemon pulchellum*, *Cordylina indivisa*, *Croton variegata*, *Yucca aloefolia variegata*; and another group consisting of *Agave filifera*, *Jubea spectabilis*, *Boronia pinnata*, *Todea superba*, *Vanda gigantea*, *Yucca quadricolor*, *Areca sapida*, *Azalea sinensis* (a valuable subject for contrast of colour), a fine pyramid *Mignonette*, *Oncidium leucochilum*, *Lycaste flavescens*, *Thujopsis dolabrata*, *Dasylyrium acrotichium*, *Lycaste cruenta*, *Cypripedium barbatum*, *Anthurium Scherzerianum*, *Lomaria gibbs*, *Tetratheca ericoides*. Mr. Burley, of Albert Nursery, Pembroke Place, Bayswater, presented a beautiful group of palms and flowering plants: conspicuous amongst them were examples of *Azalea Indica alba*, *Dracæna indivisa*, *Elais Guineensis*, *Lstania Bourbonica*, *Pandanus Javanicus variegata*. Mr. G. Wheeler, gardener to Sir F. H. Goldsmid, Bart., put up a beautiful group, comprising *Hedera macrostegia*, *Pandanus Javanicus variegata*, *Azalea Marie Louise*, *Alcaecia motallia*, *Cborozema cordata*, *Dicksonia antarctica*. In the miscellaneous class, Messrs. Dobson and Son presented a pretty collection of *Azaleas*, comprising *Rui Léopold*, *Baron de Vliere*, *Duko of Devonshire*, *Louise Margottin*, *Souvenir de l'Exposition*, *William Bull*, *Iveryana*, *Reine des Doubles*.

NOVELTIES.—Mr. Burley, of Bayswater, sent a showy *Amaryllis* called *Prince Teck*, also a species of *Xylophylla*, from South America. From Mr. Wilcocks, gardener to Dr. Paterson, St. John's Wood, *Bletia purpurea*, an interesting but not attractive orchid; *Caladium Duo de Nassau*, *Dendrobium Farmeri aurea*; *Dendrobium Heyneanum*, and *Dendrobium Cambridgeanum*, all of which have been described in these pages. Messrs. Ivery and Son, of Dorking, sent a new *Azalea* called *Fascination*. Mr. B. S. Williams presented a new and beautiful *Hymenophyllum*, and *Amaryllis aurantiaca*. From Mr. Bull, of Chelsea, a group of his new *Pelargonium International*, also the pretty *Bertolonia margaritacea*, from Brazil; *Chamærops melanocantha*, the new and beautiful *Adiantum Lindeni*, and *Saurauja sarapiensis*: the last named is a superb fine-tolaged stove-plant worthy to rank with *Splærogyne* and *Cyanophyllum*. From the same: *Azaleas*, *Queen of Roses* and *Reine des Pays Bas*. Not least meritorious amongst the novelties was the new bedding pinksy *Imperial Blue*, from Messrs. Downie, Laird, and Laing, Forest Hill: this is a beautiful addition to the last improving and enlarging list of hardy bedding plants, and will be a great favourite.

ROSES.—Messrs. Paul and Son made a splendid display of pot roses:

very noticeable for beauty were *Le Rhône*, *Madame Willormoz*, *Alba rosea*, *Souvenir d'Elise*, *Madame de Stella*, *Souvenir d'un Ami*, *Madame Boutin*, *Lord Raglan*, and *President*. From the same, three new roses: the varieties were *Duchesse de Caylus*, *Princess Mary of Cambridge*, and *Fisher Holmes*. Mr. Turner took a good place with a group comprising *Alpaide de Rotalier*, *Madame Willormoz*, *Lord Clyde*, *Souvenir d'un Ami*, *Charles Lawson*, *Celine Forestier*, *Victor Verdier*, *Professor Koch*, *Maréchal Vaillant*. Mr. Turner's group of three new roses consisted of *Duchesse de Caylus*, *Maréchal Niel*, admirably done, the colour pure yellow; *Mlle. Margaret Dombraïn*. Messrs. Lane and Son, of Berkhamstead, Herts, presented *Duchesse de Morny*, *Vicomte Vigier*, *Louise Darzins*, *Pierre Notting*, *Anna Alexieff*, *Madame Victor Verdier*, *Jean Goujon*, *Madame Alfred de Rougemont*, *Comtesse de Chabriland*. Messrs. Lane and Sons new roses were *Duke of Wellington*, *Marcella*, and *Dr. Andry*. Messrs. Lane and Son put up a collection of pot roses in addition to the foregoing. In the amateur class there were some admirable contributions. Mr. James, gardener to F. W. Watson, Esq., Isleworth, had a group of six, comprising *Baronne Prevost*, *Madame Charles Wood*, *Anna de Diesbach*, *Jules Margottin*, *John Hopper*, *François Lacharme*. Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, had *John Hopper*, *Gloire de Dijon*, *Anna Alexieff*, *Baronne Prevost*, *Princess Clothilde*, *Catherine Guillot*.

PANSIES.—Mr. James exhibited a beautiful stand of twenty-four cut blooms, comprising *Noir*, *Chancellor*, *Musseffel*, *Cupid*, *Novelty*, *Tennyson*, *Arab*, *Invincible*, *George Wilson*, *General Lee*, *Dux*, *Cherub*, *Rev. H. Dombraïn*, *Miss Cochrane*, *J. B. Downie*, *Harry*, *Concord*, *Masterpiece*, *Princess of Wales*, *Norma*, *Ladyburn Beauty*, *Blink Bonny*, *Jessie*, *Czar*. Mr. James also exhibited twelve pot pansies. Mr. Hooper, of Widcombe Hill, Bath, exhibited cut blooms and pot plants.

MISCELLANEOUS.—Mr. Wiggins maintained his well-established reputation as a cultivator of the *Pelargonium*, his group of six being admirably trained, well out, and of course fresh as the spring: the varieties were *Monte Christo*, *Vestal*, *Roseum*, *Beadsman*, *Pline*, and another. Mr. James presented herbaceous *Calcæolarias* in the same matchless style as heretofore: the varieties were *Charles Dickens*, *Gratitude*, *Lord Derby*, *Lavinia*, *Master Farrell Watson*, *Louise*. Collections of *Auriculas*, both of exhibition and alpine varieties, were shown by Mr. Turner, Messrs. Dobson and Son, Mr. James, Mr. Butcher, and Mr. Cox. Mr. Turner's best six were *Smith's General Bolivar*, *Dickson's Duke of Kent*, *Spalding's Metropolitan*, *Smith's Lycurgus*, *Lightbody's Fair Maid*, *Chapman's Soppia*. Mr. James presented a beautiful group of hardy ferns.

MANCHESTER NATIONAL HORTICULTURAL SHOW.

We had last year in London undoubtedly the finest exhibition that has ever taken place in this or any other country, and which we can say was crowned with great success. We are now most anxiously looking forward for one to be held in the Botanical Gardens of Manchester, in June; of course not upon so large a scale, but which nevertheless we hope will prove equally as satisfactory. In fact, we have no fear of success as regards the exhibition, for some of our finest specimens are cultivated in the north of England; and, from what I can learn, the growers there are preparing well to come out stronger than before. I have always noticed that when a thing is taken in hand by Manchester gentlemen, they carry it to perfection, and never will, if they possibly can help it, be conquered. And no doubt the plants there will be equal to those exhibited in London last year; but when we remember that some of the best collections came from Manchester, we cannot doubt the fact. It quite surprised me to see that Manchester had sent so much up, and that she had taken the laurels from the great London growers, who evidently thought no one could surpass them; but Manchester did, and great honour is due. Imagine them looking so fresh as they did after travelling for 200 miles; indeed, one would have thought they had just been taken from the hothouses. I hope the London growers will benefit by the example set them by Manchester, and endeavour to help them in their great undertaking. It is a special credit to the promoters of this exhibition, as they have not the subscribers to assist them that London had, but yet they have a large guaranteed fund to meet the expense, providing it does not answer so well as anticipated. By the list we have seen, it consists of the principal nobility and gentry of that part of the country. The schedule is liberal, and it appears to have been the aim of the committee to suit every exhibitor, as there are prizes offered for nearly every class of plants that constitute a grand display. It will be held under canvas, which is far better for showing the plants to advantage: turf banks will form the arrangement. The gardens are well calculated for a flower show; also a nice distance from the busy city. The convenience of travelling and cheap trips, we hope, will induce thousands of visitors to come. It will be the great show of the season, and all who are lovers of Nature's most beautiful productions should avail themselves of a visit.

W. B.

ACCIDENTS, EMERGENCIES, AND SUDDEN ATTACKS OF ILLNESS.—A sheet of instructions for the prompt treatment of accidents and emergencies has been issued by the Accident Insurance Company, Limited, Bank Buildings, Old Jewry, London, and published by W. H. Collingridge, of the "City Press." The instructions were prepared expressly for the Company by Mr. Alfred Snee, the Surgeon to the Bank of England, and may be regarded as the Science of Surgery in its most profound truths described in popular language, intelligible to the ordinary reader. It is very curious that no less than fifty-two distinct subjects are clearly and graphically described, and instructions are given as to what patients may safely do, and what they may not do, without medical aid; and we are informed when we may bide our time and when we should make all speed to secure the aid of a surgeon. The sheet is surrounded by thirty woodcuts of accidents, which are so beautifully drawn by Robertson and engraved by Orrin Smith, that the most inexperienced eye may in many cases immediately recognize the true character of an injury. Handy remedies, mostly in a solid form, are suggested for travellers, and no one should travel when cholera is epidemic without the solid diarrhoea tablet here described. It also tells us that one man in ten is yearly disabled, that £235,000 have been paid for compensation to persons killed and injured, and the accidents to which we are liable are clearly depicted to our minds. The sheet of instructions is so useful that it should be in every house, and probably no one will ever be found foolish enough to destroy it.

ON THE HYBRIDIZATION OR CROSSING OF PLANTS.

By ISAAC ANDERSON-HENRY, Esq., F.L.S., of Woodend.

Read at a Meeting of the Edinburgh Botanical Society.

(Continued from p. 182.)

Ere I pass from the field of my dreamland, it is right to observe that any efforts I made at that time to transmit perfume from one plant to another led to no satisfactory results, just from having no plants then near enough related to effect it. That it may be done, however, and done effectually, I have since again and again proved, as others too have proved among rhododendrons, by crossing *R. ciliatum* with *R. Edgeworthii*. I made this out long before these Sikkim species came to help us—viz., by crossing our common European alpine species, *R. ferrugineum* and *R. hirsutum*, with *R. formosum* (otherwise *R. Gibsonii*), a beautiful Indian species; and the like result I obtained by crossing the latter on *R. atrovirens*—of all which crosses I have still many plants in my garden, all quite hardy, and which flower abundantly every year. In these latter hybrids the perfume is faint compared with what it is in the *Edgeworthii* cross; but of the *Rhododendron* hereafter.

To revert to my earlier operations. Finding that nature would not do as I bid her, I resolved, as far as possible, to find out her way, and do as she bid me. I felt she had a clue to unravel, if I could only find the end of it; so I took in sail, lowered my expectations, and betook myself to merely muling.

To go no farther back with my experiments than 1842, I tried to accomplish breeds between several kinds of fuchsia and *Epilobium*, a genus certainly not far remote from the fuchsia, especially the *F. excorticata* of New Zealand. The *F. corymbiflora*, then new, I drafted into service likewise, crossing it with *E. serotina*, &c. I wrought with *E. rubra* and also with *E. alba*, to whose agency I had a notion the first pure white fuchsia (named *Venus victrix*) was in some way due. I also wrought with *Epilobium angustifolium*, and some time after this with *Zauschneria californica*, still more closely allied to the fuchsia. But I failed in all to effect an intermediate. In some cases where I inverted the cross, making the fuchsia the male parent, there appeared to be seeds partially ripe, borne by the *Epilobium*, but nothing ever came of them. I was reluctantly obliged to abandon this family altogether. One great object I had in view was to effect a change in the colour of the bloom, as well as in the habit and hardihood, of the fuchsia.

In the following year (1843) I changed my tactics. The fuchsia *Venus victrix* having a small flower, I entertained the hope, by crossing it with a fine large-flowered variety, called *F. splendida*, to produce a larger variety, with all the purity of that still the purest of all the white varieties. The better to secure this, the thought struck me of shading both the pollen and seed-bearing plants. With this view I shaded the female plant (*Venus victrix*) by covering, with thin muslin bags, its emasculated blooms, and, at maturity fertilized these with the unshaded pollen of *F. splendida*. I did get ripened seeds and sowed them, but nothing came of them—at least I obtained no purer white flowered seedlings. I inverted the cross, making *F. Venus victrix* the female and *F. fulgens* the male parent, but with no better success. I, however, got ripe seeds by this cross also.

I again, that same year, to get better expanded flowers, tried a modified form of muling, and effected crosses between *F. cordifolia* (mother) and *F. fulgens* (father), adding the pollen of the latter to that of *E. serotina*. I got ripe seeds, but of these, though sown, I have no record; and I have since been fully satisfied that in such cases foreign pollen added to native is impotent.

I hope, gentlemen, you will bear with me while I follow out some more of these operations, which, however discouraging to me hitherto, were yet, at least some of them, not wholly so disheartening as to preclude hope. There is no denying of the truth: I had pinned my faith, right or wrong, to a theory, to make the whole world (I mean the vegetable part of it) kin. I had drunk too deep of the Lamarckian spring to lose heart without further trial.

So, persevering in muling, I had got mulish in the belief in my ability in the end to surmount all, at least many, of the difficulties I had met with. But I will not tax your forbearance with the innumerable and literally fruitless experiments I made in this field, and of most of which I kept no record; so I shall pass on to some more favourable results I accomplished some few years afterwards.

I find, from my note-book for the year 1847, that I made some attempts among the *Scrophulariaceæ*, a family most of whose extant tribes stand in much closer relationship to one another than the *Onagraceæ*. The *Torenia asiatica*, a most beautiful plant, introduced about that time from India, offered to me a very tempting opportunity of forming by it a union with a Californian plant of a nearly allied genus—namely, the *Diplacus puniceus*. And I may here notice a fact I have found of almost universal occurrence among my experiments, that when I had to cross an American with an Asiatic species, it took much more kindly than crossing either of these, especially the former, with European species; and lest I shall not have another opportunity of recurring to this subject, I may here observe also the decided preference of plants of the southern hemisphere to intercross among themselves, however remote their original homes may be—e.g., I found how much easier it was to cross Australian and New-Zealand plants with their allies of South America, than with European or kindred things in the northern hemisphere. I have also observed that proper American species have greater aversion to cross with European than with Asiatic species, and that Asiatic species have no less aversion to intermix with European kinds.

There is only one instance, I remember, of effecting a successful cross between an Asiatic and a European species, and that was in crossing a small species of rhododendron with yellow *Helianthemum*-like flowers, being a form of *Rhododendron lepidotum* called *R. cleagnoides*, of the Sikkim ranges, on *R. ferrugineum*, a European kind. Of this cross I raised two plants; one died, and I kept the other for years; it flowered with me, the blooms being dirty red, splashed with a pale yellow tint. It was an odd-looking thing, and I afterwards sent it to Kew as a botanical curiosity. What became of it there I never heard.

In the early summer of 1847, I crossed the *Diplacus puniceus* with *Torenia asiatica*, and on 3rd August I got, as I believed, a pod of ripened seed, but I found I had pulled it too early, and the seeds do not appear to have sprung, at least I have no note of it if they did. I may observe here that it was and is my custom always to remove the native anthers long before maturity, deferring the cross generally for three or four days, or even a week thereafter,—in fact, till the stigma was fully matured—always marking it as so emasculated; and this was

carefully done here. From another pod of the same cross, but not so marked, I obtained nine plants, but what became of these I have no record; very likely they were failures.

I further tried, and succeeded, in crossing another *Torenia*—viz., *T. intermedia*—with the *Mimulus*, making the latter the seed-bearer. Of this cross the pod contained seventeen seeds, which I sowed on 17th September, 1847, and at October 19th I had nine plants finely vegetated. But of these I have no further record. I perhaps lost them during the following winter; for in the few proper mules I have succeeded in raising I ever found them most difficult to rear. In this cross, as well as in the following, I had, I find, made sure against self fertilization by timely removal of the male organs.

I further, in 1847, attempted a cross between the *Digitalis purpurea*, var. *alba*, and the *Torenia asiatica*, making the former the seed-bearer, and got something like immature seeds, which I sowed, but nothing came of them. In the same summer of 1847 I effected another small success by obtaining one pod of ripe seeds of *Isotoma axillaris* crossed with *Lobelia ramosa*. These I sowed on 18th September, and at 24th November I put off nine small seedlings. On September 30th I obtained of the same cross another ripened pod containing sixteen seeds, which I do not observe I had sown.

On December 4th of same year I obtained another pod of ripened seeds from the same *Isotoma axillaris*, crossed in this instance with *Lobelia coronopifolia*, from which I raised ten plants, potted off 12th January, 1848. What came of them I have no record, but I have found out, much to my cost, that of few things sown as late as October, and before January, can much account be given in the following March. Yet those who, like myself, have only been able to gather such seeds so late, are placed on the horns of a double dilemma—they must either sow at once, at great risk, or put off till spring, when, with longer keeping, the vital principle, weak at first, may be gone.

Yet the fact of seeding and raising such things at all was encouraging, and tended to make me more observant of the ways and means by which success might be made more certain. That climate, and especially some peculiarly favourable states of the atmosphere, had much to do with it, I felt every year more and more certain. I had by this time found that crosses which I could easily effect at one time were utterly impracticable at another, and that this ill-conditioned state would sometimes extend over whole summers. But of all times and seasons, I found such weather as frequently preceded thunder, and, oddly enough, which sometimes followed it—when there was a genial balmy texture in the air, not so much from sun-heat, as sometimes arises from the presence of a larger portion of electricity than is usual, when every living thing seems more than ordinarily alive and happy—to be the season of all others for a hold experiment, and I seldom failed to improve it. Such a season happened in the spring of 1850; but, before I relate a small success I then achieved, I must relate another observation which had been forced upon me from some of my manifold efforts in this way, and I think it will be better I state it by giving it as set down in my note-book, under dates April and May, 1850: "Discovered that the short stamens of *Rhododendron cinnamomeum*, and particularly of *R. Catawbiense*, crossed the small *Rhododendron* (*Rhodothamnus*) *Chamæcistus*." By the short stamens of *R. cinnamomeum* I had further crossed the same pigmy species of *Rhodothamnus* with a large white-flowered Indian species; the cross being performed in the beginning of March 1850, which I noted as then (19th May) well on towards ripening.

Off the above muling operations I got some pods of ripened seeds, especially where the *Rhodothamnus* was crossed by the large Indian rhododendron, than which none to all appearance could be more perfect—yet nature had been too far strained. I sowed the seeds, and though I preserved the seed-pot for years, not one seed ever vegetated. I was, however, more successful with another cross, which I felt impelled to try by the extraordinary mule raised by Mr. Cunningham, of Comely Bank, and about which so much mystery was observed—and for one good reason, as I have since learned, that he himself, crossing at the time so many things, one with another, did not precisely know its parentage, further than that the seed was borne by a *Menziesia* crossed, as he might believe, by the *Rhodothamnus Chamæcistus*. I have now reason to believe, from having wrought much in this section of the *Ericaceæ*, that the seeds of his mule called *Bryanthus erectus* were borne, not by the *Menziesia cærulea*, as was generally believed, but by *M. empetriformis* crossed by *Rhodothamnus Chamæcistus*; for I had myself been trying a similar cross, before I knew of Mr. Cunningham's, between *M. cærulea* and the same *Rhodothamnus*, which, however, had failed. Having thereafter, when in his nursery, been shown Mr. Cunningham's mule by himself, though he declined to say what the parentage was, I felt assured that I was not far off the truth when I told him my belief that it was the very cross I had been attempting, which he, however, would not admit. But, not to be baffled, I set to work afresh, but now inverting the cross, making *M. cærulea* the seed-bearer; for before it was the *Rhodothamnus*. It succeeded. I obtained ripened seeds in June 1850, and in September following I had four young plants, which, however, were unfortunately devoured one night by a snail. In this I had another instance of success being secured by inverting a cross.

From this time forward, I dealt liberally with the short stamens, believing, as I still do, that with these—I mean the pair of shortest stamens which occur in numerous families of plants—the larger species may be made to intermix with the smaller species of its tribe, where otherwise no union could be effected.

But here is one singular result, which I think I have fully established as resulting from the use of these short stamens, especially where the kinds crossed are homogeneous, or not remotely allied, and where there is no great disparity in size between their sexual organs.

Puruing the use of these diminutive organs, especially where I crossed a larger on a smaller species, I find that I had, in the spring of 1855, manifestly used the short stamens of *Rhododendron Edgeworthii* in effecting a cross on *R. ciliatum* (both Sikkim species), with the object of warding off the tall reed-like growth of the former, and securing the dwarfer, bushier habit of the latter species in the progeny. I gathered and sowed the seeds of this cross on 7th November, 1855, and I have still three plants alive of this brood, the height of two of them being only 4, and that of the other 4½, inches. These are now in their twelfth year, and have never shown the smallest tendency to bloom. (Two of them are now on the table before you.) I have no doubt of these being the produce of the short stamens.

Earlier in the same autumn I gathered and sowed seeds of the same

cross, effected, I have no doubt, with pollen from the longer stamens, for the plants are taller than *R. ciliatum*, and shorter than *R. Edgworthii*, the male parent, of whose delicious perfume the flowers largely partake.

My attention was first called to the like effect of dwarfishness being produced from the use of the short stamens in the pelargonium tribes by an article written by Mr. Beaton in 1861, in the *Journal of Horticulture*; and it is not unlikely that the same law holds in other races where the short stamens occur.

I was first induced to use these pigmy stamens of the larger species from the belief that their pollen must necessarily be smaller and finer in its granules than that of the larger anthers, and therefore more likely to pass down through the ducts of the female organs of the smaller kindred species. I cling to this idea still, and, if I am correct in it, may not the several pairs of anthers—i.e., the intermediate and longest styled anthers—have severally their separate functions? Much patience is needed for pursuing experiments here, but it is worth the trial. May not the colour and perfume of flowers, and the size, fecundity, and aroma of fruits too, depend upon the proper selection here? In all my difficult crossing operations latterly, I used the pollen of all the anthers, leaving nature to select for herself.

This suggests to me a matter I may as well treat of here as afterwards, and which is referred to by Mr. Darwin at page 545 of the latest edition of his "Origin of Species," where he holds the sterility of hybrids to be a different case from that of a first cross, the reproductive organs of hybrids being more or less functionally impotent; and for which he shows apparently very valid reasons. Yet I may refer to a pretty well-known hybrid of my own, as affording, in its case, no failure from either of its parents in this respect. The *Veronica Andersonii*, a hybrid between *V. Lindleyana* (mater) and *V. speciosa* (pater), yields seed, perhaps, in larger abundance and of equal fertility with those of either of its parents. Another brood which I raised, between *Veronica decussata* (*V. elliptica*, Hook.) of the Falkland Islands, and *V. speciosa* of New Zealand, bears seeds in equal abundance with its parents, and likewise of equal fertility. These were of course seeds of original hybrids. But I found in another hybrid which I effected many years ago between our own alpine veronicas—viz., *V. saxatilis*, having rich bright blue flowers, and *V. fruticulosa*, having white flowers striated with pink, which I honoured with the name of our honorary secretary, *Veronica Balfouriana*, having blue flowers striated with red—that the seeds of the second generation from it, at least of one whose flowers diverged from the colour of either of its parents in becoming red, no seeds of that red descendant, though tried over and over again in successive years, ever vegetated.

I may now, ere I quit this subject, observe a very singular phenomenon in increased fecundity in seed-bearing of a first cross. When the beautiful and fragrant *Rhododendron Nuttallii* was introduced from Assam into our gardens, I shared, in common with others, a desire to try what could be made of it by crossing with other species—and of its progeny in this way I have two or three broods, some of them now of 2 and 3 feet high. These operations were performed in the spring of 1862. On the 12th January, 1863, I pulled from *Rhododendron Dalhousiae* a seed-pod so crossed with *R. Nuttallii*, the size of which I carefully measured, and found it was $1\frac{1}{2}$ inches in length by 2 inches in girth, whereas the largest normal seed-pod gathered, equally ripened from the same *R. Dalhousiae* at the same time, I found to be only $1\frac{1}{4}$ inches long by $1\frac{1}{2}$ in girth. But the most remarkable thing of all about this cross was that, though the seeds were fully ripened, and in such abundance as I never before saw equalled in the family, and though, when sown, the seedlings came up thick as chickweed, yet every one of them died off in the seed-leaf or second pair. Though they came up in thousands, I could not preserve one of them. Yet, singularly enough, I have raised no end of another brood, obtained by crossing *R. formosum* with *R. Nuttallii* with another hybrid of my own, obtained by crossing with *R. Dalhousiae*. The fertility here was due, I have no doubt, to the infusion of the "blood" of *R. formosum*. As a proof of this, I at the same time sowed the seeds of a cross between *R. formosum* (pure) and *R. Nuttallii*; the seedlings came up in double profusion. Are these results due to a nearer or remoter vicinage of original habitat? for all are Himalayan species, the *R. Dalhousiae* being from the Sikkim, the *R. formosum* from the Khasia, and the *R. Nuttallii* from the Assam or Bhotan ranges.

But I am digressing sadly. My object in the experiments above noted has mainly been to show that nature abhors all alliances in relationship beyond the closest affinities. Members of many genera besides those so close as the well-known instances of the apple and pear, the gooseberry and currant, oh-tunately resist all intermixture by crossing. I have already noticed, in addition, the bramble and raspberry, and I could add many others equally closely allied, but equally intractable. I may return to this question of unaccountable antipathies in a subsequent paper, where I may notice some equally unexpected sympathies between unlikely species, of which I may here note only a single instance.

Having two very distinct species of *Browallia* in my garden, one a shrub, growing from 4 to 6 feet in height—viz., *Browallia Jamesonii*, an orange-flowered species—and another, a tiny blue-flowered herbaceous annual, from 6 to 9 inches high, both from the Andes, it occurred to me to try a cross between them. I made the cross on the *B. Jamesonii*, having previously most carefully emasculated the blooms. The cross was made on the 17th June, 1865. I gathered the seed on the 5th July that year, but the seeds, though well formed, being immature, never vegetated. This cross I mean to try again, for the seeds, though not ripe, were no mere embryos, which often occur in such extreme crosses.

I cannot close this part of my paper without suggesting to others an experiment I intend to attempt myself, if spared, on a small scale this ensuing summer, and that with a view to bridging over some of those gaps over which nature will not of herself be made to leap. I have been again and again surprised how near and even far off allied things will incorporate, by the simple act of grafting, an act by which the sap and every vital principle which sustains the one must now animate both, and yet the two living things so made one will not, in their separate state, unite by any act of crossing yet resorted to. Hence it occurred to me that a union might be tried between the two separate subjects by fertilizing the flowers of the engrafted plant with the pollen of that species which forms its stock. For example, I have several pear-trees engrafted on the common white thorn, which flower and bear abundantly every year. I mean to try how far the pollen of the latter (*Crataegus oxyacantha*) may not fertilize the other, and produce an intermediate. I wish much that others would try what could be done in similar cases. The rationale of this

experiment is strongly supported by a circumstance noticed in Loudon's "Gardener's Magazine," vol. xiv., p. 430, of a male plant of the *Carica Papaya*, a dioecious plant, having borne female flowers at the extremity of the racemes of a male plant, which was accounted for by the fact of the plant having been, two years before, inarched on a female plant of the same species, that part which bore such female flowers having grown subsequent to the act of grafting. The familiar case, too, of the *Cytisus purpurascens* or *Adami*, a hybrid between the common laburnum and *Cytisus purpureus*, affords another striking instance of the influence of the stock on the scion. For when grafted, as it generally is, on the more vigorous laburnum, shoots sometimes of a mixed character, partaking of both stock and scion, and sometimes of the laburnum pure and simple with its proper foliage and flowers, spring out from the branches of the *C. purpurascens*.* Other instances might be given, but for the purpose in view those cited may suffice.

I am yet but on the threshold of a vast subject, with what relates to pure hybridization—i.e., the crossing of one species with another distinct species of the same genus—and the crossing of varieties scarcely touched upon. With some of my experiments in these still ample fields, I may tax your patience in some other paper at a future time.

GRAVEYARD GARDENING.—Improvements are of very slow growth in the metropolis, and in our towns and cities generally. The rottenness of rockeries must rarely be sacrificed for the most patent and desirable of improvements. In one direction, however, there is a change to be observed in this respect; they are "improving" the graveyards, not merely where the tunnelling power of a railway company is brought to bear, but in places untouched in this way, and where the thing is done for mere love of improvement. Evergreen shrubs are proverbially fond of London smut. The visitor to London who observes such matters can hardly fail to be struck with their luxuriance round the church in the Strand, in front of Tattersall's, and many other spots in which they have been planted at some expense. The verdant and luxurious aspect of these places has had its effect upon the churchwardens and powers that be, and accordingly they have set to work to beautify our graveyards. Evergreens are to be substituted for headstones, and lamentable bits of cockney gardening for the memorials of the dead. The most notable instance of this kind with which we are acquainted is around the church in Bishopsgate Street. Tombs and headstones appear to have been cleared out of the way, and all obstructions removed, so that a level surface might be obtained on which to set a few hundred evergreens, which have little more chance of flourishing in Bishopsgate Street than if planted in the Salt Lake. To have one's bones or memorial disturbed for the ill-digested schemes of a landscape gardener is bad enough, but when it is considered that this sacrilege is performed to plant subjects that have no chance of growing, then the wisdom of the change is fully seen. It is true the sculpture in our cemeteries is anything but Greek, and the inscriptions not quite so simple and elegant as those in the Catacombs; but the rudest and most monotonous of them tell of love and death—"where human harvests grow," and to all but the most vulgar minds must be sacred and beautiful. What must be the feelings of those who have had the memorials of friends and ancestors disturbed for such purposes? Why, it is enough to draw an anathema from a less ready rhymist than he who wrote "Cursed be he who moves my bones!" And it is the more inexcusable when we reflect that there is not the least occasion for any mutilation of the kind, and that the most suitable trees for such places are those that would not require any alteration of the ground, and would flourish freely in a town atmosphere. The weeping willow, birch, weeping elm, and a considerable variety of drooping and other deciduous trees are, above all others, suited for this purpose, and might be planted without interfering with the stones in any way. Would the latter look any the worse for being shaded by a beautiful pendulous tree here and there? The fact is, town cemeteries may be made as beautiful as it is possible to make them with vegetation by the use of deciduous trees and shrubs alone; and that, instead of any clearance or levelling being required for the judicious placing of these, they will look all the better for being picturesquely grouped among the irregularities of the ground.—*The Field*.

SKELETON LEAVES.—The following method has been communicated to the Botanical Society of Edinburgh: "A solution of caustic soda is made by dissolving 3 oz. of washing soda in two pints of boiling water, and adding $1\frac{1}{2}$ oz. of quick lime previously slacked; boil for ten minutes, decant the clear solution and bring it to the boil. During ebullition add the leaves; boil briskly for some time—say an hour, occasionally adding hot water to supply the place of that lost by evaporation. Take out a leaf and put it into a vessel of water, rub it between the fingers under the water. If the epidermis and parenchyma separate easily, the rest of the leaves may be removed from the solution and treated in the same way; but if not, then the boiling must be continued some time longer. To bleach the skeletons, mix about a drachm of chloride of lime with a pint of water, adding sufficient acetic acid to liberate the chlorine. Steep the leaves in this till they are whitened (about ten minutes), taking care not to let them stay in too long, otherwise they are apt to become brittle. Put them into clean water, and float them out on pieces of paper. Lastly, remove them from the paper before they are quite dry, and place them in a book or botanical press."—*Dr. G. Dickson in "Hardwicke's Science Gossip."*

* Since writing the account, I have just read of the *Cytisus purpurascens* or *Cytisus Adami*, and stating, as I have done, on the authority of a notice given of it in Lindley and Moore's "Treasury of Botany," of its being a hybrid, I have this morning read another account of its origin in *The Farmer* of yesterday, where, reporting the proceedings of the last meeting of the Royal Horticultural Society, it is stated—"Mr. Leo, Clevedon, Bristol, sent most remarkably dissimilar examples of apples from the same branch of a tree of orange Pearmain, which was a fertile subject of comment at the meeting. The tree was the true variety, and the other samples were of a russety cast, instead of the bright crimson colouring common to the original. Rev. Mr. Berkeley instanced *Cytisus Adami* as a sport of a similar character, which is believed to have been produced by grafting *Cytisus purpureus* on the laburnum, and by some accident one cell of the stock and one of the graft having each become divided, and then united together, the result had been a plant partaking of the nature of both. Mr. Berkeley suggested that it would be most interesting to know the stock upon which the orange Pearmain had been worked." Whatever be its origin, the facts I have stated, and which probably many of us have seen with our own eyes, of the same tree producing three kinds of flowers, and two, if not three, different kinds of leaves, there can be no doubt of these having resulted from the operation of grafting. The two kinds of fruit, too, of the Pearmain seem to have arisen from the same cause. And it would seem, also, that many of the sports we see and hear of in roses, in changing colour, and betaking themselves to a climbing habit, are due to the same cause.

DISTINCT AND HANDSOME HARDY PLANTS FOR THE FLOWER GARDEN.

The taste for varying the surface of the flower garden, and for adding to its interest and character by using plants of a nobler type than we have already generally done, is sufficiently developed to warrant us in assisting it, and pointing out the most desirable for such purposes. There are a great many recommended, a great many used; but, as usual, the really meritorious are in a minority. It is a dangerous and a useless thing to place tender plants in the open air, for the sake of producing such an effect as may have been seen at Battersea; and even many there placed in the open air have no chance of looking to any advantage out of a hothouse in this country, and here we would particularly instance the Bananas. On the contrary, nothing should be used but such things as will stand our climate without injury, or grow freely and luxuriantly in it. Of course hardy plants are the very best to use for this purpose, but as yet we are far from having a sufficiency of these of the precise type that is required, and so we must draw upon tender and half hardy subjects for the present, and be very careful in doing so; for nothing is more lamentable than to see an English garden with tender plants perishing from cold in the middle of summer. The climate and altitude of the garden should also be considered, for it should be well known that you may grow many things in the open air about London and southwards which will barely exist, if at all, in the north or north-west. Therefore, the position and capabilities of the place are the first things that should be taken into consideration. It by no means follows that because it may prove cold and uncongenial to many subjects which have afforded a good effect about London, that we should rest satisfied with the tame aspect of such. We quite believe that there is no part in these islands for which fine, verdant, and distinct-looking plants will not eventually be found, if they be not in the country already. Why, even supposing we could not find any suitable among the humble and herbaceous subjects, how much may we not do towards diversifying the flower garden by the use of those elegant dwarf, green, and tapering conifers in the way of *Retinospora* and *Cupressus*, which are hardy and presentable at all seasons. There is hardly any limit to their extent and beauty; and, if it be urged that some of them might grow too big for such positions, the answer is, that they may be removed at pleasure and taken to a more suitable position. We do not suggest the placing of such in intimate association with the transient-flowering plants, but so that they will contrast with and tend to relieve these. There is nothing more intolerable than a flat wide flower garden closely packed with small or large beds, and so arranged that you see nothing but a level sheet of colour. We have seen such changed to scenes of beauty by making the beds a subordinate feature to the turf embellished with choice shrubs, &c., and have no doubt that a like change is required with many flower gardens. But we will at once commence with the most difficult part of the subject, and treat of

HARDY PLANTS THAT FURNISH A "SUB-TROPICAL" EFFECT.

Among all the plants ever introduced to this country, you cannot surpass in this direction the various kinds of *Yucca*, or "Adam's Needle" as it is sometimes called. There are several species hardy and well suited for flower-garden purposes, and, more advantageous still, quite distinct from each other. The effect afforded by these *Yuccas*, when well developed, is equal to that of any hothouse plant that we can venture in the open air for the summer, while they are hardy and presentable at all seasons. They may be used in geometrical "English" or any other style of garden, or may be grouped together on rustic mounds, or in any other way the taste of the owner may direct. The best, perhaps, considering its graceful and noble habit, is *Y. recurva*, which is simply invaluable in every garden. Old and well established plants of it standing alone on the grass are pictures of grace and symmetry, from the lower leaves which sweep the ground to the central ones that point up as straight as a needle. It is amusing to think of people putting tender plants in the open air, and running with sheets to protect them from the cold and rain of early summer and autumn, while perhaps not a specimen of this fine thing is to be seen in the place. Than this there is no plant more suited for planting between and associating with flower beds. Next we have *Y. gloriosa*, more pointed in habit and rigid in style, and also large and imposing in proportions. Lacking the grace of *recurva*, it makes up for that to some extent by boldness of effect, while, like the preceding, it sometimes sends up a huge mass of flower. Then there is *Y. glaucescens*, with a sea-green foliage, and rather free to flower, the buds being of a pink tinge, which tends to give the whole inflorescence a peculiarly pleasing tone. This is a first-class plant. *Y. filamentosa* is smaller than these, but given to flower with much vigour and beauty. There are other hardy kinds, but they are too difficult to obtain to make it worth while mentioning them here.

Next to the *Yuccas*, as effective hardy plants, we would certainly

place the *Pampas grass* and the *Arundo conspicua*. The *Pampas grass* is perhaps as well known as any other garden plant, but people are too apt to stick it in some out-of-the-way place, which may perhaps be denominated its "proper" one. Doubtless you cannot have a better plant in a wood or wild glade, or by the margin of a stream, than the *Pampas*; but why not use so noble a subject more extensively where it is likely to be more seen, and where its graceful and noble habit and splendid silvery plumes may help to diversify and beautify the flower-garden? It need not of necessity be placed in a position or positions to confuse the plan of the garden, or interfere with the neat arrangement of the minor plants; but there are few places in which it may not be made an admirable adjunct, and worked in with great effect on the outskirts of the flower garden. Give it in every case a capital position in which to grow, or, in other words, the best soil, and the deeper the better. It dislikes a very exposed position, where its leaves get knocked about and much hurt by the wind; but nevertheless we may often find it necessary to plant it in such, and by tying up the leaves in winter, and spreading some cocoa-nut fibre about its base, it may escape injury. Probably it would show to more advantage on an elevated place than any other, and on such it will thrive perfectly if sheltered by shrubs. We have noticed its development strongest of all in well-sheltered hollows. But it will grow anywhere to an ordinary size. With it we would associate *Arundo conspicua*, a smaller grass, though in somewhat the same style, and flowering earlier. This makes a handsome object in the midland and southern counties of England, and may also in the north, though we have no experience of it there. With these and the *Yuccas*, bold groups and specimens of the *Tritomas* may be associated with the best effect. We talk about sub-tropical plants, but what can be more suggestive of all that is noble and beautiful in vegetation than the fiery spikes of these pushing up till almost or quite the end of the year, and the grand silvery plumes of the *Pampas*? Assuredly nothing ever seen in the flower garden. The best kinds of *Tritomas* are *glaucescens* and *grandis*; the last being late and very tall, the first an abundant autumn bloomer. Plant in deep good soil, and do not disturb them oftener than you can help.

Next in utility among thoroughly hardy subjects are the various kinds of *Acanthus*, with large shiny leaves, and a hardy, vigorous constitution. The best are *A. lusitanicus*, a comparatively new one, which is beginning to find its way into English nurseries, and *A. spinosissimus*, which is far from common; but, indeed, any of the hardy members of the genus that we can obtain are capable of furnishing a nobler leaf effect than many tender plants placed out of doors for that object. But decidedly the best is *A. lusitanicus*, a noble-growing kind—the leaves very large, and of a dark polished green. It is perfectly hardy, and the leaves retain their glistening vigour till cut off by frost. But though hardy, if kept over the winter in pots, it sends up a fine crop of leaves, and may thus be used with effect as an in-door greenhouse plant. In the south of England and Ireland the New-Zealand flax, *Phormium tenax*, sometimes makes a nice plant, and is worth a trial; so does the elegant Bamboo, *Arundinaria falcata*, and the coarser though handsome *Arundo donax*. And some of those green and graceful *Dracenas*, which are such fine things in a conservatory, may be grown in Devon and Cornwall and the south of Ireland; indeed, we have seen *D. australis* do well in Devon; and in a vase in the garden of the superintendent of Alexandra Park, at Muswell Hill, a plant of *Dracena indivisa* has stood out for some winters past and grown well every summer. But such things have little or no chance in the north, where it is fortunate, however, that those beautiful dwarf and tapering conifers may be grown with ease. Such things as *Thuja aurea*, nice young specimens of *Thujopsis borealis*, and various kinds of *Cupressus*, *Retinospora*, &c., are fortunately as hardy as we could desire, and nothing can be more suited for diversifying the flower garden.

Of all plants with finely dissected leaves, *Ferulas* are the best—they are even more elegant than the finest ferns—but not easy to be got in nurseries, and, indeed, often the only way you can obtain them is from seed, or from a botanic garden. They come up in winter, and look very attractive through the spring and early summer, but fade too soon in autumn, and are not therefore suited for placing with summer flowers, but rather about the margins of shrubberies, &c. There are many other things in the same order distinguished by beauty of leaf, from *Meum athamanticum* upwards; but they are scarcely to be had in "the trade." If it were bulb-planting time, we would occupy some space in reminding the reader that a lot of tall and noble Lilies, like *tigrinum*, *Fortunei*, and *excelsum*, are grand things for producing a fine effect in autumn, either in isolated beds or here and there among roses or shrubs; but we must adapt our essay to the wants of the time, and leave those alone at least till autumn.

We wish to direct attention to *Thalictrum minus* as being capable of affording, when fully exposed in the flower garden, almost precisely the same effect that the common Maiden-hair fern (*Adiantum cuneatum*) does in the houses. That it certainly will

do when established; and those who have planted young specimens, or are about to do so, should not disturb them for some years, as young weak plants are not big enough to afford the effect we desire. We have also found that another perfectly hardy plant affords a fern-like effect of a different though perhaps equally useful character. The *Thalictrum* has spreading composite leaves, like the Maiden-hairs, but the plant we now wish to bring under notice has pinnate leaves, reminding one of the small *Blechnum* type of ferns, but prettier than any of that group we can call to mind. It is the rather common English *Spiraea* or Dropwort, *Spiraea filipendula*. Its deeply-toothed and fresh green radical leaves look almost exactly like those of a fern when planted in line, and the flower-stems pinched off as a matter of course. It is a common plant in England, though not in Ireland. There is a double-flowering variety, not uncommon in gardens, which, so far as we have observed, is a little dwarfer than the single one. There need be no more doubt about this than about the *Thalictrum*; we have proved both to be highly suitable and elegant as dwarf edging plants.

Of other herbaceous plants likely to do good in this way, one of the very best is *Eryngium amethystinum*, a fine thing, with its flower-stems of the deepest and finest blue, and the flowers of which may be kept over the winter; and *Statice latifolia*, for the sake of the great distinct mass of bloom it produces in the autumn. In mild places in the south, or along the coast, wherever the graceful bamboo, *Arundinaria falcata* would do, it should be planted. Perhaps the most striking of all hardy plants in this way, both for grace and colour, is the variegated variety of the Great Reed of the south of Europe, *Arundo donax variegata*. This may be grown over the greater part of England as a flower-garden ornament, and kept over the winter in the ground, too, by covering the ground round its collar with some refuse stuff like cocoa-nut fibre or coal ashes, and over that, as it is a beautiful and choice plant, winding a bit of old matting round the stem. It does not grow near so high as the green kind, being doubtless dwarfed by the brilliant variegation it displays. We know of nothing more beautiful in the centre of a not over large bed of choice things than a plant of this. We have preserved it as above described in stiff cold soil; on warm and good soil there would be no trouble with it. Another good subject, though but an annual, requiring much the same treatment as the Castor Oil, is the new variegated *Japanese maize*, a really graceful and pretty thing, which merits general culture. It is very pretty in the flower garden, or any other position in which you can use a prettily-striped plant. If you are fond of huge-leaved things, try and get a root or two of *Rheum Emodi*, a fine scarce kind of Rhubarb, with grand leaves, having red veins; and *Crambe cordifolia*, an immense kind of Seakale, with great green leaves. These would be fine for the composition of bold groups, and if among such were sprinkled the bolder kinds of Lilies, the effect in the autumn would be very fine. To wind up, *Cynara horrida*, a near relative of the "French Artichoke," is very fine, with ample silvery leaves; and the great *Gunnera scabra*, found by Darwin, and mentioned by him in his "Voyage," comes to a surprising size if allowed deep soil, plenty of shelter, and water. *Phytolacca decandra* is large and conspicuous, but has scarcely quality enough. *Funkia Sieboldiana* is very fine for a rich light or peaty soil; and *Craspedia macrocephala* is a lovely silvery plant, with soft hemispherical flowers of the purest yellow—one of the handsomest plants in existence. *Silybum marianum* and *S. eburneum* are biennials of very marked aspect. *Salvia argentea* is the handsomest of all large silvery-leaved plants for the flower garden, its leaves spreading out on the ground like little blankets. *Helianthus argyralis* is a very tall composite, with recurved leaves, growing eight or ten feet high; and *Artemisia annua* is a green wormwood, which forms a pleasing, dense, fresh, and pyramidal bush; and any of the *Onopordons* are valuable from their thorough distinctiveness and the fine effect they offer when contrasted with our ordinary green shrubby vegetation. The best position for them is on the margin of a shrubbery or plantation, where they will sow themselves, and where, when the young start up into stem, they must all be cut away with a hoc or spade, with the exception of two or three individuals at any given point. YUCCA RECURVA.

THE SALVIA AND VARIETIES.

This is a very useful class of plants, either for growing as plants in pots, for ornamenting the greenhouse when in flower, or for planting out in beds or borders, for enlivening the flower garden during the late autumn months with their many shades of scarlet and blue flowers. What blue is there to surpass in richness of texture and colour *Salvia patens*? and nothing makes a finer bed. It is true it almost grows too tall, especially in showery seasons, so as to somewhat unfit it to harmonise in the arrangement with the heights of the generality of our bedding plants. But this fault can be got rid of by planting it in a single bed—that is, in positions where matches of colour and height are not requisite—though, by the bye, we can, as with other plants, have two beds instead of one, if it be required, they should correspond. Being a tuberous-

rooted plant, they can be taken up in the autumn when done flowering, and stored away the same as dahlias. If the roots are potted early in the spring and plunged in heat, they will throw up a great number of shoots, and as these are taken off so will the quantity keep increasing, so that from a single root you may strike a goodly number of plants by the time we usually commence bedding. They are more difficult to propagate in the autumn, as every shoot emitted has a tendency to produce flower, and the wood becomes too thready or hard; so that out of the many you may insert in pots there will be but few rooted. *Salvia patens alba* requires exactly the same treatment. I cannot say that as a flower I admire it, because it is not a pure white, although named *alba*, it having mixed up with its colour too much of the strain of its parent, which gives it the appearance of a dirty white, although it makes a very desirable change when growing with others.

Salvia Grahamii.—This is a very superior variety for winter decoration. It partakes more of a shrubby habit as compared with those already mentioned. It has smaller leaves, and throws up well above the foliage some fine erect spikes of bright crimson flowers, which with care last a long time in perfection during the dull months of winter.

Salvia splendens.—I remember the period when you would scarcely behold a conservatory or greenhouse, during the late autumn months, without observing quantities of this variety in bloom mixed with other plants, its fine, clear, bright coloured scarlet flowers being pushed forth somewhat pendant fashion from the points of the shoots. Of all the varieties I am acquainted with, this requires the most careful management. When in flower in the conservatory it must not be subject to damp, or you will soon lose the flowers. The plant at this stage of its growth delights in a rather dry atmosphere, but not that kind which is created by fire-heat, although a gentle warmth given now and then would be beneficial. Another destructive enemy to guard against is the red spider, and this plant is very liable to be infested with it. The best prevention is to encourage a free and vigorous growth during the summer months, with frequent syringing, not to allow them to become pot-bound till towards the period of their flowering. The more healthy plants generally are those which are struck from cuttings obtained from old plants that have been put in heat early in the spring.

Salvia Gesnerifolia.—This is another excellent variety for winter flowering, producing a profuse number of rich crimson coloured flowers. It is a very luxurious-growing plant, and is not so liable to the attacks of insects as the last-named variety. Its deep green healthy coloured foliage contrasts well with its bright flowers. We cannot grow too much of it for the purpose of winter decoration in the conservatory, where we have the space at our command.

Salvia fulgens.—This rapid-growing variety is well adapted for large beds or specimens in the border. The only drawback to their general culture for that purpose is, that they do not commence flowering till late in the autumn, although you may previously give every possible encouragement to the production of a vigorous growth. Should frost come upon us quickly, the consequence would be that their beauty would be suddenly destroyed; yet, withal, I would advise its being planted freely, for, should the autumn be favourable, it will, with the dahlias, add much to the floral beauties of the garden at that season. About twenty years ago, when living at Clapham Park, I planted this variety alternately with *S. splendens*, round the outside border of a very large bed, in which rhododendrons, azaleas, and other American plants were growing, and the production of flower and growth surpassed anything I ever saw in connexion with these plants before or since—an evidence that their roots are partial to peat earth.

Salvia chamædryoides.—I have lost sight of this most beautiful variety for several years past. I made some inquiries respecting it lately, and was informed that Mr. Salter, of the Versailles Nursery, Hammersmith, had it growing. It is very dwarf compared with the other sorts, and not so succulent in its habit, but the flowers are an intense rich blue. I may compare it in colour to the flowers of that lovely greenhouse plant *Hovea Celsii*.

There are many other desirable varieties of *Salvias* I might enumerate, but with the culture and habit of the above I am more conversant than with any others. JOHN F. MELROY.

Calendar.

WORK FOR WEEK COMMENCING MAY 4.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Sow beet for a winter supply. Thin beets already up, and if any gaps in the drills, fill up by transplanting the thinnings in showery weather. Sow Walcheren broccoli, collards, cauliflower, endive, kidney beans, lettuce, leeks, spinach. Plant out marrows, ridge cucumbers, capsicums, tomatoes, celery, and anything that may be strong enough from seed-beds of cabbage and winter greens.

POTATOES are pushing with vigour everywhere. Hocking between is of immense benefit, and a little earth may be drawn to the stems, but the heavy moulding up to which they are subjected on the orthodox plan of cultivation is decidedly injurious. If any remain to be planted, get

them in without delay, and if a sprinkle of manure can be afforded to put at the bottom of the trenches it will help them to start freely.

WINTER GREENS of all kinds to be pricked out from seed-beds as soon as large enough to handle. Choose showery weather, and put them on good ground.

KIDNEY BEANS, both dwarf and runners, to be sown for main crops.

SEAKALE is pushing into flower, but unless seed is wanted the flower-heads should be nipped out.

SPINACH is usually sown thick, and a good way to thin it is to wait till the leaves are an inch long, and then draw the plants in little bunches. They make a very nice dish, if the cook will take the trouble to cut off the roots and remove the bottom leaves. But if not wanted, thin the crop and throw the thinnings on the rubbish heap. If left much crowded, it runs into flower quickly.

PARSLEY sown now will be up soon. Sow on rich light soil, and transplant as soon as large enough to handle. This method will ensure finer produce than leaving the plants to stand where sown, and those with richly-curved leaves can be selected as soon as they are a little advanced beyond the seed-leaf.

CUCUMBERS in TRENCHES planted out at once, and protected with hand-glasses, will produce better crops than if kept in pots till they spindle away their strength. Make the trenches two and a half feet wide, and one foot deep. Fill it a foot above the surface with hot dung that has been twice turned, or a mixture of leaves, straw, and grass-mowings. Three days afterwards put on six inches of soil, and leave it a couple of days; then put on three or four inches more soil, and plant. They will then have a steady bottom-heat, and if sheltered for a time will do well.

TURNIPS are not much in demand till autumn and winter, but this is a good time to sow a small breadth for summer supply. Use manure abundantly, and after sowing sprinkle over the bed a little lime or soot. This usually prevents the eating-off of the young plant by the fly, as it is only while in the seed-leaf that turnips are in danger.

SURFACE-DRESSING between growing crops with wood-ashes, soot, guano, or any good artificial manure, such as "Standen's Amateur's Friend," is far better than the use of manure-water in all open-ground cultivation. Indeed, in most good gardens pot plants demand all the liquid manure that can be got; but where there are capacious sewage tanks, and a good supply, it may be used freely to roses, strawberries, cauliflowers, rhubarb, gooseberry-trees, hollyhocks, and other gross-feeding plants. It should always be understood that weak manure water in large quantities is to be preferred to strong manure in small quantities.

WEEDS are springing up in abundance everywhere. Brisk hoeing will stop them for a time, and save much after-work, and the spreading of their seeds, while the crops will be benefited.

LIME-WATER should be used quite clear, and as a given bulk of water will only take up a certain quantity of lime, it cannot, if clear, be too strong. It should be prepared a few days in advance to ensure its being good. A pound of lime is enough for four gallons, but if more is used, it only forms a sediment, and does no harm.

Flower Garden.

BEDDING OUT.—Choose dull dry weather if possible, while the ground is moderately moist. Have the plants pretty dry, by withholding the water the day they are to be turned out. By watching the barometer, and getting all planting done just before rain, much labour in after-watering will be saved.

IVY does not generally figure as an item in gardening calendars; but it may be well to remind our readers that now is the best time to propagate it. The plants struck from young shoots now will have tremendous vigour if well managed. In "Rustic Adornments for Homes of Taste" is a description of a mode of growing ivy to form umbrellas and canopies for use at fêtes and festivals. Now is the time to strike cuttings for the purpose, and take them up in clean rods to the required height at which they are to be stopped to form a head. These should be grown from the first in pots, and never be put in the open ground until discarded for the purpose for which they were originally grown.

HERBACEOUS PLANTS throwing up their flower-spikes will in many cases require to be neatly staked to protect them from high winds and heavy rains. This the more needful where herbaceous plants are mixed with shrubs in borders, as in such cases they always push their heads of flowers out in an oblique manner, and this prepares them to fall over when heavy rains occur.

RANUNCULUSES AND ANEMONES.—These want plenty of water while their flower-buds are swelling, yet we do not like artificial watering. First give the beds a good soaking in the evening, using a water-pot with a coarse rose on, and do not be afraid as to quantity. The next night have ready a hogshead or so of lime-water, and use this without a rose, pouring the water from the spout of the pot put close to the ground, so as to wet the leaves as little as possible. By this process they will be greatly benefited, and will not want water again this season.

GRASS LAWNS require much attention now. Daisies are in bloom, and there can be no difficulty in finding them. Everybody is in want of a specific for their eradication. We have said so often that we are half afraid to repeat it, though we must, because inquiries are repeated, that spudding them out is the only effectual means of getting rid of them. It is a sheer matter of time and patience and back-ache. Where there is a full complement of work for the gardener, there ought to be no complaint about daisies on the lawn, for if he is doing his duty his hands are over-full now, and while he is spudding daisies a thousand important things will go to ruin. We have no faith in putting boys and girls to this work, though no doubt half a dozen youngsters trained to the work would be useful, and earn more than their salt in spudding them out. The best tool is a large strong knife with a stout horn handle, and the way to use it is to heave up the daisy gently, and draw it out by the roots complete, then tread the earth back. In many places, daisies thrive and grass does not; it is a question, then, seeing that, barring the flowers, daisies are close-growing and evergreen, whether it is not better in the end to leave them alone, and silently sing the ditty of "We must all be contented, and bear with the ups and the downs;" and, by the way, daisies are rarely seen on downs; it is on the flat fat loams they prosper. Generally speaking, lawns require plenty of roller and machine now. New grass must be tenderly dealt with, and much as we love machines, and enjoy the using of them, we prefer the scythe for the first few mowings of lawns newly made from seed.

ROCKERIES may be brightened up now by turning out in suitable places such plants as Saxifrage, Phlox subulata, Dianthus fragrans, Antirrhinum,

Columbines, Festuca glauca, Elymus glauca, Crimson Thrift, Campanula garganica and rotundifolia, Potentillas, &c. At the nurseries where herbaceous and alpine plants are grown in variety, charming selections may be made at very low prices; and as many of the plants are now in bloom, the future effect of the selection can be judged at once. Ornamental grasses contribute largely to the decoration of rockeries, if judiciously used.

Fruit Garden and Orchard House.

FRUITS RIPENING under glass must have a comparatively dry air and plenty of ventilation, or they will lack colour and flavour. If a few fine fruits are preferable to many of an inferior kind, let those that take the lead swell off and ripen, and remove the greater part of the remainder. This practice is of great importance in the case of strawberries, as succession bunches coming on while more forward heads of fruit are ripening retard the progress of the latter, and prevent them attaining to their full size and flavour.

ORCHARD-HOUSE TREES are now swelling their fruit, and need the help of manure-water. Use it rather weak at first, for fear of causing stone-fruit to fall. After two or three doses, alternating with plain waterings, increase its strength. Stone-fruits not yet beginning to swell should be kept without it for the present. As the mulch in the pots has now become dry and chippy, take it out, and replace with fat, half-rotted dung. Use the syringe freely, and with force, to wash off withered blossoms. Give air night and day, and pinch in to the third or fourth leaf from the base all the side-shoots, to cause a production of fruit-spurs. If the shoots have got too far, and the thumb-nail will not cut them clean through, use a small knife or scissors. Wherever you see a curled leaf, search for the cause of it, and you will find either grub or fly, with either of which deal promptly.

Greenhouse and Conservatory.

SINGLE-FLOWERING CHINESE PRIMULA.—The single varieties are raised from seed, sown from May to July, according to the period at which you wish your plants to be in perfection both as to flower and foliage. If you wish to have them at Christmas, sow in middle of May; if in February, sow in June; if in March and April, sow in July. The compost we usually sow our seed in is composed of fibrous yellow loam, old leaf-soil, and silver sand passed through a fine sieve, and well incorporated; three parts loam and one part leaf-soil will be the proper proportion, using sufficient sand to keep it porous. If leaf-soil cannot be procured, peat will answer the purpose, but it is not so good. The pot we use is a five or six inch one, filled one-third of the way up with broken crocks for drainage, then fill with the compost nearly to the top, water with a fine rose thoroughly, sow the seed, and sprinkle a little silver sand on the top, barely enough to cover the seed; cover the pot with a pane of glass, and place it as near the light as possible in a shady part of the greenhouse or a frame, shading from the intense rays of the sun. In two or three weeks you will have a nice crop. As soon as large enough to handle easily, transplant singly into small thumb-pots, using the same compost, and place in a close cool frame for a week or ten days, gradually giving air to harden the young plants, and prevent them from drawing up weak and spindly. As soon as well established, repot into their blooming pots, using the compost in the same proportions, only passing it through a coarse sieve instead of a fine one, adding a small quantity of well-decomposed manure—the older the better. If you have a half-spent hotbed to stand the plants on at this potting, it will assist them materially, as the grand secret is to keep them growing from the time the seed germinates until they are in bloom; allowing them to become pot-bound or checked in any way, will so injure your plants that a very unsatisfactory bloom will be the consequence. About the middle of September, they should be placed either in a nice warm greenhouse, with ample means for ventilation (by this we don't mean cold draughts of air, but the ventilation so arranged that the air shall be heated to the temperature of the house before coming into contact with the plants) or a pit with the same command for admitting air on all favourable occasions. The Chinese primrose requires the treatment of an intermediate house through the winter months, in which the temperature should not be less than 45° or exceed 60°, unless when there is sun, when 5° for an hour or two in addition would do no harm. Another point to be remembered is, when watering the plants, the water should be of the same temperature as the house or pit in which the plants are kept. With a little care the plants will progress rapidly, and as soon as the flower-spikes can be seen in the heart of the plant, weak manure-water should be given twice a week; only it must be weak, and should contain soot in solution if possible, as this, with plenty of light and air, will give a fine colour to the flowers, a great addition, and makes the plants of more value. It is better to sow seed and raise young plants of the single varieties annually, although, if a very fine variety has been obtained, it may be propagated and grown from year to year in the same manner as described for double varieties.

DOUBLE-FLOWERING CHINESE PRIMULA.—The usual way of propagating the double varieties is by cuttings or splitting up the old plants. After blooming, the plants require a season of rest (say a month), after which, if kept close, they will grow freely, and produce plenty of cuttings. These should be planted in single pots (thumbs); the end of the cutting should be cased entirely in silver sand, and placed in a mild bottom-heat. In three or four weeks they will be rooted sufficiently to be repotted into a four-inch or five-inch pot, taking care to keep them growing without check, and as soon as rooted to the side of the pot, again shifting into a larger one. In this way fine plants can be grown in one season. To obtain, however, a fine specimen, instead of cutting the plants to pieces for cuttings, repot the whole plant at once into a five-inch or six-inch pot, taking care in every stage to well drain the pots, and when rooted nicely, pot into a 24-sized pot (eight inches), or larger if required, although it will be well never to over-pot any plants, as they will not make growth so quickly or so freely as when given a moderate shift. To grow primulas successfully, they must have no check from the first start, and avoid the two extremes, neither too cold nor too hot an atmosphere, but the happy medium, usually termed an intermediate house, 45° to 50° by night, ranging from 55° to 65° by day, but not the latter unless by sun-heat. Water carefully, neither drenching the plants nor allowing them to flag, and you may expect some recompense for your trouble. These few hints will apply more or less to all soft-wooded plants, only they do not all require an intermediate house. A little practice will, we trust, with these remarks assist our readers in the cultivation of the primula and other useful spring flowers.

LAPAGERIA ROSEA.—This is a good time to plant this glorious climber. Lapagerias from layers cannot always be depended on; but Lapagerias from seed are as sure to grow as Virginian creepers, give them but the proper soil and suitable conditions. In a pot, Lapageria is like an eagle caged: it must pine and die—its doom is upon it. The only way to be safe is to plant it out in a capacious bed of peat raised above the level. If we could choose all our conditions, we would train the plant up a back wall with a west aspect, in a roomy airy house heated by hot water—just enough to keep frost out. The bed should go right across the house, and be of any length, from ten to twenty feet or more. It should be three feet wide, two feet deep, and be kept up with a brick wall in front. In any case, the plant ought to have a depth of eighteen inches of peat, and a surface of border equal to twelve square feet, which will allow for six feet of length and two feet of width, and in less than that bulk of earth we should not expect to make much of it. Supposing the bed to be two feet deep, there may be six inches of hard rubble at the bottom, and the rest filled up with peat of a gritty nature—such as that from Wimbledon or Shirley; but a greasy peat of a strong character would require a fifth part of its bulk of small pebbles added, say clean shingle of the size of hazelnuts and less. Now with this bed there is another help wanted, and that is abundance of water. As to temperature, the plant requires much the same treatment as a Cape heath—to be kept airy at all times, protected from frost, but to taste as little artificial heat as possible. Of course, if it is not possible to have a run of water, there must be plenty of water supplied by hand labour, or by a hose. It need scarcely be remarked that the front of the bed may be used as a stage for pot plants, provided they are stood on empty pots inverted, both to keep the plants from rooting through into the damp peat, and to prevent the peat getting pasty and sour, which it is sure to do if the atmosphere is excluded by covering the bed with pots. But the best way to treat the surface will be to plant it all over with two-inch lengths of *Lycopodium denticulatum*, six inches apart; these will meet, and form a dense carpeting of most delightful verdure, and do no harm to the roots of the Lapageria. As to training and pruning, we apprehend the cultivators of this beautiful climber will find no difficulty.

CAMELIAS FROM CUTTINGS.—This mode of propagating is not recommended, for camellias grafted or inarched on seedling stocks are preferable to plants on their own roots. The best time to take cuttings is when the young shoots of the season are just getting ripe. Then cut off the young shoots at the fourth joint from the top, that is, to have cuttings four joints long. With a sharp knife trim away the wood of the internode by a horizontal cut close below the lowest joint, and from that and the next joint above remove the leaves. Fill some large shallow pans with silver-sand, and dibble in the cuttings pretty close together all over, and place over them a bell-glass. They should be kept just damp enough to preserve them in a fresh state; if at any time very wet, the cuttings will perish, and so long as moisture condenses on the glass, the sand may be allowed to get nearly dry before it will be useful to give water again. Let them have air every day for a few minutes, during which time the glass can be dried. If there is any probability of the sun shining on them, cover the bell-glass with paper, or smear it all over outside with a thin wash of clay and water. For at least four weeks they should be kept thus in a cool place, and with very little moisture. They will by that time have formed the necessary "callus," and may be removed to a mild hotbed, where they will have a bottom-heat of about 65°, or from 60° to 70°, and not more. They will require more moisture now, and frequent dewing of the leaves, but care must be taken not to rot them by excess of moisture. When rooted, put them off in pure peat, with a fifth part of silver-sand added, and shut up warm till they have made a good start, then lower the temperature and give air, and as soon as hardened treat as old plants.

HYDRANGEAS.—Our own mode of growing this fine plant is very simple and successful; by it we have handsome plants, with huge heads of bloom from the beginning quite to the close of the summer season, and these we group as pot plants about the walks, near garden-seats, and to decorate approaches. In May a number of cuttings are taken from the lower parts of the stems of strong plants. We prefer young shoots with four or five joints, not more than five, and perhaps preferable with only three. The strongest wood may be used, and will be sure to root, but small young cuttings make the best plants. The cuttings have the two lowest leaves removed, and are potted singly in thumb-pots in a mixture of leaf-mould and peat, with a very little sand. These are all placed on a moist bottom-heat of not more than 60°, either over a propagating tank, in a frame over a dung-bed, or in a propagating case. They require to be kept moderately moist, and will bear to be closely confined until they form roots. Never having seen a case of damping-off, though we have struck thousands of cuttings, and in various ways, it does not seem needful to warn the cultivator on this head. However, let air be given moderately after the lapse of a week, and thenceforward increase the supply, so that by the time the pots are filled with roots the plants will be hard and thrifty. When propagated on a large scale they may be dibbled into wet sand, placed over a tank or dung-bed; but we prefer to pot them singly at first, as it is a decided gain in the end. When the thumb-pots are full of roots shift to 60-sized pots, using a compost of peat, leaf, and loam from rotted turfs, equal parts of each; keep them in the greenhouse or warm pit; water frequently overhead, and at the root; give plenty of air, and keep the plants near the glass. When these pots are full of roots, shift to two sizes larger, that is, into pots of six inches diameter, the compost for this shift to be strong turfy loam, full of fibre; turfy peat, all the dust and fine black powdery part removed, rotten dung and leaf-mould, equal parts; no sand. For the drainage of these pots we use only one large oyster-shell, placed over the hole in the pot, hollow side downwards. The plants are shifted into those pots without breaking the balls of earth formed in the 60's, and are at once placed on a bed of coal-ashes, or a hard pavement in a shady place out of doors, or plunged to the rim in a bed of cocoa-nut refuse. They have abundance of water, and before the end of October they have attained to a considerable size, and have ripened plenty of hard flowering wood for the next season. We neither stop nor tie, but allow the branches to fall over as they please, which gives the plants a graceful contour, far preferable to that produced by any kind of training. The plants are housed at the end of October. A cold pit suffices for their protection, and they have a little water occasionally, and are kept clean as they lose their leaves. In case of severe weather, a little care must be taken to prevent them being severely frosted.

AZALEAS AND CAMELIAS making their new growth to have abundance of water, and to be kept in a close pit, shaded; and water to be frequently sprinkled about, to cause a moist atmosphere. Camellias have not

yet grown much this season. As the terminal bud forms, reduce the supply of water, as if they are kept in too free a growth after that the bloom runs away in a new leaf growth. Leggy plants will often throw out shoots if the stems are tied up in moss kept constantly moist.

CAMELIAS growing freely will be seriously injured if exposed to the full blaze of the sun. Shade them in some way, and keep the atmosphere of the house moist by sprinkling water on the paths, stages, &c.

FUCHSIAS may be stopped again to promote a dense compact habit. Plants lately struck will now want a shift on. This is a good time to pot on the whole batch of plants from spring cuttings, as the houses are being emptied of the bedders, and there will be room for them.

PELARGONIUMS that were forced for early bloom will be getting leggy, and their flowers are now scarcely wanted. Set them out of doors in a hot place—near a boarded fence or wall, for instance, in the full sun; keep them regularly watered, and allow them to bloom as they please, and make them useful for supplying cut flowers, and as soon as they begin to look worn out cut them down, put in a few of the young shoots as cuttings, and when the old plants have started nicely re-pot them for next season. It is best not to shake them out, as is usually done with Pelargoniums for summer flowering, but to remove some of the old soil and put them into pots a size larger than they were in before. This promotes a vigorous growth and a good foundation for the next crop of flowers, without much check, and they are thus better prepared to form flower-buds in time for winter bloom. If trusses show in autumn, which is quite likely, pinch back the shoots until within eight or ten weeks of the time of requiring them in bloom. The general stock of young plants will be greatly benefited by a shift on now. Specimens coming into bloom must never lack water. Give them as much sunlight as possible, but shade as soon as the flowers open. Pelargoniums that are knotting for bloom freely may be aided by weak manure-water; but if there is a rank growth and little show of bloom, manure-water will do more harm than good. Give air abundantly on fine days, and syringe all the hard-leaved kinds overhead until the blooms begin to expand, then discontinue it. Varieties with soft leaves are less likely to benefit by syringing.

RHODODENDRONS that have been forced must not be flung into odd corners out of doors, as is usual with plants that have done their duty well. Keep them rather close in a cool house, and sprinkle frequently, giving abundance of water also at the root, to ensure a free growth. By this method they will form their flower-buds early, and may be put out to harden preparatory to forcing again.

CINERARIAS are going out of bloom, and will be tossed wholesale on the muck-heap. If intending to save any, or if the collection consists of named kinds, cut them down and remove to cold frame, and take care of them, and wait for suckers. The sooner these are obtained the better, as they do not flower so early as seedlings, and of course it is a help towards early flowering to have them early potted.

ERICAS AND EPACRIS that have flowered will do better now in cool airy pits than in the greenhouse. When houses are built specially for heaths, provisions are made for affording them abundance of light and air. If they are kept close, and mixed up with soft-wooded plants, they must be unhealthy. Shift on young stock, and shade after the shift; take care that none of the plants get dust-dry; remember rather that there are but few of the tribe but will at this time of year derive benefit from abundance of water.

SUCCULENTS are now starting into free growth, and must be encouraged. Manure-water will suit them well, and if in lean-to houses, put them on shelves next the wall where there would be too much light and heat for almost anything else.

Stove and Orchid House.

ACHIMENES, GLOXINIAS, AND GESNERAS will rejoice in a moist atmosphere with a generous temperature. They must have some shade, but Gesneras will stand the full sun the best. Train out betimes, and give air to keep the growth robust.

STOVE.—Sprinkle water frequently upon the pavement, to keep up a moist atmosphere, especially where Begonias and other soft-leaved plants are growing. A single drop of water on the leaf of any of the variegated Begonias will spoil its beauty, but they will absorb atmospheric moisture to almost any extent if the temperature suits them. Give orchids plenty of water, and wherever sunshine can be admitted without positive harm, give it a welcome as a positive good. Propagate *Clerodendrons*, *Erythras*, *Poinsettias*, *Euphorbias*, &c.

BEGONIAS of all kinds need repotting if not already attended to. This is a good time to propagate by pieces of the rhizome or by leaves. The soil should consist in great part of leaf-mould, with a little good loam and turfy peat. Shade, moist atmosphere, and no water on the leaves.

GARDENIAS done blooming require a thorough good moist heat; if over fermenting material, all the better. To be dry or cold will cause them to be eaten up by vermin.

Forcing Pit.

FORCED FRUITS.—Give air freely to these, or they will lack flavour and colour. Houses in which fruits are forced should have the lights merely screwed on, so as to allow of their removal altogether when the weather permits, which it will now, and to the advantage of the crop, especially of peaches and cherries. Avoid that bad but common practice of laying in an abundance of wood, for instead of furnishing plenty to choose from at the winter pruning, it is more likely to furnish none at all, for the crowding of walls and trellises renders all alike soft and sappy. Lay in wood as required, and thin away all other growths, and you will get wood worth keeping, instead of a forest of mere spray.

PINES.—Many fruiting plants are now advancing, and require good treatment. Where there is no fruiting house, the fruiting plants should be placed where they can have plenty of air, as that is indispensable. Succession plants must be encouraged to grow, and should have as much light and air as can be reasonably allowed them. To keep them close and over-much shaded at this time of year will be seriously injurious.

STRAWBERRIES have been ripening fast and fine during the past three weeks, but their wants have been of a most prodigal kind. Where they have not wanted for air or water, they have coloured superbly. When the fruit is all off, carefully harden the plants before exposing them fully to the weather. If pressed for room, some of the stock may now be put in pits to ripen off.

MELONS in fruit to have less water as soon as the fruit begins to ripen. Let them have the full sun, no matter how it may roast them; shut up early with a good heat, and sprinkle the leaves at the same time. Those

lately planted out to have soil added to the hills as required, and linings if the heat declines. Do not allow fruit to swell until you have a good plant.

Figs.—In early houses there is much fruit ripening now, and the syringe must be used with caution. But it must not be dispensed with altogether, because of the liability to red spider. Care must be taken therefore, especially as, though there may be much nearly ripe fruit in the house, there will also be much immature fruit needing assistance.

PINES to be shaded as little as possible, except those lately potted. Give plenty of air and plenty of water. Keep a brisk heat to succession plants.

CUCUMBERS in frames must have water regularly, and especially before shutting up, to promote a humid atmosphere. It will be probably found, by thrusting in the hand next the sides of the frames, that the soil is quite dry a few inches from the surface, and that wood-lice are ensconced there very comfortably rolled up hard and globular like pills. Mero water is a great discomfort to these gentry, but boiling hot water poured all round next the wood will kill them wholesale.

VINES to be stopped and the bunches thinned in good time. Set by hand Muscats, Wes's St. Peter's, Golden Hamburg, and others that are shy of setting. The Muscats will require a brisk dry heat while in bloom. See that all vines are sufficiently moist at the root, and those swelling fruits to be regularly syringed. Look to the stock of young vines for fruiting in pots; give them liberal culture. Where crops are ripening, raise the temperature to a maximum of 90°, with a minimum of 65°. Muscats are worth nothing in a low temperature. Stop laterals, remove superfluous shoots, and on all the wood left, whether young wood or bearing shoots, let every leaf remain. The removal of leaves to admit light to the bunches is almost as bad as putting the bunches in an oven to ripen them.

CHERRIES require to be thinned, and must have plenty of water. Temperature 65° to 75° day, 47° to 55° night.

PEACHES AND NECTARINES to be liberally supplied with water, plenty of air, and full sun. Strong shoots to be pinched in; useful shoots to be tied in. Keep a watchful eye as to the furnishing of the lower parts of the trees; if they are allowed to make gross shoots high up, they will get bare at bottom, and it is always a sign of a careless or unskilful cultivator when the trees are irregularly furnished.

Literature.

STEINMETZ ON THE PHILOSOPHY OF THE WEATHER.

Sunshine and Showers: their Influences throughout Creation. A Compendium of Popular Meteorology. By ANDREW STEINMETZ, Esq., of the Inner Temple, Barrister-at-Law. Reeves and Co., Henrietta Street, Covent Garden. 432 pp.—A clever book on the weather is about as good a thing in the way of literary work as can be offered to the British public, for though our libraries are well supplied with what are called "standard works" on meteorology, there are but few really useful hooks adapted for the masses of the people. To a certain class of minds mere figures are as poetry; the multitude, however (and the multitude are not fools, be it remembered), care little about figures and only look for results—that is to say, for orders of sequence, for laws, for coincidences, for whatever in the concrete can be extracted from figures by the application of those who love them for their own sake. Take, for instance, the elaborate meteorological returns from the Kew Observatory which are periodically published in the *Intellectual Observer*, and of what use are they to any promiscuously gathered thousand enlightened citizens? There may indeed be one in that thousand who is anxious to know what was the range of barometric pressure and of temperature, and the total of the rain-fall in January last; but the remaining 999 want to know—that is if they are curious at all on meteorological subjects—they want to know what sort of weather we shall have to-morrow, or on Wednesday next, or a week hence, or a month hence—ay, for any time to come, but as for the past, they are prepared to say, "Let the dead bury their dead." Now this is common sense, let the pseudo-philosophers say what they please. It is simply an application to meteorology of the rule that is found good in other departments of physics, aye, and in morals and mental philosophy too. It is a judging of the tree by its fruits. We conclude that if a theory is sound its application will be useful to mankind. If great expense and much talent are expended on the registration of meteorological phenomena, we ought to have as the result some better guidance than guess-work as to the weather of the future. What is the use of all these instruments, these tables, these nice distinctions, if they do not lead to a means of forecasting with some degree of accuracy the state of the weather for some hours or days in advance of events? We are not prepared to say that, in the absence of improved means of forecasting, these instruments and tables are of no use, but we do say without hesitation, that if they do not point to the future with some degree of certainty, the public will have no faith in them, and meteorology must rank with archæology, as a science of the past and not of the future, and hence will have but few followers. Happily all the labours of meteorologists tend towards the happy consummation, the power of predicting what the next weather will be. The book before us has been written, by one peculiarly gifted for the task, with the view of enabling every thoughtful and observant man to be his own weather prophet; a far more desirable end than the constitution of schools of weather prophecy, because what a man foresees for himself he will provide against, but what, as a rule, is indicated for him, however correctly, he will scarcely heed, and therefore will not benefit by.

It is with peculiar pleasure we introduce this book to our readers. It is able, it is crammed full of practical wisdom; it is more than it professes to be, for it furnishes a complete key to the laws of meteorological vicissitude, and moreover it is written in a most plain, homely, simple style, and affords an agreeable illustration of the ease with which a master of a difficult subject may, if he chooses to put aside pedantry, make that subject understood by the common people, such as we reckon ourselves and (we beg their pardon) our readers to be. Perhaps at this point some readers may raise the question of the possibility of forecasting, and so beg the whole question in a negative way, with the view of ignoring the book. Well, we do not mind illustrating this point by the statement of a fact. An experimental horticulturist, who considers himself somewhat of a judge of the weather, had in hand some important undertaking requiring a considerable amount of out-door work. Long since, foreseeing bad weather throughout March, he put on extra force and got all done before February

was out, though in ordinary seasons the work might have been carried on throughout the whole of the past month. The reader need not know what the particular work consisted of. Let it be draining, planting, or even the sowing of seed, it is clear that a whole month has been gained by the exercise of judgment, and the acting upon conclusions as to the coming weather. Suppose that in the case before us, the particulars of which we withhold for proper reasons, the work had been allowed to take its usual course, it is evident that several weeks must have elapsed between the 23rd of February, when the last stroke was finished, and the resumption of labours; and what are several weeks worth at this time of year? We leave the question to practical men, and pass on to the book before us.

The object of the author is to render a subject which is truly complicated so plain that he who runs may read. He has not quite succeeded, but he has done wonders towards popularizing without degrading meteorological science. He acts out by supposing the reader knows nothing about it, and that is the proper way in any book intended to popularize a difficult subject. He presents sketches of the known laws and phenomena of the atmosphere, and then proceeds to describe the instruments by means of which the conditions of the atmosphere are ascertained, irrespective of our own feelings, which are always deceptive. Then follow applications of the facts observed, and the laws deduced, to the great subject of weather prognostication, and it is pretty certain that the reader who will make a study of this book will in the end become well fitted to "forecast the weather," in so far as the art of doing so is possible in the present state of our knowledge. We are bound, above all things, to notice in this work the agreeable, communicative, almost anecdotal tone in which it is written; it reminds us sometimes of the fascinating style of Sir John Herschel, who amongst modern philosophers is pre-eminently happy in popular elucidations of the principles of physical science. In exemplification of our eulogy, we have made a few extracts, and these we submit, without any attempt to connect them together, for they relate to specific subjects, and have a value of their own apart altogether from these remarks on the general scope and purpose of the book.

DRAINING AT DEPTHS OF TWENTY AND THIRTY INCHES.

"At these depths the great advantage of draining becomes strikingly evident. During the prevalence of frosty weather in February for three weeks, the mean temperature of the drained land at 20 inches was 35·2°, and the undrained 34·7°. Hence the effect of drainage at the lower depth was to keep the soil 1·3° warmer during a protracted frost—an immense benefit to vegetation. Moreover, whilst at ten inches the rain raised the temperature of the undrained more than that of the drained land, it is just the reverse at 20 inches, at which the drained land had the advantage. It was the same with snow, the effect of which was to prove that the cold resulting from a covering of snow is more quickly transmitted through undrained than through drained land.

The mean annual temperature at each of the three depths was greater on the drained than on the undrained land, the amount being at 10 inches 0·8°, and at 30 inches 0·7°. The annual mean temperature at nine a.m. is greater at 20 inches than at 10 or 30 inches; from which we may infer that the daily wave of maximum temperature has at nine in the morning passed 10 inches, and penetrated to about 20 inches, but has not yet arrived at a depth of 30 inches. Hourly observations of the underground thermometers, conducted from time to time under different states of the weather, would be of great service in determining the march of the daily wave of temperature through different soils. Since changes of temperature are more readily transmitted through undrained than through drained land, it follows, from the small excess of the drained land at 20 inches, that at nine a.m. the daily maximum had penetrated to about 20 inches in the undrained land, but that in the drained land it was still some distance from that depth.

The difference between the temperature of drained and undrained land varied greatly in different months and at different depths. At 10 inches the excess is much greater during the warm months, from May to October, being 1·1° as compared with 0·4° during the other six months. But at 20 and 30 inches the greatest excess occurs during the cold half of the year, from October to March, being at 30 inches 0·9° as compared with 0·4° during the summer months; and at 20 inches 0·6° as compared with 0·2°. It may be remarked that when the excess is greatest at 10 inches, and least at 30 inches, the heat is increasing from the surface downwards; but when the excess is least at 10 inches, and greatest at 30 inches, the upper layers being coldest, heat is passing from below upwards.

The temperature at 10 inches reached the maximum on the 25th of July, and fell to the minimum about the 21st of February, and the mean temperature occurred about the 21st of March and 21st of October. At 30 inches those periods fell from one to two days later, except in April. Then it occurred four days later, owing to the rapidity with which the temperature rose to the mean in that month, longer time being required to raise the temperature of the lower depths.

The coldest month was January, 34·2°, and the warmest July, 58·8°. In the drained land the coldest winter and the warmest summer temperatures at the different depths were respectively 34·0° and 59·9°, 35·4° and 59·1°; and 36·0° and 57·4°; and in the undrained land 33·9° and 58·9°; 35·1° and 59·2°; and 35·0° and 57·0°.

Thus the difference between the mean temperature of the coldest months was, in the air, 24·6°, in the drained land, 25·9°, 23·7°, and 21·4°, and in the undrained land 25·0°, 24·1°, and 21·9°, and hence the annual fluctuation of the mean monthly temperature was greater at 10 inches, about equal at 20 inches, and less at 30 inches, than that of the air.

USES OF THE HYGROMETER.

It is in conservatories that the hygrometer is indispensable. How often do our greenhouse plants become shrivelled or weak before we have the least suspicion that there is any alteration in the humidity of the air! Then, as soon as we become alive to the fact, we drench them with water, without taking their actual requirements into consideration. On the other hand, if we fancy, from our own sensations, that the air of the conservatory is too dry, we sprinkle water about without measure. But, as Mr. Glaisher observes, our sensations with regard to heat and humidity are very fallacious guides. Everyone must have felt in summer the heat to be at times almost insupportable, without any apparent reason, as shown by the reading of the thermometer. This happens when the air is nearly calm and moist; the air is already so moist that it cannot take off our own moisture as we give it off in perspiration, and so we say it is "sultry;" but only let the air get in motion, even only by means of the Indian punkah

or huge fan swinging about, and then we feel cool and experience relief. Yet the same hygrometric conditions exist. It is only a very small amount of vapour and heat that we force the air to take from us by the process. But should the air get drier with the same temperature, then evaporation from the skin takes place with great activity, and we feel a marked sensation of cold; and this result is as great a fallacy as the former. The fact is, that with the same temperature, and enjoying an equal state of health, we experience, according to our mere sensations, various changes of temperature, and so our senses cannot guide us with regard to heat and humidity, as far as our own health is concerned, and much less with regard to our plants. Therefore the hygrometer, properly used, and its indications attended to, may be made the means of preserving many valuable plants which might otherwise perish in an ill-regulated atmosphere.

We presume that most of the superior gardeners are acquainted with the nature of the proper climates of their plants. At any rate, such knowledge is necessary for their proper treatment, not only as to temperature, but also as to moisture. With this information they can easily regulate the atmospheric condition of their conservatory. For example, suppose the temperature of the climate of the plants be 70°, and its mean state of humidity about 60 or 70 per cent. of the quantity of aqueous vapour which the air would contain if saturated, as before explained. Then, by consulting Mr. Glaisher's tables, we find that in order to secure this climate for the plants the reading of the dry-bulb thermometer must be 70°, and the reading of the wet-bulb thermometer between 60° and 64°. In this manner we can match any climate under the sun, as Mr. Glaisher's tables, which should always accompany every hygrometer, include every temperature and degree of humidity. We have only to look out for the temperature of the dry-bulb in the first, and find in the eleventh column the degree of humidity required, and then, in a line with it, in the second column, we shall find the requisite reading of the wet-bulb to secure it.

Having made this discovery, all we have to do is to introduce a large surface of water, with a moveable cover, to regulate at pleasure the extent of evaporating surface, and then we shall have the means of obtaining and securing continually the requisite degree of humidity.

AIR-HEAT AND EARTH-HEAT.

The temperature at the surface of our globe is, from a variety of causes, such as we have mentioned, liable to great and sudden fluctuations; but this is not the case as we get below the surface. The lower we descend the smaller the fluctuations become, until at length we get to the stratum, or layer of *invariable* temperature, which varies in different soils from 50 to 100 feet below the surface.

We have before us a table showing the mean monthly temperature at various depths and in the air at Greenwich, from an average of thirteen years; and it appears from this table that the full effect of the solar heat received by the earth in the summer months does not reach to the depth of twenty-four feet until about the end of November or beginning of December; and that the lowest temperature is not attained till June, by which time the absorbed heat has been radiated, and the ground has received a fresh supply. The following are the dates of the middle of the warm and cold periods for six thermometers, from an average of thirteen years, at the Royal Observatory, Greenwich:—

Thermometers.	Middle of warm period.	Middle of cold period.
1. Air	July 21	January 20
2. 1 inch underground	" 26	" 24
3. 3 feet	August 9	February 8
4. 6 "	" 25	" 24
5. 12 "	September 25	March 27
6. 24 "	November 30	June 1

From this table we see that the thermometer, whose bulb is only covered with an inch of soil reaches its highest and lowest readings at dates differing only a day or two from highest and lowest, as marked by the thermometer free in the air. The three-feet thermometer is about nineteen or twenty days behind the instrument in the air; that six feet below the surface is retarded by still more; and this goes on increasing with the depth, until at twenty-four feet the times of maxima and minima are retarded between four and five months.

The range of the mean monthly temperature at the different depths is as follows:—

Thermometer in the air	29.8 degrees
" sunk 1 inch	25.4 "
" " 3 feet	21.7 "
" " 6 "	15.4 "
" " 12 "	9.5 "
" " 24 "	3.4 "

As before observed, the geological peculiarities of the soil in which the thermometers are sunk will make some difference in their readings, some strata or layers of the soil having a much greater power of conducting heat than others. It takes about five or six days for the impression of heat to penetrate through one foot of earth, subject to slight variations in different soils.

From these facts the reader will perceive how much warmer the roots of plants are during the winter than the portions that remain above the ground; and the contrast becomes more striking when the winter is very cold. When we are hardly able with the greatest care to keep life in some of the plants above, those beneath are luxuriating in a temperature many degrees warmer, provided they have fair play, and are not over supplied with moisture, the excess of which makes lands "cold" and ungenial to vegetation. Thus we can understand why the natives of the ice-bound regions of the north retire, when their short summer is over, to homes below the surface of the frozen ground to pass the long winter.

The practical application of these facts and principles should be easy enough. Having, by means of your ground thermometer, discovered the maximum, or middle of the warm period of your land, the further it is from the maximum, or middle of the warm period in the air, the greater the certainty that your land is in good condition of heat and that the cold period will be delayed, so as to counteract the effects of a cold untoward spring.

The effect of good drainage in thus getting the land into good heat, that is to say, in point of fact, increasing its capacity for absorbing heat, has been generally admitted; but we are tardy as yet in seeing the immense advantage in the same line that is likely to result from *deeper subsoil cultivation*. If anything will tend effectually to counteract the stress of untoward seasons, it is, we believe, deeper cultivation, of which nature gives

us a hint in the length to which the tiniest roots will delve below the surface, seeking better conditions of life and growth. In proof of this, we have only to refer to cultivation in Japan, one of the wettest of countries, but with an *arable* soil of some twenty feet deep, instead of only six or eight inches as in England, and consequently incapable of suffering either from drought or excessive rain-fall, and producing not only enough for her own population—at least equal to ours—but also for exportation; and more than that, for *any* cultivation—at will even *rice*, which requires flooding."

Correspondence.

A FACT ABOUT SARRACENIA GROWING.—Mr. Editor, I think I can add a fact to Mr. Prosper's pleasant paper on *Sarracenia*. After all that has been written, and all that has been seen, can any London nurseryman or plant-grower really grow quickly and naturally even the commonest kind, *S. purpurea*? True, they grow them by keeping them moist with a syringe, and all sorts of troublesome nonsense, as if one were trying to fruit the Mangosteen or grow the *Rafflesia*; but do they propagate and cultivate them rapidly, as one would expect "good cultivators" to do with a bog-plant of North America? Nothing of the kind! How many hundreds of times have fine batches of *Sarracenia purpurea*, the kind which your readers can obtain and accommodate most easily, been introduced to English nurseries and gardens in quantity, to receive a little coddling attention, and to perish after a few months! Who among London nurserymen increase this plant so that they have what we usually call a stock of it? The fact is, they cannot, for they do not grow it as it ought to be grown, though they take infinite pains with these most curious pitcher plants. The way to grow *Sarracenia purpurea* is this: get healthy, fresh, young plants that have not been overdone with this coddling, and in the spring of the year pot them in peat, with a few lumps of crocks or a few lumps of peat at bottom,—the last the best,—using 32 or 48 size pots, according to the size of the plants, and then place them on a light shelf in a greenhouse or pit, near the glass and full light in either case, and then place a saucer under each, filling it with water, and keeping it so; not otherwise attending to the plants, except perhaps to syringe them when the other inmates of the house or pit receive that attention. In that way you will have dwarf, healthy, and stubby specimens of this most interesting plant that will bear comparison with any in existence after a year or two's growth. And bear in mind that even at Kew, and many famous gardens, you rarely or never see a thoroughly free-growing "home-grown" *Sarracenia*, while every amateur may have it by pursuing the course above named. SIMPLICITY.

Replies to Queries.

Arabis lucida variegata.—G. M.—In replying to "Variegated Alpine," we quite overlooked the fact that Messrs. Stuart and Mein, of Kelso, N.B. have been advertising this charming edging plant for some time past in the pages of the Magazine. G. M. and others will now know where to send for it.

Ferns.—North of Scotland.—*Leptopteris superba*, otherwise called *Todea superba*, thrives in a warm greenhouse, and probably would do well in a cold greenhouse. The principal point in its cultivation is to keep it in a close damp atmosphere, and, in fact, to treat it as the filmy ferns are treated. It is usually kept covered with a bell-glass, but a case would do better still. If taken good care of it never need be ventilated at all, but if made too wet a little air will be necessary, and the safest course would be to tilt the bell-glass slightly. The soil should be good peat two parts, and silver-sand and broken stone one part. The other fern you inquire about is called *Asplenium nidus*, otherwise *Neottopteris nidus*. It is a noble fern of most robust habit. To grow it well, it should be potted in lumpy peat, and kept in a shady part of a damp stove; but it will do very well in a warm greenhouse, and when young is an excellent case-fern. Neither of these ferns should be kept in a house facing south, unless special means are adopted to shade them.

Peas planted deep.—"I planted peas and beans deep; my neighbours planted more shallow, and by so doing have got the start of me. Would it be wise to use liquid manure in the hope of overtaking them?"—*A. Sergeant*.—We do not approve of the use of liquid manure to such things as peas and beans; but if you have a good supply, and can spare the labour necessary, it may be used with a view to augment the weight of the crop, but it will not enable you to gather any sooner than you will do by omitting the use of it.

Calceolarias.—J. Gregory.—You had best plant out your *calceolarias* at once; they will do far better than keeping them in pots.

Amaryllis.—Paignton.—Probably the soil is not good; shake it out, re-pot it in a sweet compost, and in as small a pot as possible, and place it on a bottom heat of 70°. This may give it a good start.

Strelitzia Regina.—East Cliff.—This is the proper season for the plant to flower; and as it will not flower unless properly treated, your treatment cannot be far wrong. We prefer to grow this fine plant in good turfy loam without any peat, in a good stove temperature; it is quite useless to attempt to succeed by cool treatment, and in the growing season the plant requires an abundance of water.

Maréchal Niel Rose.—S. C.—If you wish for plants on their own roots, wait till the beginning of July, and then make a few cuttings of young shoots three inches long; put these cuttings into a pot filled with a mixture of mellow loam two parts, and sand one part; put the pot in a shady part of the greenhouse or in a frame, and put a bell-glass over; make the soil in the pot moderately moist, and take off the bell-glass daily, and lightly sprinkle the leaves. Be careful not to make the cuttings very wet. They will be rooted in about three weeks.

Calceolarias.—B. B.—On your hot soil it would be well to enrich the beds for these with an abundance of rotten manure. *Calceolarias* will grow finely and flower freely in a bed consisting of rotten manure alone, and this when plants of the same kinds in beds not manured, and in the same garden, are dying wholesale.

Geraniums Diseased.—J. W. E.—Your plants have been too damp and cold during the winter, and they are now in a bad state. It is common to see in damp houses some examples like yours, but rarely so bad. The only cure is sunshine. Should the sun ever again shine for a fortnight right off, your plants will quite recover. In the mean time it would be well to examine their roots, and see that the drainage is all right.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun		Moon		WEATHER NEAR LONDON, 1867.			M. Imp. avg. of 43 yrs Growth	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D			
			rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain						
1867			b. m.	h. m.	h. m.	h. m.	MX.	MIN.	ME.	MM.	MC.				
12	S	3rd Sunday after Easter	4 15	7 38		1 47 a. m.	20.78	29.34	59	33	46.0	.04	51.4	<i>Chysis bracteosa</i> , 1 ... <i>Guatemala</i>	12
13	M	Length of night, 8h. 33m.	4 14	7 39	2 10 p. m.	2 15 ..	30.10	29.94	53	32	42.5	.00	51.8	<i>Saccolabium ampullaceum</i> , 1 <i>India</i>	13
14	T	Fahrenheit born, 1686	4 12	7 41	3 18 ..	2 41 ..	30.19	30.11	57	26	41.5	.00	52.2	<i>S. curvifolium</i> , 1	14
15	W	Daniel O'Connell died, 1847	4 11	7 42	4 27 ..	3 0 ..	30.35	30.16	55	39	42.5	.00	52.6	<i>S. guttatum</i> , 1	15
16	Th	Professor Henslow died, 1861	4 10	7 44	5 31 ..	3 30 ..	30.39	30.35	55	28	43.0	.00	52.8	<i>S. prismosum</i> , 1 <i>Malabar</i>	16
17	F	Jenner born 1740	4 8	7 45	6 35 ..	3 57 ..	30.27	30.19	61	28	44.5	.00	53.1	<i>Calanthe veratrifolia</i> , 1 <i>India</i>	17
18	S	Boswell died, 1705	4 6	7 47	7 36 ..	4 26 ..	30.17	30.42	71	33	52.0	.00	53.3	<i>Cattleya citrina</i> , 2 <i>Mexico</i>	18

The Gardener's Magazine.

SATURDAY, MAY 11, 1867.

SALADS AND EARLY VEGETABLES ARE NOW IN GREAT REQUEST but not in great plenty. Families residing in London in "the season" generally receive at least a part of their supply of the above from their country seats, and probably a part from their greengrocer in town; others, who remain in the country, read of these things at so much per dozen bunches, or per punnet, at Covent Garden Market, long before their own gardens will afford them in any quantity, if at all; and country gardeners are doubtless often asked by employers why the London market is supplied so much earlier than themselves. Gardeners who know both town and country can easily answer such queries; but all the world of horticulturists have not the advantage of such extensive experience, therefore we have been induced to offer the following remarks, not because we admire the high prices at which they are sold, but because of the earliness and generally delicate quality of the vegetables and salads now to be seen in the first-class greengrocers' shops. The difference alluded to arises from two causes: the market gardens about London and other large towns are so sheltered by buildings, or the peculiar formation of the country, that they feel next to nothing of the sweeping easterly blasts that are experienced in the country; but more, perhaps, depends upon the nature of the soil, that near London having been for many years under the special culture of the market gardener, and it has, from the great supply of manure available, become light, porous, and rich; and from its consequent dark colour is calculated to absorb the utmost amount of warmth from the sun's rays, and, in fact, it possesses all the conditions calculated to promote rapid and luxuriant growth; whereas in the country, the avidity of stewards for all or the greater part of the manure that is made, and the supineness of masters in placing at the gardener's command the necessary means, make it difficult for him to compete, either in point of earliness or quality, with the market gardener. He has to contend as well with the crotchets and jealousies of stewards and gamekeepers. If he wants manure, the steward cannot spare it; if he wants soils, there are no horses available for carrying it; if he wants leaf-soil, the gamekeeper cannot have the "covers" disturbed; and if he wants bone-dust, guano, &c., the master cannot see the necessity for it. We must tell such they cannot reasonably expect the produce unless they furnish the necessary means.

Having so far prepared the way, we will now offer a few remarks on the various substances and means suitable for improving and forwarding early crops, where such are not at present satisfactory, some of which may be procured in most localities. Those who have light and porous soils have only to thoroughly enrich and protect them. The first may be accomplished by liberal dressings of bone-dust or artificial manures, and a thorough pulverization by frequent digging, hoeing, &c. Protection, to a considerable extent, may be secured by placing lines of common wattled sheep-hurdles at frequent intervals amongst the crops; or more permanent fences of reeds, or feather-edged boards, about three or four feet in height, and if tarred with coal-tar once a year, they would last a long time. Those who have stiff or harsh soils have much more to do, as they have not only to thoroughly enrich and protect them, but to reduce their texture mechanically. This requires much labour, as well as a most liberal introduction of friable substances—leaf-mould where old woods abound, or peat-earth, scorings from ditches and all kinds of vegetable refuse, charred rubbish and burnt earth, road-scrappings, and sand. Any of these should be secured, and be put in a heap with a moderate admixture of fresh lime to kill insects, and reduce the texture of the mass. This, after frequent turnings, should receive a liberal allowance of bone-dust, or night-soil, farm-yard dung, &c.; but it is of little or no use applying any of them to the soil in their crude state, therefore let them be thoroughly decomposed, and then added to the particular spot, if ever so small, in sufficient quantity to be appreciated. Thus a border, or one "quarter" of the garden at least may be rendered

fit for the production of early crops. But we do not advise such an extensive use of these ingredients upon the main part of the garden where summer and autumn crops are to be grown, as a greater degree of substance in the soil is necessary for these.

CLOTH-OF-GOLD AND COLEUS VERSCHAFFELTI.

When I take into consideration the number of beautiful effects in bedding it was my good fortune to see last year, I am somewhat puzzled to determine which was the best, taken as a whole; for amongst those of our professional men who are called upon from their position to exercise great taste and skill in the arrangement of colours, the race for the premiership was so nearly balanced that I cannot say who should bear the palm. But it would not be so if I were asked for an opinion upon the best two bedding plants, which I saw as worthy competitors, to make an effect, either in a well-arranged parterre, or for a separate bed where there was no special design; for I should without any hesitation say, "If you have a pet or choice bed that you wish to fill with beautiful subjects, then choose the *Coleus Verschaffelti* for a centre, and a double row of the *Cloth-of-Gold Geranium* as an edging."

But as I must be truthful in this case, as I have ever been, I must tell the reader how I came to alight on this subject at so opportune a time. I was digging out some stray notes from my pocket-book which I made use of last year in my tour of inspection of some beautiful gardens, when my eye rested on the following short paragraph in connection with this subject: "Saw at Lord Rokeby's, Hazlewood, near Watford, Herts, the finest effect of *Geranium Cloth-of-Gold* as an edging, and *Coleus*, named above, as a centre of a circular bed, that I have seen this season." I had no sooner run my eye down these notes than a very vivid recollection came across me of the condition of these plants at the time I saw them; and a sense of honour compels me to remark that I ill requited a friend for the kindness shown me by the then able gardener at Hazlewood, who, although busily engaged with Lady Rokeby in arranging the planting of some sub-tropical plants, found time to show me all there was to be seen, as likely to interest any one connected with a garden; but a press of time, and other equally interesting subjects, prevented me from noticing the many curious and good things I saw there, and which must be my excuse for not making use of the notes I then collected. To return to the heading of this short paper, I may remark that in the whole course of my experience I never saw the *Cloth-of-Gold Geranium* done so well as it was in that neighbourhood. In fact, I believe it is not properly understood by many, for here it was, in conjunction with the *Coleus*, favoured with the richest soil that could be got, and it certainly well repaid the cultivator for his pains; for at the beginning of July it was making a growth equal to the strength of a *Christine geranium*. And it is worthy of remark, that in other adjacent places—at Langleybury (the grove) and at Casisobury—all in the same neighbourhood, it was equally as vigorous. But in no other country did I find it in such good condition, thus showing that either Hertfordshire is peculiarly adapted for it, or it is not properly understood by other cultivators; for while here it grows with the vigour of a *Christine*, we generally see it but little better than the *Golden Chain* in growth. Those who have not seen it so arranged and so liberally cultivated, cannot form a correct opinion of its merits, more especially when backed up by the *Coleus* above named; for while the one is dark and sombre, the other is cheerful and light; and when combined in a circular bed, the soft tones of the gold bands upon the leaves of the geranium light up and blend with the peculiar colour of the *Coleus* in such a manner as to make the effect at once pleasing and refined.

J. C. CLARKE.

ON EARTHING THE ROOTS OF GROWING CROPS.

The term "earthing," or "moulding up," is understood by gardeners to apply to the practice of giving additional supplies of fresh earth to the roots of growing crops; and it is to the utility of the practice that I wish here to devote some space, with a view to assist those to appreciate and understand it whose experience in such matters of detail is limited.

In the first place, I may safely say it is a part of the details of the labour of a kitchen garden that many neither appreciate nor understand. They do not appreciate what other people recommend as essential for the well-being of any particular crop, simply because the idea did not originate with themselves, and they cannot bring

their minds to accept it as useful, while they see their crops producing moderate results without it. They are content with their old notions, and thereby continue to ignore by their action what others have proved an immense benefit to many growing crops, and which would do them equal service if the same practice were worked out on a liberal scale. As to their understanding the value of such simple details, it is not to be expected that the crude state of their minds will allow them to do so; therefore they must be allowed to wait their own time, or until the force of circumstances brings it clearly home to them, before they can be expected to receive the suggestions of those whose only interest is to assist them to understand the essential details upon which depends much of the labour of a garden.

For myself, I cannot imagine anything more disheartening to a public writer than to find, after he has been at the pains of detailing any particular method of culture of some favourite crop, that the public have taken up some of the main features of the plan, but have neglected altogether some of the details, and then wonder why they are not so successful as the author of the plan has been; yet such is a common occurrence, and a good method of cultivation, when properly carried out, is often thrown up in disgust simply because people neglect those details which the author of the plan found essential to success. It is so with earthing or moulding, for there are few crops of the kitchen garden but what are immensely benefited by it; but how often do we see a proper system of earthing carried out? It is only understood and valued by those men who make their business a study, and who are ever ready to adopt those measures that are most conducive to success, let them be suggested by who they may. The reader may probably remember that, some two or three years ago, I offered a suggestion in these pages in favour of the discontinuance of earthing early potatoes, for which some kind correspondent was good enough to say I must have made such a suggestion with a view to be singular. But it was for nothing of the kind, as I simply stated what my practice led me to believe was an excellent plan, and which I have since continued to adopt with increased success, and which many far better and more skilful men than myself are constantly recommending. I have merely mentioned this circumstance to show how narrow-minded some men are, and how little value they set upon the efforts of others when trying to make known something that does not exactly fit their own stand-still principles.

The value of earthing all growing crops is only to be measured by the subjects under cultivation, and the purposes for which they are required—as, for instance, the value of repeated applications of some fine dry earth, gently shook over small seedling plants at this time of year, such as the seed-beds of all the Brassica tribe, can never be estimated at its correct value except by those who have worked it out in previous years, as very few will credit the stout, sturdy plants it creates, to say nothing of the increasing number of young rootlets that are formed by encouraging young roots to spring forth higher up the stem. This is more especially valuable in stiff clayey soils, where the young plants have nothing beneath them to induce a downward tendency of the roots. These remarks apply with equal force to the same plants when removed to other quarters. Spring-planted cauliflowers, for instance, are greatly benefited by the addition of some fresh soil drawn up to their roots two or three times during their active season of growth. The same may be said of the autumn and spring planted cabbages, and, indeed, any of that class that is supported by a stem only a few inches high; for, besides encouraging a greater root action, the additional supply of earth serves to steady them against the wind, and prevents that rocking, if I may so express myself, that all such plants are subject to if there is not sufficient weight against the stem to keep it firm in its proper place. Peas, again, are greatly benefited by constant earthing, as it serves during dry weather to prevent that excessive amount of evaporation that would otherwise take place. All kinds of beans will keep in bearing longer if they receive two or three fresh earthings during the season of growth; but the most successful of all the crops I have yet dealt with was the custard vegetable marrow. This delights in fresh soil, and, in fact, with me does much the best when about every three feet of the stem is layered as it were, and a basket or two of earth placed upon the joint. Cucumbers, too, are strengthened in this way, especially when they have been in bearing some time; and it is well known that when melons are grown in ordinary frame beds the young fruit swells much faster when the fruiting shoot is covered with earth than when exposed to the heat of the direct action of the sun. And, while I think of it, if I may go into the flower garden for a moment, stocks and asters are especially improved if the stems are earthed up once a fortnight while they are making their growth; so also are all the border annuals, if previously thinned out, and about two sprinklings of fine earth shook round their roots; it will do them more good than four times watering would do.

Turning again to the kitchen garden, we find tomatoes do much better when earthed once or twice, or, what is better, about two

applications of fat dung laid round the roots. In early spring old strawberry beds, when the crowns have risen above the level of the soil, receive quite a fresh stimulus if some rich fine soil is laid round the roots; into this they make vigorous roots, as it is more kindly than an ordinary border soil; and the same may be said of seakale and rhubarb plantations. Many fail with radishes, when grown under glass in early spring, because they will not take the trouble to earth them, that is to say, to give them a sprinkle of fine dry soil every week to cover up the stems of the young plants, which at this early season are always drawn for the want of sufficient air. In the absence of anything better, I have frequently used dry sifted cinder ashes, and for many young plants this is better than soil, as the roots will work in it quite as freely, and it prevents at the same time the slugs working amongst them, as they do not like the rough surface to travel upon.

As a last remark, I cannot avoid saying that gardeners generally do not attach sufficient importance to the practice of earthing all young seedling plants, as it is a sure preventive against their getting long-legged, as well as against mildew and, that worst of all evils, damping off—at least, such is the experience of an

ENGLISHMAN.

RAISED *VERSUS* LEVEL FLOWER BEDS.

It may not be generally known amongst the country readers of the GARDENER'S MAGAZINE, that in such places as *Keu Gardens*, the *Crystal Palace*, and other large places round London, where the best displays of bedding plants are to be seen, in the majority of instances, the beds in which the plants are growing have a level surface, or rather, perhaps I ought to say, instead of sloping downwards from the centre to the outside, the slope is the reverse way, as they dip very gently from the outside to the centre. Now the advantage of this arrangement must be manifest to every one who has anything to do with any number of flower beds; for as soon as the beds require water, the labour they entail when raised far above the surrounding ground level is something serious to contemplate, if there is any extent of flower beds. But with these inclined surface beds the quantity of water required is insignificant, when compared to beds that are perched up on mounds; for where a raised bed would only be gently moistened by some half-dozen cans of water, those with the level of the surface reversed would have a good soaking from only half the quantity, and therefore would not require another supply for some days after the others. It surely cannot require any further argument to convince any one of the utility of adopting this plan, especially where labour is scarce, and where the seat of operations is distant from a supply of water; and a moment's consideration will convince any one that a raised bed is not conducive to the retention of moisture, for we all know that when water is applied to them half of it runs to waste where it is not wanted, round the sides. This is especially the case when water is not given carefully and steadily, for if any attempt is made to rush it on, so as to get over a large space in a short time, half the labour and water will go to waste; but with the form of surface I advocate the water may be given more speedily, and if only ordinary care is used every drop will be appropriated by the plants it is intended for.

I am not arguing that this form of surface is applicable to every soil, or to every class of plants used for bedding out, because, in the first place, a stiff cold soil does not need much water; but on light sandy or gravelly soils it is worthy of adoption by all those who take any interest in the well-doing of the plants in the flower garden. In the second place, there are certain plants used for flower-garden decoration whose habit and growth would not admit of such an arrangement; but these are few in comparison to those that would be benefited by greater supplies of water in hot dry summers, such as that we experienced in 1864 and 1865, the like of which would be very acceptable, after the long and severe winter just past.

If it is not out of place here, I would just refer to the importance of trenching up deeply every flower bed and border during winter. This is the best proof against the requirements of water of any I have yet seen practised, as by encouraging the roots to go downwards they are more out of harm's way, and when they get well established with their roots taking a downward course into the fresh open soil below, they will feel but little of a month's dry weather, should it occur. And it should be remembered that all bedding plants are better without water than with it, if they are not actually in a suffering state. I know of a thorough British gardener, Mr. Page, of *Combe House*, *Croydon*, an old and particular friend of mine, who practises this deep trenching, and his beds need but little water; and but very few, if any, can equal him in the excellence of his display throughout the season.

I have just put these few notes together, thinking it was high time I did something in return for the many valuable hints I have gathered from the pages of the Magazine, and I hope they are in such a form as to be useful to some of your many readers.

PRO BONO PUBLICO.

MESSRS. E. G. HENDERSON & SON'S EXHIBITION OF EARLY TULIPS.

In accordance with time-honoured custom, Messrs. Henderson have shown what may be done with early tulips to make a display of colour throughout the months of April and May. Indeed, to speak the truth, they have, if we consider the matter artistically, shown too much. For a set of forty beds, some of them eight feet wide, filling the great ante-garden at Wellington Road, all a-buzz with tulips, is a spectacle too dazzling to be enjoyed; it excites wonder certainly, but it admirably exemplifies a doctrine frequently enforced in these pages, that mere flat colouring is really flat in spite of its gorgeousness, and altogether displeasing to an eye trained for the perception and enjoyment of beauty. We remember, of course, that we are in a nursery, and that flat colouring is here a matter of business; this, in fact, is at once the growing and the proving ground, but there can be no harm in deducing from it a lesson applicable to gardens generally, and elucidative of an important principle of garden taste. One of the eight-foot beds alone (they all measure about fifty feet in length) would be enough for any garden of moderate dimensions, especially one that has a great centre of white, with blocks of buff on either side, and fillings in of crimson, rose, and purple. Some of the groupings are eminently artistic, and if on the score of taste we say that the vast extent of colour without relief is objectionable, we wish it to be understood that for the present moment we are supposing ourselves to be in a private garden, for only on such a supposition will any criticism of this kind be fair.

The real value of this display is to be found on an inspection of its constituents. We have before us nearly all the varieties of early tulips that are in cultivation, and we may select from amongst them all that please us by their form, carriage, colour, and season of flowering. We are in a vast trial-ground, and the subjects under trial cannot evade a thorough scrutiny and canvassing of their merits. As regards the collection as a whole, the bloom has been most satisfactory this season. The flowers are large and stout, the colours are good; and although the late tropical weather has hurried many sorts to rags, the flowers have lasted longer than usual, and the collection is still worth seeing, though its splendour is waning fast. During a careful and agreeable inspection of the whole, the following varieties were selected as the best.

Sultana.—Cherry or cerise crimson, bright and good; a cheap variety.

Thomas Moor.—A finely proportioned cup, borne on a stout stiff pillar; the colour clear orange buff, sometimes deepening to light Vandyke brown. One of the best and cheapest early tulips known.

Silver Standard.—Rather long cup, white ground with flame and feather of cerise crimson; very pleasing and cheap.

Golden Prince.—Beautiful form, the colour clear gold yellow; first-rate and cheap.

Grootmeester van Malthea.—Extra large, stout and fine; white flaked with crimson. This is one of the latest, and may suit for special purposes, but it will not do for beds that are to be filled with summer heddors, because it does not flower until the beds are wanted for the next crop. For the plunging system, if kept hack, it may be particularly useful to put out with yellow alyssum, white iberis, and fancy pansies, before the first display of geraniums is ready.

Bride of Haarlem.—Very dwarf, good cup, white with flame and feather of cerise crimson; so much like Silver Standard that one of the two may be dispensed with in ordinary cases.

Viola purpurea.—A small cup, very neat and smooth; colour purplish rose or magenta; approaches very near to the colour called "Bishop's Purple." Very distinct; a fine contrast to yellow; expensive.

Royal Queen.—Very dwarf, deep crimson; fine. This was nearly over when most others were at their best; its presence, therefore, in a connected group might spoil the colouring, as it would come and go before all the rest.

Cottage Maid.—The cup unfortunately has pointed petals, otherwise this is one of the very best. The colour is white, with rich rose feather. It is rather dear.

Feu d'Anvers.—Much dwarfer than Vermilion Brilliant, but like that splendid variety in form and colour, being brightest flame vermilion. This blooms at the same time as the general collection, and is therefore a first-rate bedder, whereas Vermilion Brilliant is usually too early, but unequalled for pots.

Helianthus.—Like Tournesol, but a trifle better, and one of the very best of the double flowers.

La Belle Rosette.—Rather tall, and adapted for the inner beds of a geometric garden. The form is good; the colour light rose feather on white ground.

Queen Victoria.—The cup is short and smooth, pure white; cannot be surpassed; like a superb piece of ivory turning. It is rather cheap—say three shillings a dozen at the utmost.

Coeur Cardinal.—A superb short cup; colour scarlet.

La Plaisante.—Dwarf habit, good cup; colour crimson, with faint wash of lilac.

Brutus.—Fine form; colour orange scarlet; tolerably cheap, and in every sense first-rate.

Duc d'Autriche.—Very tall and very large; in these respects peculiar; colour scarlet, edged with yellow. Rather dear; a telling kind for a large design and bold colouring.

Woolman.—Neat and distinct; violet purple or puce; one of the nearest approaches to blue; very dear.

La Majestueuse.—Very fine; in colouring like Brutus; but double the price of that variety.

Duchesse de Parma.—Tall in growth, flower very large; colour bronze crimson bordered with orange; first-rate and cheap.

Proserpine.—As good in the bed as it is in pots, and not earlier than others; colour salmon tinted rose; an expensive variety.

Rosenkroon.—Semi-double, intense crimson; fine.

Colour de Ponceau.—A neat flower of average size, and in colouring one of the loveliest in cultivation, being superb crimson shading to lake. This is a cheap variety, and of the first order of merit.

Imperator Rubrorum.—One of the finest formed flowers in the collection; colour deep bronzy red. It is too early for ordinary bedding, but for pot-culture first-rate.

The collection of early tulips at Wellington Road comprises some thousand or so varieties, and of course there are many amongst them worthy of notice, and that cultivators will find useful besides those noticed above. Nevertheless, the foregoing twenty-four are such as more especially

took our attention by their distinctness and brilliancy, while leisurely exploring the garden; and we are bound to consider them the best for general purposes. The immense collection of hardy herbaceous plants at this nursery is more complete than ever, many valuable species and varieties having been added lately. The plants have not a prepossessing appearance, for the whole are kept in small pots, so as to be ready for planting at any time, and ready also to be packed in a small compass, and travel better than ground roots could do, however carefully handled. Though none of them show their true beauty, which is impossible under the circumstances, the manner in which they are kept reflects the highest credit on Messrs. E. G. Henderson, for they are in perfect health, and true to their several names. It is no small task to manage some three thousand species and varieties, many of them plants of the moor, the mountain, the fountain, and the starving rock; so at least I thought while conversing with Mr. Wood upon the subject, and observing that the Saxifrages alone have been collected to the extent of over one hundred species. Respecting other departments, I can only add that the house in which the tricolor geraniums are kept is a far more splendid place than the lost Alhambra, and I think I know the features of every geranium in it.

S. II.

SOUTH METROPOLITAN AURICULA SOCIETY.

The members of this society held their fifth annual exhibition on Thursday, the 25th of April, at Mr. J. Butcher's, Marlborough Arms, South Street, Camberwell. There was a good display, and an extraordinary attendance of the lovers of this much-neglected though best florists' flower of the day. It is to be hoped that in a short time they will be able to induce many amateurs round London to cultivate the old favourite. Amateurs and growers are invited to attend the society any second Tuesday evening in the month, at Mr. J. Butcher's, where lectures are delivered on the growth and method of culture of this once-popular favourite.

SEEDLINGS.—Mr. J. Butcher was awarded a first-class certificate for a green edge seedling, *Mrs. Butcher*, and a first-class certificate for a self seedling, *John Penn*; Mr. John Pink, of Gotha Cottages, Coburg Road, a first-class certificate for a green edge seedling, *Annie*; also a first-class certificate for a gray edge seedling, *Eliza*, and a second-class certificate for a white edge seedling, *Miss Oliver*.

In the class for SEEDLING ALPINES, Mr. J. Butcher took a first-class certificate for *Jane Webster*, *Lady Middleton*, and *Rifleman*; Mr. Pilcher, first-class certificate for a seedling *Alpine*, *Emma*.

PREMIER PRIZE.—Mr. J. Butcher, for Lightbody's Robert Traill, very fine.

CLASSES.—First prize, for eight plants, Mr. J. Butcher: *Green Edge*—Traill's General Neill, Traill's May Flower, Dickson's Duke of Cambridge. *Gray Edge*—Ashworth's Newton Hero, Lightbody's Robert Traill, Smith's Britannia. *White Edge*—Wyld's Bright Phœbus. *Self*—Martin's Mrs. Sturrock.

Second prize, Mr. Pink: *Green Edge*—Page's Champion, Oliver's Lovely Ann, Cocknp's Eclipse. *Gray Edge*—Svkes's Complete, Waterhouse's Conqueror of Europe, Lightbody's Alma. *White Edge*—Gairn's Model. *Self*—Martin's Mrs. Sturrock.

First prize for the best six plants, Mr. J. Butcher: *Green Edge*—Page's Duchess of Oldenburgh, Ashton's Prince of Wales. *Gray Edge*—Headley's Stapleford Hero, Barlow's Morning Star. *White Edge*—Ashworth's Regular. *Self*—Butcher's King of the Crimson.

Second prize, Mr. Pink: *Green Edge*—Oliver's Lovely Ann, Page's Defence. *Gray Edge*—Grime's Privateer, Waterhouse's Conqueror of Europe. *White Edge*—Lee's Bright Venus, Popplewell's Conqueror.

Four plants, Mr. J. Butcher: Oliver's Lovely Ann, Headley's Stapleford Hero, Ashworth's Regular, Spalding's Metropolitan.—Collection of twenty-four plants: Mr. J. Butcher.

ALPINES.—First prize for eight plants, Mr. J. Butcher; second, Mr. Pink.—First prize for six plants, Mr. Pilcher; second, Mr. J. Butcher.—Collection of Alpines, thirty-six plants, Mr. Daniels.

POLYANTHUSES.—First prize for the best eight plants, Mr. Pink; second Mr. J. Butcher.—Collection of Polyantuses, thirty-six plants, Mr. J. Butcher.

COLLECTION OF PLANTS (Cinerarias, Geraniums, &c.): First prize, Mr. Thomas Butcher; second prize, M. J. Butcher.—Specimen plant: First prize, Mr. J. Butcher.

THE FLOWERS IN HYDE PARK.

For several weeks past that portion of Hyde Park which abuts on Park Lane, and more especially on the walks which connect Stanhope Gate with Grosvenor Gate, has been delightfully gay with a display of flowers. We may most properly speak of this display as an example of *spring bedding*; for the plan of the bedding system has been followed, and in such a way as not in any manner to interfere with the summer bedding, for which this portion of the Park has become celebrated. All the plants employed in the present display were put in the places they severally occupy after the removal of the summer heddors in 1866, and they will all be removed in time for the planting of the summer season of 1867, a course of procedure long since advocated in these pages, and most admirably carried into effect by Mr. Mann, the able and enterprising gardener here. The parallel walks which skirt Park Lane are divided by a continuous slip of ground, along the centre of which extends a hedge of holly, and on each side of the hedge is a border facing the walk. This border is sometimes a grass-plot with beds, sometimes a solid mosaic of flowers enclosing beds of flowers—that is to say, flowers of comparatively quiet aspect are employed instead of grass for the surroundings of beds of hyacinths, tulips, crocuses, narcissi, and other particularly showy subjects. Everywhere this display is pleasing and satisfactory, and it suffices to show that many of the beautiful hardy herbaceous plants that have been well-nigh banished from our gardens are as well adapted to heighten the effect of the present elaborate and brilliant style of garden decoration, as they were to beautify the comparatively quiet borders of our forefathers. In that part of the border nearest to Stanhope Gate the display consists of tulips only on close shaven turf. This series of beds merits attention as probably the best display ever seen in or near London of early tulips, for the varieties comprise only such few as surpass all others in uniformity of growth and splendour of colour, with long-lasting properties; and the selection of these few is the result of many years' experiment and observation by Messrs. G. Gibbs and Co., of 25, Down Street, Piccadilly, who supplied

the whole of the bulbs for the purpose. There are ten large beds in all series; in every bed 450 bulbs, making 4,500 in all. At the time they were in perfect bloom their heights were as equal as if they had been bloomed first and planted afterwards—not a miss anywhere and not a single rogue. I confess to some surprise at the uniformity of the beds, for it is a most rare occurrence to see even one large bed without a rogue, or perhaps a sport. The greater part of the varieties planted are doubles, and their names are as follows: *Ilex rubrorum*, dark crimson, the grandest of all the double sorts, as it is bold without coarseness, and when at its best is a finely-made flower. Tournesol, red and yellow, particularly showy and good. *La Candeur*, double white, a very pure, solid, long-lasting flower, affording a delightful relief to the coloured varieties. *Yellow Prince*; this is a single yellow, and the best of all the yellows for bedding; in colour it is superb, in form equal to *Pottebakker* (perhaps a shade better), and it holds up its leaves, which *Pottebakker* cannot do. *Waterloo*, single, intense dark crimson, a superb variety, but blooming too early for this sort of work. *White Pottebakker* makes a nice bed, but its leaves lay about rather untidily, and it flowers too early to be grouped with such as *La Candeur* and *Rex rubrorum*.

The mixtures of herbaceous plants comprise many interesting and beautiful subjects, such as the true *Iberis sempervirens*, or evergreen candytuft, the most compact-growing species of this useful tribe, and the best adapted for bedding; *Lasthenia californica*, one of the best of the Californian annuals, and flowering now profusely from autumn sowing; *Saponaria calabrica*, also sown in autumn, and now splendid, with its little stai-like Christine-coloured flowers; *Limnanthes grandiflora*, sown in autumn; *Myosotis sylvestris*—not so good as it may be seen at this season in the country, but quite a gem for Hyde Park, where it is used to form a groundwork to fill in between beds of tulips and hyacinths—a pavement of better gems than turquoises; *Silene pendula* and *Silene pendula alba*, two of the loveliest plants on the face of the earth, and quite a triumph of skill to see them well done in this London garden. Bravo, Mr. Mann! The Reformers, who were in the park on Monday last, and who did not inaugurate a republic, or do ought to disgrace a good cause, had no idea that a reform of vastest import was proceeding quietly in the self-same spot, and a reform, too, that will tell directly on the future happiness of Englishman who love their country and honour truth and beauty. As a matter of course, *Arabis alpina* has been making sheets of snow here for some time past—a most cheap and common but intrinsically invaluable spring flower. So, too, the wallflowers have been blowing gaily, and the stock consists of a very dwarf, neat, iron-stained sort that we must know more about, because of its uniformity and peculiar adaptability for spring hedging. Many more good things are here, but I can only find time to mention thousands of polyanthus of all shades and characters, comprising rose, crimson, brown, black, yellow, fiery red, and even pink, with here and there amongst them, and by accident, quite a few superbly-laced varieties, good enough for show.

There is yet another garden here, on the slip of ground on the south side of Rotten Row. Here the principal furniture consists of rhododendrons, of which at least a thousand pounds' worth have been supplied by Messrs. Waterer and Godfrey, with specimen hollies and mixtures, with a few very choice trees. Probably within a few days of this date the rhododendrons will be forward in bloom; they were fast advancing, and many were showing colour when we saw them ten days ago. They will be worth a visit from any of our London readers, and this notice is in good time for all who wish to see them at their best. We shall hope to say something about them after we have seen them in bloom. For the present we feel it to be our duty to offer our best thanks to Mr. Mann for the ingenious and beautiful display of spring flowers, and to Messrs. G. Gibbs and Co., of Down-street, Piccadilly, for the admirable selection and the high quality of the bulbs which have so largely contributed to the success of the undertaking. S. H.

NORBITON HALL, KINGSTON-ON-THAMES,

THE SEAT OF W. HARDMAN, ESQ.

I shall not attempt to trace the history of this beautiful and interesting place, which doubtless would be very entertaining, but simply confine my remarks upon it to those points which more particularly bear a close relationship to the profession of which the Magazine is so able and impartial an advocate and representative. But before starting upon our tour round the gardens, it would perhaps be quite as well to observe that the writer of this notice did not go there with the intention of writing any commentary upon it, or in any way attempting a description thereof; consequently, he cannot possibly go into such minute particulars and details as if he had, and perhaps, after all, a sketch is better than a history. Norbiton Hall is situated about a mile from the town of Kingston-on-Thames, on the direct London road, and is nicely shut in from the road by a noble belt of trees, such as elms, poplars, and others of that class. Amongst the trees, and overhanging the wall, I noticed a fine large tree of the snowy *Mespilus* literally covered with bloom, and a very beautiful appearance it has. The house is reached by passing through a very handsome pair of gates in keeping with it, and I should fancy the lodge-keeper's house must have a very pretty appearance in the summer, when the climbers covering the veranda which surrounds it are in full leafage and flower. Directly in front of the house is an immense round clump of rhododendrons, which admirably serves the purpose of shutting out the conservatory and front door from those who may be curious enough to peep through the gates. The conservatory joins the house, and is a very handsome building, adding considerably to its external appearance. At the time of my visit it was gay with cinerarias, azaleas, and other flowering plants, grouped on the floor and on handsome pedestals. Amongst the other flowering plants, I observed a fine *Acacia grandis*, and two specimen *Eriostemons*, perfect in shape, and covered with flowers. Intermixed with the flowering plants, and bringing out their colours to the best advantage, were some beautiful masses of foliage. I must not forget a large standard orange-tree, and two handsome plants of *Chamærops elegans*, with foliage to the base of the stem. Subjects of this kind are well suited for the purpose, are extremely simple in culture, and thoroughly deserve the encomiums which your esteemed correspondent, Mr. Prosper, has bestowed upon this class of plants for conservatory decoration. After we leave the conservatory, we have to pass round an angle of the building to get on the lawn, which is on the other side of it. In so doing we pass a grand old cedar of Lebanon, fully sixty feet high, and affording a delightfully cool retreat beneath its dark and ample shadow. The lawn, immediately facing

the house, has a few specimen trees round it, the centre being reserved for croquet. We will therefore take the walk to the right, which will bring us to the farmyard, provided we follow it to its extremity. On the left of it stands a sad memento of the frost in January last, in the shape of what was previous to then one of the finest examples of *Cupressus Lambertianum*, and decidedly the best I have seen. It stands fully fifty feet high, and was faultless in shape from its base to its apex, but it is now dead. The loss of a nice-shaped plant of this handsome-growing tree of twenty feet one feels to be a great calamity, but the death of this tree be a grief indeed to those who have seen it in its beauty. A few paces after passing this tree brings us to a walk on the left, running at right angles to this one, and leading on to the plant-growing and forcing departments, which we are now going to notice; but before doing so I cannot help admiring two finely-shaped purple beeches, which overhang this walk, and when in leaf must be very beautiful, backed as they are by some immense elms, which show off their bronzy appearance to the best advantage. We will now turn down the walk, and on the slip of lawn on the right-hand side of the walk we find *Arbor-vitæ*, specimen hollies, and pines innumerable, each individual fully deserving and entitled to a separate notice, but time and space forbid. Amongst them stands a splendid example of *Thuja occidentalis*, thirty feet high and twelve feet through; a very pretty *Araucaria imbricata*, not particularly high, but capitably shaped and perfectly uninjured, which is very fortunate, when we consider the number that have been killed in the neighbourhood. To the right of this stands a fine large box-tree, twelve feet high and two feet in diameter; it has a beautiful appearance, for it is densely furnished with foliage to the ground. Amongst the many beautiful specimens of named hollies, I cannot help noticing one of the variegated kinds, which stands a little distance from the box-tree; it is upwards of twenty feet high, a telling example of what can be done by a judicious application of the knife. I must not forget a fine *Pinus cembra*, a remarkably handsome upright-growing kind, which deserves a position in all good pinetums. An immense standard rose, *Madame Plantier*, pretty clearly demonstrates that the "knife and fork" is not used in its annual prunings; it stands nine feet high; the stock on which it is worked is between four and five feet, so that it has a fair sized head; the flowers do not come up to the best kinds of later introduction in respect of shape, but it must be a magnificent spectacle to see it, as it annually is, loaded with several hundreds of its snowy flowers expanded at one time. I was sorry to see a very good plant of *Cupressus stricta* terribly injured by frost. In one of the beds here I noticed a very handsome broom grafted on a five-foot stem, and trained umbrella-shape; it has a somewhat novel effect. Farther on down this walk we come to a magnificent *Wellingtonia*, quite perfect in shape, without any irregularity to mar its outline; it stands 24 feet high, and the bottom branches must measure at least nine feet through: the shape rather than size is the chief feature, the foliage being as healthy and dense as it possibly could be. I should like every one opposed to using rotten dung in planting coniferous trees to see this specimen. After passing this point we have immense clumps of *Rhododendrons*, *Berberis aquifolium*, *Ghent Azaleas*, and other shrubs, right and left, irregularly planted, with a strip of grass on each side, varying in width proportionate to the distance of the shrubs from the walk. On the right I saw some very fine bushes of the double-flowered scarlet thorn, 15 feet high; fine Chinese *Arbor-vitæ*, from 20 to 30 feet high; and a fine specimen, fully 50 feet high, of the Sweet Gum, *Liquidambar styraciflua*. On the left-hand side of the walk I observed an immense specimen of the yellow-berried holly, worth a day's journey to see.

On the farther side of the *Rhododendrons*, to the left, the flower garden runs parallel to this walk. A broad walk runs down the centre, with large irregular-shaped beds on each side, filled with standard roses and clumps of herbaceous plants, such as *Pæonies*, *Delphiniums*, and others. By and bye the usual bedding-out plants will be planted amongst them, and which must have a very beautiful appearance, much better than if the whole were planted in masses of colour. This brings us to the houses, but before going into them we take a turn to the right, which will bring us to a portion of the grounds termed the Wilderness; but it has no right to that name, for everything about it is the picture of order and neatness. It is a grand place for sub-tropical gardening, it being so nicely shut out from the other part of the garden; and it has some fine trees and shrubs to assist in giving it a dignity and a grandeur which cannot possibly be obtained by the "bedders" alone. Fancy groups of *Pinus sabinia*, *P. macrocarpa*, and others, with clumps of variegated and plain hollies, trained and untrained, meet the eye in all directions, giving the place a charming appearance. I noted down the following in my memory as particularly good: *Ailanthus glandulosus*, quite 50 feet high, with a large head—this truly deserves the term of magnificent specimen; a fine *Cratægea crus-galli*, *Fagus asplenifolia*, *Juniperus chinensis*, *Spiræa aræfolia*, a large *Liquidambar*, a few lofty poplars, and a splendid *Cryptomeria japonica*, doing well—it is seldom one sees a plant the size of this, 30 feet high, without its having lost the lower branches, but this specimen is perfect to the ground; *Abies canadensis*, very good; and so I might go on, for I do not often see such a fine collection of well-grown trees as is to be met with here. If I have been tedious in noticing so many, I hope to be excused on the score of being partial to such things.

I shall not occupy the space in describing the position of the houses. In the early peach-house was a splendid crop of both peaches and nectarines which had quite finished the stoning process. The trees are trained up the glass, and underneath them were figs in No. 1 pots, loaded with fruit just ripening, and growing luxuriantly. In the next peach-house the trees have been planted only a couple of years, so that they do not cover the trellis yet; they are growing vigorously, and have a fine crop. On the floor a couple of dozen peach and nectarine trees in pots were loaded with fruit just stoning. These must require much labour and attention to keep the healthy appearance they present. In a span-roofed house a fine crop of grapes in pots were in the midst of colouring, principally Sweet Water and Black Hamburg. Each vine had eight or ten bunches, averaging from 1 lb. to 1½ lbs. each. In a large lean-to vinery the grapes are now stoning; the principal part of the house is covered with one vine of the Black Hamburg. Two years ago a strong rod was carried horizontally along the front, and last year young rods were carried up the roof at regular intervals in the place of the other vines. It is a rare occurrence indeed to meet with such an immense and regular crop of grapes as may be seen in this house, or such fine handsome bunches. Of course it is impossible to say accurately what the weight of the bunches will be at this stage, but judging from their size and the healthy appearance of their vines, I have no hesitation in saying that no small number of them will

weigh upwards of 4lbs. each. Amongst the other vines is a fine Muscat of Alexandria, not so early as the Black Hamburgs, but with a splendid crop of well set bunches, not a very common sight in a Black Hamburg house. An open stage immediately over the hot-water pipes was occupied with a quantity of small succession pines, and evidently quite at home. At the back were some nice young figs in pots. A pit running the whole length of the peach-houses andinery was filled with a lot of strong strawberry plants plunged in about twelve inches of tan, the sorts being Sir Charles Napier and Keen's Seedling; they were just in bloom. The borders of these houses are partly inside and partly outside, and this pit is erected upon the portion outside, and is of very excellent service in keeping the border from getting too wet and cold, and at the same time does very capably for the purpose for which it is now used. The house for fruiting pines is a span roof with walk down the centre, with pit on each side capable of holding 150 fruiterers each. It is indeed a magnificent sight to behold the 300 pines this house shelters at this moment. They are principally Queens, and every individual is a model of what a Queen pine ought to be. About half of the plants are now in fruit in the different stages of advancement, and I unhesitatingly express my opinion that this house of pines cannot be excelled in the three kingdoms. Along each side of the pathway was a row of Keen's seedling strawberry, just ripening a capital crop of large fine-coloured fruit. To supply this house there is a large pit contiguous, containing 400 good sized succession plants, which will take the place of those now occupying the house. Close to the glass round the pit I noticed another lot of strawberries swelling their fruit. Another pit was filled entirely with strawberries just set; Mr. Gray pots his strawberries firm, with the crown of the plants well up. In a small pit was a lot of Gloxinias coming into bloom, and other pits are full of thousands of the usual bedding plants. In the stove are some fine foliage and flowering plants, amongst them a pretty plant of Clerodendron Balfourii smothered with bloom. This is unquestionably one of the finest stove-plants when well done. *Meyenia erecta* is a capital thing for training on a trellis in a pit; the flowers are similar in shape to a Gloxinia, purple with a yellow throat. A fine *Stephanotis florihunda*, set with myriads of bloom. An immense *Justicia*, six feet high and four feet through, beautifully in bloom. Amongst fine-foliaged plants is a splendid *Croton variegata*; this is one of the most telling variegated plants we have for exhibition purposes. A large *Cyanophyllum magnificum*, eight feet high, grown as a standard, with an immense head, gives a very noble appearance to the house.

There is in this garden a capital collection of plants distinguished for their uses in the arts and as food; amongst them fine plants of the *Bixia orellana* or American cheese-dye, *Piper nigrum* or black pepper, the tree-cotton (*Gossypium herbaceum*), the Papaw (*Carica Papaya*), the Paper plant (*Aralia papyrifera*), and others which I cannot just now recollect. Ferns are particularly good; amongst them were fine examples of *Adiantum cuneatum*, *Blechnum Brasiliense*, and *B. corcovadense*, *Davallia bullata*, *Asplenium nidum*, the old but useful *Pteris tremula*. I have not time to notice the others which are deserving for their healthy and beautiful appearance, or the variegated *Begonias*, fine *Caladiums*, and other subjects of that class. The house was redolent with the perfume of two plants of *Burlingtonia fragrans*; one had a very fine lip, much better than the other, and the sepals tinged with rose; the best variety I have seen. They were both grown on blocks, with a little sphagnum for the roots to run in. I was curious about the number of flowers on one plant, and in counting them found no less than sixteen spikes, each spike comprising no less than fifteen flowers. I saw some very good *Stanhopeas*, *Dendrobates*, and others. In the large plant-house a very fine *Aphelaxis macrantha purpurea*, 3 feet in diameter, loaded with its beautiful blossom, deserves notice; so do some fine azaleas, ericas, pelargoniums, and a host of other plants. Will Mr. Gray oblige the readers of the MAGAZINE with a few words as to how he manages to grow *Humea elegans* 8 feet high and 10 or 12 feet in circumference, such as the two plants I saw in the camellia house, amongst a lot of healthy myrtles, orange-trees, and camellias?

In the walled-in kitchen-garden, the wall-trees are covered with fruit, and a very fine lot of pyramidal pear-trees planted round the walks are not the least interesting part of this domain. They are beautiful in shape and pictures of health. A peep into the two-hundred feet of lean-to orchard-house, where we find trees trained up the wall, presenting every appearance of an abundant crop; dwarf trees of cherries, plums, apricots, peaches, and nectarines, are planted in two rows along the front part of the house; vines at twelve feet distances up the roof; strawberries on a front shelf, and plunged at the foot of the wall; all of them give evidence that the highest skill is employed in their management. In conclusion, every piece of gravel, shrubbery, walk, and lawn, could be taken as a pattern for order and neatness, and a man of Mr. Gray's practical turn of mind would not thank me for any eulogium upon his merits, and I detest flattery. It is enough to say that everything in the place speaks for itself. A word more and then *au revoir* to Norbiton Hall. Mr. Hardman has, with the most generous feeling, placed the whole of his beautiful grounds at the disposal of the Kingston Horticultural Society, for holding their show this month. I have no doubt it will add considerably to the finances of the society, for a view of the place itself is worth double the admission fee.

G. E. G. N.

THE WATERING-POT.

The time is coming when we may expect that this useful utensil of the garden will be brought into active use; therefore "The Man with the Blue Apron" is constrained to offer a word of advice to such as may not quite understand the principles which should guide them in using it; but, as to his more learned brethren of the spade and the hoe, he is not so presumptuous as to suppose that he can infuse into their minds any fresh ideas of its utility, so he will leave them to take care of themselves, while he offers to the younger branches of the craft some advice which a long course of experience has suggested to him as essential to observe in the use of the watering-pot.

In the first place, I may remark that the bedding-out season is close upon us, as probably every interested reader well knows. Now, in this particular work, many amateurs and inexperienced people make an immense amount of work in watering that is a great portion of labour lost: as, for instance, the plants will be all placed in the bed, and the bed itself carefully dressed down, and then follows a regular deluge of water, battering down, as it is applied, the surface of the bed to an even mass of soil, rendering it impervious both to air and rain, should it occur. And this state

of things does not occur in exceptional cases, for too often we see it practised by men who would wish to be thought good gardeners, and which an old man like me would like to see discontinued, and not feel compelled, as I do now, to put it down in "black and white" before their eyes. But as I have always had the credit of being a lenient old soul, I do not wish to lose my reputation simply because I find fault with them in this instance. I am willing to admit that in some cases, when such mistakes are made, they arise from a desire to accomplish too much work in one day; as when a man has some thousands of bedding-plants to go out, it is quite natural that he should feel anxious to get them into their quarters by the most speedy plan possible; so he sets to work in right earnest, fills his beds or borders as fast as he can in one day; this done, they receive the usual coarse dressing down, and contents himself with the thought that if they have a good soaking of water the next day he will be all in good time. Now I do not mean to say that this laudable desire to get through work should be condemned, neither do I wish to undervalue the services of any man who is prompted by such worthy desires; but, as an old hand, interested in the welfare of the craft, I would ask them how it is we do not hear more about the early results of such speedy practices. It is, I fear, because they have none to relate, or they would only be too glad to show us old fogies that we are a good way in the background, and not capable of performing grand feats of planting, and at the same time secure the earliest results.

However, such have been an old man's observations during the past twenty years, although he admits that where he used to be called upon to put out hundreds, he now has to get up thousands of plants for the flower garden. For all that, the old man finds it produces grander futures to stick to his old method of planting and watering at the same time. He gets ready the position for the plant, and then only partially earths it in, when a brisk lad follows with the water-can, to which is attached a fine rose. A good soaking is given the plants, and in that condition they are allowed to remain until some hundreds of them are put out. He then goes back to the starting-point, puts more soil round the roots of the plants, and gives them the requisite amount of pressure, and then carefully removes all crocks, or any other rubbish that may remain upon the bed from the result of planting; and instead of leaving a hard and battered surface he leaves it open and porous—in fact, a surface into which both air and water can penetrate easily, to afford breath and sustenance to the roots of his plants. Besides this, by applying the water immediately to the roots, it does not require more than half the quantity to thoroughly soak them that it does when the water has to be given upon an even surface, and a depth of two or three inches of soil to penetrate at the same time before it can reach them. And he secures more than this under his plan of watering, for when the roots are well wetted, and all the soil which immediately surrounds them is covered up with a couple of inches of the dry soil of the surface of the bed, when he goes round to give the finishing stroke to them, they will endure at least a week's dry weather without experiencing a check for a want of moisture at the roots; for, he it remembered, this covering of dry soil upon the wet prevents evaporation to such an extent that the soil beneath it remains moist for some days. Whereas, if the beds are levelled down and finished off before the watering is done, it will be necessary to repeat the application at the close of every dry day; and as wise men never think of planting when the soil is very wet, it is not generally necessary to make an exception, as if the beds should be, as it is always desirable, in a moist condition at planting time, the same practice should be followed as would be when the soil was drier, as one watering so applied does more good than four times the number when given after the surface is levelled and dressed; and only think of the consolation to know, by this plan, when once your plants are finished off they are safe for the want of water for another week.

The most remarkable thing in connexion with this subject is the fact, Mr. Editor, that there are not very many who will take the trouble to ascertain for themselves the principles which should guide them in this important work of the garden, and therefore know little or nothing, whether they are doing good or harm when applying water. This is especially the case with all newly planted subjects; as we find some strenuous advocates for a repeated deluge, while others take quite an opposite course; in fact, there are some who seem to delight in seeing plants suffer for the want of water. Now the man who advocates a continual saturation of the roots of a newly planted subject, and the soil which surrounds it to such an extent that it is converted into a cold paste, can neither care to know or understand anything of the laws of Nature. They seem to know that water is essential to its recovery and existence, but nothing more; for when saturating the plants, they forget that they are unable to imbibe it on account of the absence of those necessary mouths (if I may use the expression), which have either been destroyed or injured in the process of removal, and by which they are fed and sustained. From this, then, we shall understand that as all, or rather very many, plants are injured by the course of planting, they have not the same number of organs to supply them with nourishment as a plant that is in a healthy state that have not been moved, so that it is a folly to expect that they can imbibe the same quantity of water, and which, when applied in greater quantities than can be appropriated is an injury, as it renders the soil which surrounds the roots cold and ungenial; therefore injudicious watering should be avoided, as it is likely to do more harm than good. Not that it must be inferred that water is not an essential element in assisting them to make fresh roots, because it is one of the conditions, when judiciously applied, under which alone they can be induced to make fresh roots and grow; and the man who follows a course opposite to this acts as unwisely as the other.

To make the above remarks more intelligible, I may observe that on the condition of the elements depends greatly the quantity of water required in every case; as according to the amount of evaporation going on, which is always the greatest during a brilliant sunshine, or a continuance of drying winds, the more water is required. Now, I contend if the young gardener would turn his attention to the subject of adopting all possible means of preventing evaporation, he will do more for his plants than double the labour spent on giving water to the roots—that is to say, to shade or screen all that it is at all convenient to do so, for the secret of the whole conditions of watering is simply that with all newly-planted subjects the roots cannot imbibe water fast enough to supply the means of a rapid evaporation, caused by a parching sun or a drying wind, to which, if our plants are not exposed, the amount of evaporation is reduced according to the protection given, and a corresponding amount of water only will be required.

As some of the best means of reducing the amount of evaporation, I

may instance the use of shading where practicable for bedding plants, and such others as may be in masses. For more distant or larger subjects, such as choice specimens of trees or shrubs of any description, or any number of flower beds, the garden engine is a most useful instrument. If this is brought to bear upon them, and every leaf-stem and branch gently damped by the force of the water from the delivering fan of the engine, it will check evaporation amazingly, and plants two or three times so treated during the height of a parching sunny day will endure drought much better than those that are constantly receiving a deluge at the roots, as it not only checks the escape from the pores of the plants, but it creates a moist atmosphere around them, most acceptable at such a season to plants that a force of circumstances have rendered susceptible of such trying weather. If you think, Mr. Editor, the old man's notions of the use of the watering-pot are acceptable, I may return to the subject again shortly.

THE MAN WITH THE BLUE APRON.

MIMULUS CULTURE.

The name of this plant is said to be from "Mimo," an ape, bestowed upon it because of the ringent or gaping mouth of the flower. The merest novice in botany will, at the first glance, discover that the Mimulus belongs to the natural order *Scrophulariaceae*, or Figworts, in which are grouped the pentstemon, calceolaria, antirrhinum, and other flowers similarly constructed. There are many useful species, and a few good varieties which it will be desirable to enumerate, and in naming them we shall add a few words on culture.

Hardy Species.—*M. rivularis* is the best of these. It makes a brilliant display of golden yellow flowers during June and July. Once planted on damp loam, it will spread to a larger patch every year, and acquire a most important character in the decoration of the garden. At the foot of a rockery, or in the common border, it is quite at home. As it dies down in autumn, the ground where it is planted should not be disturbed. *Glaberratus*, yellow; *guttatus*, spotted; *ringens*, blue; and *propinquans*, yellow are all useful for the border and damp parts of rockeries. *M. moschatus*, the "musk mimulus," is very hardy as an annual, usually appearing plentifully in places where it was planted out the previous year from self-sown seeds. But in mild winters the roots also survive and throw up shoots in spring. The best way to grow musk is as a frame plant. The soil should be light and rich, and the pots in which the plants have grown should be put aside, so as to be safe from frost, and kept moist till next spring. Then as soon as they begin to sprout, divide them and pot separate small pieces in fresh soil, in small pots, and place on a gentle bottom-heat, or in a warm corner of the greenhouse. They will soon fill the pots with roots, and must be shifted to larger and larger pots, according to the size of the plants required. For all ordinary purposes, however, 48-sized pots are quite large enough. By liberal culture musk may be grown to a height of three or four feet, and be one mass of bloom the whole season. It may be trained upright by means of a few light stakes put round the pot, and connected with strands of bass all round, or if planted in a basket may be allowed to hang down in festoons. The great secret of growing fine specimens is to use a rich soil, shade moderately, and give abundance of water.

Greenhouse Species and Varieties.—They may all be treated as annuals if sown early on a moderate hotbed, and as soon as up pricked out in rich light soil, and grown on in good greenhouse temperature. For a good bloom the same season, the latest time for sowing is the last week in February. As soon as the seedlings have made a good start after being potted singly in thumbs, give them rather more water than would be safe to the generality of plants in so young a state, and shift on as fast as they fill the pots with roots. When they are in 48-sized pots, place a saucer under each, and let that saucer be always full of water. They will drink it up and thirst for more, and grow with great luxuriance and make fine flowers. They will need shading when in bloom, and plenty of air, in fact, they may be treated nearly the same as herbaceous calceolarias from first to last, but must have more water. As the stems are very soft, and the flowers heavy, they must be neatly staked before they get untidy. As it is advisable to render the supports as nearly as possible invisible, neat painted sticks should be used. We have been accustomed to use lengths of No. 1 iron wire, painted a light green, for this purpose, and found them preferable to wood. When the plants are in bloom, any of superior excellence should be marked with tallies to propagate from. During August and September, take cuttings of three joints each, place half a dozen of these round a 48 pot in a compost of half leaf-mould and half loam, with an addition of silver sand sufficient to render the mixture light and friable. Plunge these pots in a gentle heat and keep close till rooted, which will be in about fifteen days, then pot singly in 60-sized pots, and in these pots winter them. When grown in quantity they are usually wintered in the cutting pots, and have a shift at the end of February or early in March, into 32-sized pots, well drained and filled with a mixture of leaf-mould, turfy loam, and rotten dung equal parts. At the end of April or early in May these may be again shifted in pots of 12-size, in which to bloom. They will require abundance of water, and may have saucers to keep the roots constantly in action. Any required extra fine for exhibition should have liquid manure once a week, but without this help the plants will flower finely if grown as otherwise directed. Of course the cultivator may shift on seedlings to the same size pots as plants from cuttings, but generally it is best to flower seedlings in 48-size, and grow into specimens only selected varieties known to be worth extra culture.

Properties and Hybridizing.—The attention of the cultivator should be chiefly directed to the form of the flower; in habit and colour it can scarcely be improved. Flowers that collapse are not worth growing, however fine their colours, except it be to furnish pollen for hybridizing flowers of good shape. The broader the segments and the smoother the edges, the higher will the flower rank in the eye of the florist, and deservedly so. In selecting varieties to propagate from cuttings, or to produce seed, give the preference to those that exhibit an expanded flat surface with small spaces between the petals. As regards colours, these should be bright and decided; the markings sharp on clear grounds; yellow is the most common hue, and white the most rare. In every endeavour to improve the mimulus, the hybridizer should select for the seedling flowers those that have thick broad petals, and that most nearly approach a circular outline, and for pollen, flowers that are the most brilliantly and regularly coloured; if the pollen flower is also well formed there is the greater chance of a pod of seed worth saving. *M. cardinalis* is the parent of the best show varieties we possess. The original species

grows to a height of two feet, and produces fine scarlet flowers. Seedlings vary to all the shades of rose, ruby, maroon, pink, and crimson, and if crossed with *roseus*, *Smithii*, and *variegatus*, some very showy strains may be secured. *Cardinalis* is a native of California, and was introduced in 1835. *M. roseus* has small flowers of regular shape, with yellow throat and bright rose petals; it is one of the most beautiful in cultivation. Mr. Douglas sent seeds of this to England from North California in 1831, and it was first flowered in the gardens of the Horticultural Society. This is strictly a perennial, and is not so easily cultivated as most others of the genus. The best method of treatment is to keep it constantly in the frame or greenhouse, potted in turfy loam three parts, sandy peat one part, and leaf-mould one part, and the pot always in a pan of water except during cold winter weather. It is easily increased by cuttings and occasionally ripens seeds. *M. variegatus* is a native of Cbili, introduced by the Messrs. Loddiges. This is described in some works as white and rose, but this is not correct. The throat is a pale canary, and the segments of the flower are deeply tipped with rosy purple, the remaining parts being a rich gold yellow. This species seeds freely, and is not at all difficult to cultivate. *M. glutinosus* is now a rare plant. It is the most shrubby of all, and well worth recovering for crossing with good varieties of weak habit. *Smithii* is a fine hybrid raised some years ago by Mr. George Smith from *rivularis* as the male parent and *variegatus* as the female. The flower is large, the ground colour orange yellow, at the tip of each petal is a large brownish crimson blotch, and there are small spots of the same around the throat.

Twelve Finest Exhibition Varieties.—Alexander Haig, light lemon, dark maroon margin; Danecroft Beauty, white with crimson blotches; Distinctus, lemon, deep crimson margin; Grand Sultan, pure white throat, black margin; Lydia, bright yellow and crimson; Magniflora, white and cherry; Mrs. Dickson, yellow, crimson blotches; Mrs. E. Lockart, white and maroon; Raphael, pure gold margin and deep claret; Spotted Gem, gold and maroon; Sultan, yellow and purple; Symmetry, straw, spotted with cherry red. Mr. Bull's *Duplex Mimulus* should be in every greenhouse, for it is not only beautifully coloured, but has a coloured calyx, so that when the flower falls there is yet a flower left.

Mimulus for Bedding.—All the hybrids are adapted for bedding, and, as a matter of course, the dwarfest are most easily managed. On hot dry soils they are useless; the foliage loses its proper colour, and the plants are eaten up with red spider; but on a cool, moist loam and in damp places, where many kinds of bedders would be unhappy, the mimulus is quite at home. When any selected hybrids are grown for bedding, they may be kept in their cutting-pots till May, and then be turned out and sheltered from the sun, and kept well watered till rooted: generally the colours come much finer out of doors than under glass; this is especially the case with *rivularis*, which is a charming plant for a mass, but unfortunately fugacious. Good beds may be made of seedling plants from February sowings, but there will be no uniformity of colouring. *Floribundus*, *parviflorus*, and *moschatus* make better clumps when grown in moist and shady beds of peat, but the last named should be used rather for its odour than its colour; for however profusely it may flower, it is by no means effective in a mass. It is otherwise with *M. cupreus*, which is one of the finest bedding plants we possess. It is perfectly hardy, and can be grown from either seeds or cuttings, and requires precisely the same treatment as *Lobelia speciosa*. It grows four to six inches high, and produces a perfect blaze of fiery flowers. A damp shady bed suits it best.

J. HARLAND.

NOTES ON BEDDING.

You may depend upon it that we cannot overdo it in the use of plants which produce a desirable effect by means of their leaves only, because then we have in the bed or line one uniform colour, instead of dottings of red, white, or blue on a ground of green. Take a distant view of a bed of geraniums, and as you see the flowers *en masse*, the effect is decided and satisfactory; you are in fact delighted, and so you go closer, and it is like being at a conjuror's elbow, and you no longer enjoy the delusion. Now you see the scarlet broken into splashes, and the green of the leaves spoils it. The combination of the green and scarlet produces on the retina a sort of neutral brown.

If you do not believe it, mix red and green together with water-colours, and report to us on the result. But pluck a thousand trusses of scarlet geranium, and stick them in close together in a bed of dark soil, and you see at once how one colour on a dark ground satisfies the eye, whereas two colours, and those complementaries, cause dissatisfaction when both are seen without partiality to either.

It follows (and if it does not appear to follow, we can prove the point by other arguments) that a plantation of flowers set out parterre fashion, should be viewed as nearly as possible in a horizontal line, or at an angle just low enough to take in the view of the furthest of the colours. Now to plan out your geometric garden consider first the several points from which it may be viewed, also reasonably, one angle and one of those points should be the drawing-room windows. From one of these points make your plan on this principle, that the colours in front are to contrast harmoniously with those next in the rear, and so on to the further side of the whole is to be a composition at which a true artist will clap his hands with delight. Hundreds of garden plans pass through my hands every year, and I have one uniform way of judging them. I take a box of water colours, and draw on a slip of paper the predominant colours in stripes, each in the proportion it has on the plan, and if they do not harmonize on the paper they will not on the ground, and this I have proved again and again in practice. When I go to Kew or Sydenham, or anywhere else, I make a plan in pencil on a page of my note-book. Not that I really want it, for I have a tremendous memory, but to make sure in case of a nice point arising out of some matter I did not trouble at the time to fix on the wheel of my sensorium. When I get home I paint out the pattern, and I invariably find that what I thought good on the ground will be good on the paper. It ought to be so, for orange and violet look well side by side in a flat mosaic, in a lady's bonnet or dress, in a bouquet, and in a scheme of bedding. Well, you set out your colour, and you find that for your centre you want a neutral tint, to prevent the eye being drawn that way, and to prevent the scheme shrinking, for it will shrink almost to nothing with strong colours in the centre. Now try again with the colours; make mere daubs of red, blue, yellow, crimson, &c., close together or meeting closely. What a mess it will be! But take some strong grays, blues, whites, and ambers, and with these paint sharp lines between the strong colours to separate them. Prosto! how the scene is

changed! If two colours come side by side that do not very well harmonize the divisional line makes them tolerable. Put amber on your purples, whites on your blues and scarlets, blue on your orange, gray anywhere. By the way, gray is a good relief to any strong colour, so gray edgings come in generally, and are wonderful for geraniums. Now you see how necessary it is to colour your ground as the Moors coloured their pavements. Pale green will light up any combination of deep, rich colours, such as purples, crimsons, and scarlets, and you have that always at hand in grass turf. But you say, "Why, then, find fault with the green leaves of Tom Thumb when a mass is closely inspected?" For this reason, that the scarlet flowers are sprinkled on the green. But when a mass of scarlet has a green boundary, the green is pure green and green alone; if it is even dotted with daisies, you ought to be ashamed of it. But go on with the colouring. Tear up the paper on which you made the daubs for illustrating the use of edgings, and paint another. Put in the centre a patch of creamy white, and suppose that to be Flower of the Day geranium. Round that put patches of lavender, cerise, and flesh; these are your semi-tones; and you can do them in ageratum, geranium, heliotrope, and verbona. Edge these with half tones opposed to the half tones of the mass. Now surround them with patches of orange, purple, scarlet, and crimson, in the order named, all round, and edge these with blue and silver, and the deed is done. From whatever point you view the group it will be harmonious. You can do all these in calceolaria, geranium, verbona, and petunia, and the edging will require cerastium, lobelia, Stachys lanata, Gnaphalium lanatum, and Dactylis. As easy done as said. You only want plenty of plants, and courage to use them in sufficient quantity, and if you can't do that, level the beds down, and sow grass seeds, and make up your mind that bedding must be bedding, and not patching. Bob.

Calendar.

WORK FOR WEEK COMMENCING MAY 11.

Kitchen Garden and Frame Ground.

BEANS for a late supply may be sown. Early crops will need the earth to be stirred between the rows, to keep down weeds and promote the vigour of the plants. On hot stony soil it will be well to open a trench between every two rows, and fill this with water, after which close the trench, and draw earth to the stems of the plants.

BROCCOLIS advancing in the rough leaf to be pricked out on light rich borders. Occasionally dust the plants in the seed-bed with lime, to preserve from slugs. Sow again for succession such sorts as *Walcheren* and *Self protecting*.

RIDGE CUCUMBERS.—The growth of cucumbers on ridges is a very simple matter, and it may be accomplished with or without hand-glasses. If hand-glasses are used, the plants may be got out at once; but if not, next week will be full early enough. Any moderately good light loam will grow them well; but fermenting material is necessary to produce a gentle bottom-heat. The trenches are made of various widths, some growers preferring to make them up as four-foot beds; but the usual and best measure is two and a half feet. The soil is taken out to a depth of one foot, and laid on each side; the trench is then filled to a foot above the surface with fermenting dung in a condition somewhat subdued as to heat by previous turning. Leaves, litter, grass mowings, and other fibrous material, may be mixed with the dung to increase the mass. If manure has to be purchased for the purpose, rotten dung will be at once the cheapest and the best, for there will be some bulk of manure for money, and it will give a good steady heat. When to cover the manure with soil must depend on the nature of the fermenting material. If rank and hot let a few days elapse; but if rotten dung is used, the soil may be put on at once, and two or three days after the plants may be inserted and covered with hand-lights.

PEAS to be sown for succession. *Ne plus Ultra* is one of the best to sow now. If any serious failures in the general crop, sow a few rows of the earliest sort. Generally speaking peas look poor, and many early sowings have perished outright.

BETT to be thinned; generally speaking, a foot apart is the proper distance, but some of the large-growing kinds must have fifteen inches, and several of the dark-fleshed small-growing kinds will do well at nine inches. Plenty of time yet to sow for neat small roots.

CAPSICUMS AND TOMATOES may be planted out on warm borders and on walls.

CELERY to be pricked out in frames and on warm light borders. Trenches may be dug out for the earliest crop, so as to be ready for planting as soon as the weather becomes showery.

ENDIVE.—Sow the first batch.

KIDNEY BEANS to be sown for succession, the rows two feet apart, the seed nine inches apart in the rows. Kidney beans are generally sown as thick as spinach, and the crop is less than may be had by using a tenth part of the seed.

LETTUCE to be sown for succession. Plant out on well-manured ground from seed-pans and boxes. In places where summer lettuces commonly bolt, it is necessary to manure liberally, and sow where they are to stand, as the check occasioned by transplanting greatly favours the bolting.

ONIONS FOR PICKLING to be sown now on poor soil. The favourite sort is *Silver-skinned*, but *White Globe* is also a good sort. Sow thick, so that the bulbs will form a pavement.

RHUBARB to have flower-heads removed. It is believed by some that the flowers make a delicate dish if cooked just before the flowers open. We have tried it, and have unpleasant remembrances of the horribly insipid taste of the dish, and we very much doubt its wholesomeness.

VEGETABLE MARROWS may be planted out, provided the beds are in a nice warm condition, and the plants are strong. After planting, put hand-glasses over, or put baskets or large pots over at night for a time, in case of frost. But if the beds are not in a state of steady fermentation, or if the plants are not strong, defer planting. But in any case get the beds ready, if not done already. Proceed in the same way as described for cucumbers, but make the beds four feet wide.

THIN every kind of crop where there is anything like crowding. Spinach, beet, turnip, parsley, &c., will be the worse for remaining thick. The same with all kinds of fruit. Gather gooseberries as soon as they have flavour enough for tarts, so as to give those left on the trees a better chance to swell. All fruits of the plum tribe are useful in a green state for culinary purposes as soon as they have attained some size, and

the thinning should be regularly proceeded with, to lessen the demands upon the trees.

CAULIFLOWER to be sown for succession. At the first indications of rain, hoe between the advanced crops, to give the roots the full benefit of showers. Cauliflowers that were planted close to winter should be thinned by taking every alternate plant as soon as there is a small head formed; this will give room for the production of fine heads for succession.

Flower Garden.

ASTERS must be pricked out where they are to flower, or be potted singly in light rich compost. The frame is the best place for potted asters; those bedded out will want the protection of mats should the weather become cold again.

BALSAMS.—Treat as advised for asters; some of the early-sown plants will be showing bloom now. If it is desired to grow them larger before flowering, nip the flower-buds off, and shift the plants to the next size pots.

HARDY HERBACEOUS PLANTS going out of bloom may be propagated from cuttings or seeds. Double Wallis, Alyssum, Iberis, spring Phloxes, &c., &c., should be grown in quantity, and the only safe way to secure stock is to put the cuttings into a gentle heat.

PAEONIES need the support of sticks to prevent the blowing over of their heavy flowers. A heavy soaking with liquid manure will do very much towards improving the bloom.

Roses are growing freely, and in many cases a few of the earliest buds are showing colour. If not already mulched, let it be done at once, and if it be possible to soak the ground first, all the better.

PHLOXES struck from cuttings now will bloom well in autumn; strong stools in the border will need thinning to reduce the number of shoots to a few manageable leaders, which are to be staked neatly and separately. Phloxes are now being grown in pots, but are scarcely the best of subjects for that method, though it is convenient for showing, and enables the exhibitor to put up complete plants, which are always preferable to cut blooms when it is possible to show them.

BEDDING-OUT.—Dull weather is the best for this work, and if it can be done just before rain, much labour of watering will be saved. But when the ground is absolutely wet, bedding cannot be done properly, and had best be deferred a few days. When the plants are counted off and sorted for their places, let them go nearly dry; they will then turn out better than if the balls are wet. Plants that have not quite yet filled their pots with roots turn out in complete balls, remove the crocks, and close in without breaking the balls; but those that are absolutely pot-bound must have the ball slightly loosened, to enable the roots to push out easily into the free soil. Plants brought in from nurseries should be put in a cold frame for a week before planting them, and the last day or two keep them wholly uncovered, to get quite hard for planting. If there are no frames to spare, let them lie about for a few days anywhere moderately sheltered. If these precautions are neglected, the result will be a crop of yellow leaves, and the deferring perhaps a fortnight of the season of full bloom; so a proper amount of care and a little reasonable delay will be a gain of time in the end. In planting, put out Calceolarias, Antirrhinums, Penstemons, Stocks, and other of the hardiest kinds first. Geraniums, Verbenas, Petunias, and other soft-wooded plants from spring cuttings, will be the better for bedding if they have a little more care under glass. There is nothing gained by turning them out before they are strong enough for the purpose. Strong plants of all kinds, except Lantanas and tropical foliage plants, may be put out now with perfect safety; but there is nothing gained by putting out miserable bits of plants from thumb-pots, that require a shift to 60's, and a little more greenhouse culture to give them size; nor is there any gain in planting until the plants have been properly hardened in the pots by exposure to the atmosphere for a fortnight, the latter part of the period to be exposed night and day. Now is a good time to top such plants as will bear it, and put in the cuttings for a supply of plants to bloom in the house in autumn. Petunias, Verbenas, Geraniums, and Heliotropes struck now, and kept from blooming prematurely, will make nice plants by the middle of July to flower from thence to mid-winter.

PANSIES.—This is a good time to strike cuttings for a good autumn bloom, and to secure pot plants of choice kinds to keep over winter for spring cuttings. The side-shoots and very young tops of the leaders root quickest and make the best plants. Old stems that are hollow should never be used unless the case is one of desperate necessity. Florists' Pansies are generally grown in too light a compost, and hence there is often a lack of substance in varieties which in a firm soil are as stout as cardboard. Seed sown now will bloom in ten weeks, and afford plenty of time to prove them, and secure a few cuttings of the best.

WALKS that are sour, worn down, or in a bad state as to levels, &c., ought to be put to rights now. It is a good plan to get the bedding done, and while the plants are getting hold of the ground, turn the walks and put a new coat of gravel on. This gives the garden a bright look at a time when it will be most enjoyed, and it is astonishing how much better flowers look when grass and gravel are first-rate. Besides, by gravelling now, or within a few weeks, the walks get well set and hardened before winter, which is a matter of some importance.

Fruit Garden and Orchard House.

STRAWBERRIES are blooming freely, and it is time now to spread litter to prevent the fruit becoming gritty. There is nothing so good for the purpose as cocoa-nut fibre refuse, as it is always clean and moist, and vermin do not like it.

WALL FRUIT.—It should be remembered that the fruits of peaches, nectarines, &c., &c., need a little shade, and of precisely the same kind as is required by grapes—namely, the shade of their own leaves. Hence in thinning foreright shoots, leave such as give shade to fruit, having rather to regulate than to strip the trees.

GOOSEBERRY TREES beset with grubs can only be satisfactorily dealt with by hand-picking. The process may be expedited by placing a sheet under the trees, and by a smart rap on the stem great numbers may be shaken off.

Greenhouse and Conservatory.

CONSERVATORY PLANTS are growing freely now, and must have plenty of air and water. The more air is given, the more light may be allowed, as it is seldom any scorching occurs with plenty of air. Still it is impossible to avoid the use of shading, but let it be used as little as possible, and so as to benefit such plants as most need it. Climbers want attention to keep

them in order, and generally speaking a heavy watering at the root will do them good. Old hard-leaved and hard-wooded conservatory trees are generally producing a new crop of scale at this time of year—a thing not to be desired.

AZALEAS that are out of shape and leggy may now be cut back to advantage. At the same time they must be turned out of their pots, and the balls reduced and repotted firmly in smaller sized pots, and at once put into a kindly moist heat until they break freely. Instead of giving water at the root frequently, syringe the stems until they are growing freely, then give the roots plenty.

NEW HOLLAND PLANTS going out of bloom must be cut back to keep them bushy. Species of rambling habit must be trained in order to make compact specimens of them. Any that need repotting to be attended to, using peaty soil containing abundance of siliceous grit.

PELARGONIUMS showing their flower-buds will be benefited by frequent doses of weak liquid manure. Fresh sheep, deer, or cow-dung, one peck to seven gallons of water, to be used when quite clear, will answer admirably. Keep the plants as near the glass as possible, give air freely, and use the syringe, not only over the leaves, but on the stems and branches underneath, which is a grand preventive of fly.

CAMELLIAS that have finished growing for the season to have less water and more air. They must not go absolutely dry, because that would punish them, but to have only as much moisture as will keep them from flagging. It is too soon to put them out yet; so give them airy positions in the house.

EPACRIS that have flowered must now be repotted, the soil to be sandy fibry peat. The strong-growing kinds must have a large shift. Use plenty of drainage carefully packed, and place the plants in a turf pit for the summer, and shade during midday. As the new growth progresses, pinch it back to promote a bushy habit. Now is a good time to propagate from points of new shoots an inch and a half long. Dibble them into pans of silver-sand, and cover with bell-glasses.

Stove and Orchid House.

STOVE PLANTS require abundance of atmospheric moisture, both to promote a free growth and to keep down vermin. Many valuable plants may be propagated now from cuttings of the new growth, and this operation must be attended to in good time, especially in the case of plants required for next winter's flowering.

Forcing Pit.

FORCED FRUITS, such as cherries, peaches, nectarines, &c., now ripening should have the lights drawn off to give the fruits full exposure to the air. This will retard the ripening a few days, but that will be fully compensated by the improved flavour of the fruit. The taking off the lights, however, must be regulated by the state of the weather; if cold and damp, use a little fire-heat, and give air in the usual way.

PEACHES under glass are now well furnished with wood for next season, and the cultivator will have to select now the shoots that are to bear next year's crop, instead of waiting till the winter pruning. Tie in betimes, and thin away all superfluous growths, as if the trees are crowded none of the wood will ripen properly.

MELONS will be enjoying plenty of sun-heat now, and if the heds still give a tolerably good heat it may not be necessary to line them again; but if it is some time since the heds were lined, and the fermentation is nearly at an end, put a fresh lining. Use the syringe moderately to keep a healthy foliage.

VINES.—In the early houses there will be good ripe bunches now of several sorts, and as it is desirable to keep them as long as possible, so as to cut them fresh and fresh, give abundance of air and very little water. In houses where vines are coming into bloom use the syringe with caution, and assist with the hand all shy setters. Vines are thirsty now, and all inside borders must be abundantly watered.

PINES established to have very little shade, and plenty of air as weather permits. Shift succession plants as required, and give very little water at the root until they have begun to take hold of the new soil. Put them on a good bottom-heat, and shade from eleven to three.

CHERRIES to have plenty of air and a rather dry atmosphere when the fruit shows colour. Trees swelling their fruit to have plenty of water. Look out for black fly, and keep it down if possible by syringe rather than by smoke. Sometimes we find a few shoots only affected, and once or twice dipping them in weak tobacco-water usually suffices to cleanse them thoroughly.

FIGS must have plenty of air when the fruit is ripening, and at the same time the fruit must be kept dry.

CUCUMBERS in frames are now hearing freely, and will want abundance of water. If the heat is declining, reline the heds.

ON THE NUTRITIVE CONSTITUENTS OF WATER.

By PROFESSOR SCHULZ-SCHULTZENSTEIN.*

(From the Journal of the Royal Horticultural Society.)

In the first division of this treatise (Tr. Pruss. Hort. Soc., vol. xx. part 2, p. 354), I have spoken historically of irrigation as practised in the culture of plants, and have shown, from the historical facts of cultivation, in contradiction to the theory of their nourishment by means of carbonic acid derived from the air (as first stated by Ingenhousz, in his treatise "On the Nourishment of Plants and Fertility of the Soil," and afterwards by Senchier in his "Physiologie Végétale," by Th. de Saussure in his "Recherches Chimiques sur la Végétation," and recently reproduced by our countryman Liebig, in opposition to the notion of the nourishment of plants being derived from the soil), that the nutritive constituents are for the most part dissolved in water, that water is the only vehicle of nutriment, and that the theory of nourishment by means of air is in the most decided opposition to all practical experience in horticulture and agriculture, and more especially to the effects of manure on growth. I now purpose to show that the nutritious constituents of plants are separated from the soil by means of water, and that the water contained in the soil, and that of springs and wells, is loaded not merely with

saline, but more especially with the humous elements of the ground, and that the humous organic constituents dissolved in water furnish the true nutriment. Liebig promulgated the notion that the waters of springs and wells contain no organic constituents, or, at least, none worth mentioning, and adduced the Selter-water as a proof, which, like many waters springing from deeper primitive formations, seldom contains humous or bituminous matter in solution; but the consequent conclusion that all other spring and pump waters are void of organic constituents is quite erroneous. This appears from a comparison of the different chemical analyses which we possess of the waters of numerous medical springs and baths, in which, besides the saline constituents, there are also organic constituents of a more or less decided humous character, which, for the most part, are reckoned under the name of extractive matter.

The waters of Wiesbaden, for instance, contain, according to Richter, 1.75 gr. of organic extract in the pound; those of Hermansbad, near Moscow, according to Hermbstaedt, 1.5 gr.; those of Seidschütz, according to Steinmann, 0.35—0.42 gr. of humous extract; those of Wildbad, in Baireuth, 0.6 gr. of extractive matter, according to Martius; those of Kreuth and Tegernsee, in Bavaria, $\frac{1}{4}$ gr. of humus in the quart, according to Vogel; those of Beringerbad, in the lower Hartz, 0.5 gr. of extractive matter in the pound, according to Bley; those of Bocklet, near Würzburg, $\frac{3}{4}$ gr. of humous extract per pound, according to Goldwitz. In many bath-waters there is contained a nitrogenous extractive matter (an animal-vegetable substance, crenic acid of Berzelius). For instance, the waters of Schmekwitz, in Bautzen, contain 6.5 gr. of nitrogenous extractive matter, 10.8 gr. of saponaceous matter, 1.3 gr. extractive matter in 30 lbs., according to Picinus; those of Châteaufort, in Puy de Dome, and Enghien, near Montmorency, contain, according to Fremy, 0.3 gr. per pound of animal-vegetable matter. The glairine (Zoogen, Gimbl.), a gelatinous matter in the sulphur-springs of Barèges, in the Pyrenees, is, according to Anglade, of a similar character, and is so abundant in the sulphur-springs at Aachen and Burtscheid, according to Mohrheim, that the daily produce amounts to about 1000 lbs. A similar organic substance is left after the evaporation of the spray of the Karlsbad water on the margin of the spring, and affords a matrix for the development of the vast masses of *Oscillatoria* which are found there. The mother-lye of the water of the Baltic contains, according to Pfaff, two kinds of extractive matter; and in many other waters, as in those at Northeim, near Göttingen, according to Wurzer, and at Warmbrunn, in Silesia, according to Tschörtner, there is resinous and gummy extractive matter. The Berlin spring-waters contain from $\frac{3}{4}$ to 1 $\frac{1}{2}$ gr. of humous extract per quart. All these waters, therefore, when kept are subject to more or less rapid decomposition, and give rise to Infusorial and Conferval organisms.

Now, since all river-water is derived from springs, it is clear that it must be rich in humous and extractive matter. As regards the quantity of humus in river-water, we have at present only very confined observations; but little attention was given to the subject so long as the important agency of the quantity of humus contained in water upon vegetation was unknown. It is, however, sometimes so great, that it communicates a yellow, or in great depth a coffee-coloured, or even dark-brown tint. The black streams first attracted attention in America, where the Rio Negro, or Black River, derived its name from the dark colour of the water, as also many tributaries of the Orinoco. The Atapaho, Guainia, and Tuamini are of a dark coffee-brown. Lyell states, in his "Travels in North America," that in the vast swamps in the narrow atlantic plain of North America, especially in the Great Dismal between Norfolk and Welden (between Virginia and North Carolina), there is a lake seven miles long and five wide whose waters are of a dark brown from the dissolved humus.

The "blackwaters" (Karassu) which are often found on the mountains of the East, derive their name equally from the brown or black colour of their waters in consequence of the dissolved humus.

Very recently, Junghuhn, in his travels in Sumatra, directed his attention to the "blackwaters." He says, "The mountain-streams of the Batta land of Sumatra, especially on the tableland of the provinces of Sieperok and Tohah, have a coffee-brown tint. In the heds of the river shaded by forests, their water appears very dark, but of a golden-yellow in a transparent glass. This tint is universal in the interior of Sumatra; but it is most striking in the high table-land, where the slight inclination of the surface in the dark primeval forests gives rise to frequent inundations, and where, besides the vegetable substances which rot upon the moory ground, a quantity of root-threads are irrigated with water, which, impregnated with the extractive matter which enters into their composition, forms a kind of cold infusion. The water may nevertheless be drunk without injury, and is void either of taste or smell." ("Travels in the Batta Land of Sumatra," i. p. 256.)

It is rather surprising that the dark waters of Europe should hitherto have been almost entirely overlooked, notwithstanding their appearance in almost every river which runs down from the Hartz, especially the Brocken. The water of Ilse, near Ilsehurg, is at some deeper parts of the river almost coffee-brown. If we follow the river towards the heights of the Brocken, we remark that almost all its sources are derived from dark peat moors, from which the water streams coloured brown from their dissolved humous constituents. The same is the case with the other rivers of the Upper Hartz, especially on the north side of the Brocken. Almost all the fresh-water lakes of the marsh districts of Northern Germany are black from humous matter.

I have endeavoured by means of evaporation to ascertain the quantity of humus in different German river-waters. Four pounds and a half of that of the Spree yielded, on evaporation, 4 grs. of solid residuum, of which three consisted of salts, the other of a humous extract. The Spree water is, for the most part, not entirely colourless, but has a yellowish tint; on evaporation it acquires a brown tint as it becomes more concentrated. Eve y. pound of it contains $\frac{2}{3}$ gr. of humous extract; a cubic foot, therefore, or 66 lbs., contains 14 $\frac{2}{3}$ grs. According to observations made at the Berlin Mills, 576 cubic feet pass every second at low flood, 2,016 at high flood, the mean of which is 1,296.

At low flood, then, there are 2,072,600 cubic feet per hour, or 49,766,400 cubic feet per day, or in weight 29,859,840 cwt. This, then, contains 49,766,400 \times 14 $\frac{2}{3}$ = 729,907,200 grs. or 422 cwt. 100 lbs. of humous extract, which quantity passes through Berlin on its way to the sea.

The turbid water of the Elbe, collected at Magdeburg in August, 1851, became clear when allowed to settle, with a very slight yellow tint. Four pounds of this evaporated to a coffee-brown fluid; and thus, when freed from the sediment of salts of lime and silicates, yielded 6 $\frac{1}{2}$ grs. of humous extract, free from water. The Elbe water is therefore far richer in humus than that of the Spree—the richest, indeed, of all which I have examined, although it is by no means so deeply coloured as the Hartz water. It contains more than 1 $\frac{1}{2}$ gr. of humous extract per pound, which in the cubic foot amounts to

* Translated from the German in vol. xxi. part 31 of the Transactions of the Horticultural Society of the Prussian States.

This translation was prepared in part some years since by the editor, at the request of Dr. Lindley, for the former series of the Journal of the Horticultural Society of London, but was not published in consequence of its discontinuance. It is to be expressly understood that the translator is not responsible for any of the opinions expressed, much less for the occasionally somewhat severe criticisms.

107½ grs. If we assume that 4,000 cubic feet per second pass by Magdeburg to the sea, which is double that of the high flood of the Spree, we have for the twenty-four hours 14,400,000 cubic feet, and this will supply daily, if 100 grs. of *humus* only be reckoned to the cubic foot, about 1,798 cwt. of extractive matter which can be appropriated to the nourishment of plants. We see then how rich the waters are in nutriment.

The water of the Ilse, at Ilsenberg, collected in August 1851, gave, after the evaporation of 4 lbs., 2 grs. of humous extract, which is ½ gr. per pound.

The water of the neighbouring Ecker, which is browner than that of the Ilse, in 4 lbs. yielded 24 grs. of very dark humous extract.

Two quarts of water of the black Elster, collected at Herzberg, gave, after evaporation, a treacle-brown fluid, which, reduced to perfect dryness, gave ¾ gr. of saltetro and 2½ grs. of humous extract.

The Rhine, at Basle, passes 13,000 cubic feet of water per second (which, reckoning ½ gr. of *humus* to the pound, contain 56 lbs.), 3,360 lbs. per minute, 1832 cwt. per hour, and 43,968 cwt. per day.

The Ganges, above its bifurcation at the Delta, near Sicligully, passes in April, according to Prinsep, 21,500 cubic feet per second; at Benares 20,000. If there is only ½ gr. of humous extract per pound, or 33 grs. per cubic foot, we shall have

$$33 \times 20,000 = 660,000 \text{ grs.} = 85 \text{ lbs. of } \textit{humus},$$

5,100 lbs. per minute, 306,000 lbs. per hour, and 66,764 cwt. per day.

The Indus, according to Prinsep, sends out at its bifurcation at Tatta 80,000 cubic feet per second—that is, four times as much as the Ganges, which yields 267,056 cwt. of *humus* per day, if the water has only the sixth part of the nutritious matter contained in the water of the Elbe.

The Mississippi, in the rainy season, passes 550,000 cubic feet per second—that is, nearly eight times as much as the Indus; and supposing the same proportion of *humus*, it sends daily to the sea 2,136,000 cwt. of *humus*.

Since *humus* contains every constituent necessary for the sustenance of plants—carbon, hydrogen, oxygen, nitrogen—the possibility of their nutriment by means of the *humus* held in solution by the water contained in the soil and streams is proved. We must, however, first examine the other views which have been held respecting the agency of water in the nutriment of plants.

Liebig and the more modern chemical physiologists regard vegetable matters as hydrated carbons in which water is condensed and combined with the carbon of the carbonic acid which has been received as nutriment. In this case the hydrogen and oxygen must exist in all vegetable constituent parts in precisely the same proportions in which they are found in water. This is allowed by Liebig and many other chemists, since they find in sugar and lignine nearly the proportions of hydrogen and oxygen which exist in water (eight times the weight of oxygen), so that they may be regarded as hydrated carbons. These assumptions, however, by no means accord with the very perfect modern analyses of starch, sugar, flax, and cotton, by Prout, Herrmann, Henry, and Ure, since all these substances show a greater or less excess of oxygen above hydrogen. Wheat-starch, according to Prout, contains 44 C, 49.42 O, and 6.18 H, being an excess of 0.2 of oxygen*. Potato-starch, according to Herrmann, contains 37.6 C, 55.76 O, 6.64 H, or 2.64 excess of oxygen over the constituents of water. Cotton-wool contains, according to Ure, 42.11 C, 52.83 O, and 5.06 H, or an excess of 12.35 O, which cannot be taken into the plant by the condensation of water.

In all other component parts of vegetables the elementary matters differ most decidedly from the proportions of oxygen and hydrogen in water, so that their origin from the condensation of water or the formation of hydrates seems quite impossible.

These vegetable matters may conveniently be divided into three sections.

1. Matters which contain a great excess of oxygen as vegetable acids. Citric acid contains, according to Berzelius, 41.36 C, 54.83 O, 3.8 H, an excess of 24.43 of oxygen. Malic acid, according to Liebig, contains 42.11 C, 56.14 O, 1.75 H, an excess of 42.14 O. Tartaric acid, according to Berzelius, 35.98 C, 60.21 O, 3.80 H, an excess of 29.75 of oxygen.

2. Matters which contain an excess of hydrogen, as resin, fat, and ethereal oils. Olive-oil, according to Gay-Lussac and Thenard, contains 77.21 C, 9.42 O, 13.36 H, an excess of 12.18 H. Camphor (a solid ethereal oil) contains, according to Liebig, 81.76 C, 8.53 O, 9.70 H, an excess of 8.63 H. Bees'-wax contains, according to Gay-Lussac, 81.78 C, 4.63 O, 14.07 H, an excess of 11.9 H.

Coal is one of the substances which has a decided excess of hydrogen. According to Ure it contains 75.76 per cent. C, 5.8-10 per cent. O, 5-6 per cent. H, 1-2 per cent. N. Since eight parts of oxygen in weight go to one of hydrogen in the formation of water, coal must contain 5-6 per cent. H, with 40-48 per cent. O, if it is a hydrated carbon; there is, therefore, an excess of 4-5 per cent. H.

3. There are, moreover, vegetable matters which contain hydrogen without oxygen, and are therefore anything rather than hydrates, as oil of lemons, oil of turpentine, india-rubber. Oil of lemons, according to Th. de Saussure, contains 86.89 C, 12.32 H, proportions which are absolutely contrary to the hydrate theory.

In De Candolle's "Physiology of Plants," as translated by Röper (vol. i. p. 364), we find a table of the elementary composition of many vegetable substances, from which an addition may easily be made to the instances which have been brought forward.

It is abundantly clear, then, that in the nourishment of plants, water cannot be used for the formation of hydrated carbons with the carbon derived from the carbonic acid of the air—that it must be useless in practical gardening and agriculture to attempt to nourish plants with pure water and carbonic acid without any humous constituents, as, in fact, all attempts to nourish plants with carbonic acid and water have miscarried.

Another view of the agency of water in the nutriment of plants is that of Berthollet, that a decomposition of water takes place in such a manner that the hydrogen is assimilated, but the oxygen set free. Saussure contradicted this completely, by showing that the water always runs unaltered through the plant, whose substance never increases by the assimilation of water. Notwithstanding which, Liebig, altogether unacquainted with Saussure's experiments, has sought a new explanation of Berthollet's theory, without troubling himself previously about the truth of the grounds on which it depends, and without making a single experiment on the subject. Liebig supposes that we must explain the decomposition of water after the analogy of the contact of zinc, water, and carbonic acid, where the zinc rusts in the water and the oxide of zinc unites with the

carbonic acid to form carbonate of zinc. The living plant, according to this view, acts as zinc in galvanic decomposition. This is an addition to Liebig's numerous explanations of circumstances of organic life, which are not present in nature, but are mere fancies, since decomposition and assimilation of water do not take place in plants, as appears from every experiment; but suppose there were such processes, the view which would make plants galvanic batteries is just as though a man should explain living growth out of decomposition, as indeed is sometimes the case, or compare a living plant with a stinking dungbill. The gardener and cultivator can only be puzzled by such lifeless explanations. His first principle should be that in the cultivation of plants he has to do with living beings, which he must keep alive, and not sacrifice by galvanic experiments.

If, then, water does not act by means of its chemical constituents as nutritive matter for plants, it can serve only as the means of conveying those nutritive substances which are dissolved in the water. We have spoken of the humous extract dissolved in the water as the peculiar nutritive substance of plants, and especially the different, in fact, nitrogenous humates which are found in it, and which, according to the experiments contained in the treatise on the discovery of the true nutriment of plants, are the only source of the oxygen which is exhaled under the influence of light. The ground is therefore the only magazine of nutriment for plants, the water the bearer of the nutritive matter dissolved out of the ground. All necessary ingredients for the organic formation of the tissues of plants must be contained in the humous matters, to which the mineral salts are only added as stimulants and promoters of assimilation. Carbon, hydrogen, nitrogen, and oxygen, and even sulphur and phosphorus, are contained in *humus* as matters of nutriment; plants need no nutritive matter from the air; they can imbibe only water from it in order to maintain their full flow of life ("Entd. der wahren Pflanzennahrung," pp. 140-141).

Liebig contends that *humus* cannot be the nutritive matter, inasmuch as he considers it impossible that the necessary quantity of humic acid or humate of lime could be dissolved in the water. An acre of land produces 10 cwt. of carbon in the corn or fruit, whereas the quantity of rain which falls upon an acre in four months is only 700,000 lbs., wherein only 3 cwt. of humic acid can be dissolved, and applied to the purposes of vegetation. The data are, however, all incorrect in this calculation. An acre of sand without any coating of *humus*, yields frequently a produce of scarcely 5 cwt., in which are only 2½ cwt. of carbon, and frequently yields no harvest at all; the quantity of rain-water does not determine in the least the fertility of the soil, since a poor soil is soon dried up after a quantity of rain, and a rich bottom during a long drought may keep itself moist by hygroscopic action; besides which, in every soil a quantity of moisture rises from beneath, which keeps it damp; the solubility, moreover, of humate of lime in water is by no means a measure of the quantity of carbon contained in it, as the greater part of the *humus* enters the plant as humous extract and perhumate of ammonia, which is very soluble in water.

Many persons have allowed themselves to be led astray by the question as to the origin of carbon, inasmuch as they imagine that originally at the creation there was no carbon in the soil, but merely carbonic acid in the air, and the *humus* arose at a later period from the decomposition of carbonic acid by means of plants. These suppositions, however, are quite erroneous. We find even in the primitive mountains carbon in the form of bituminous mixtures, as in bituminous talc, basalt, and lava, which contain 3 per cent. of inflammable constituents; and although coal was in the first instance a result of vegetation, there are in its neighbourhood, in all mountain formations, rocks containing carbon, whose bituminous constituents, being soluble in water, can serve for the nutriment of plants. Coal, moreover, as stated above, could not be formed of carbon and water, since it contains totally different proportions of oxygen and hydrogen from those which exist in water, and, moreover, much nitrogenous admixture whose presence is quite inexplicable on the carbonic-acid theory. On the other hand, water, after long contact, dissolves even out of the hardest bituminous rocks carbonic constituents, which in this form may be absorbed by plants. The more barren soil may be rendered fruitful by means of such water laden with nutritious particles, when it springs up from below. In this way it is also possible that, without any carbonic acid from the air, a sterile sand may acquire a coating of *humus* from a vegetable growth, induced by the surface-water, as the plants which have thus generated decay in the lapse of generations and increase the formation of mould. This can arise only from the fact that water is the medium of nutriment. The carbon of plants comes, then, from the ground, and not from the air. So it is in our modern world; and there is nothing to prevent its having been so in the ancient world. This truth must give a more natural direction to the theory and practice of cultivation.

Nitrogen plays an important part in the nourishment of flowering-plants, with which the influence of animal manure on the cultivation of flowers and fruits is intimately connected. Saussure, who made the discovery that rain-water contains a small quantity of carbonate of ammonia, expressed an opinion that the nitrogen of plants might be derived from the air in the form of carbonate of ammonia, that this substance might be developed from animal matters by putrescence and so dispersed in the air, and that manure decomposed entirely into carbonate of ammonia and carbonic acid. The quantity of carbonate of ammonia which is brought down by the rain from the air is, however, so small, that a hoghead of rain-water contains barely ½ gr.; while, on the other hand, rotting dung, as Davy has shown, evolves, besides carbonic acid, gaseous acetate and carbonate of ammonia, and is by no means entirely decomposed into carbonic acid and ammoniacal gas, but leaves behind a solid ammoniacal *humus* or mould—which is contrary to the views of Ingenhousz, who supposed the whole of the dung passed into a gaseous form by fermentation and putrescence, so that all the constituents which were nutritive to plants were communicated to the air; whereas, on the contrary, the nutritive properties reside, for the most part, in the mould which arises from the dung by means of decomposition.

The ammoniacal matter in the atmosphere is therefore extremely small, whereas that of the soil, and of many particular soils, is very large. Clay is the richest of all in ammonia. According to Baumbauer, the clay of the Zuidersee of Holland contains in a thousand parts .075-.078 of ammonia, which is about 0.13 or ½ per cent. The virgin forest-soil of Texas contains ¼ per cent. of ammonia; 100 lbs. of it contain 6 ozs. of sal ammoniac, or 2 ozs. of ammonia. According to Krockner's experiments, loam contains ½ per cent., sand and marl ⅓-⅓ per cent. of ammonia. In four acres of land having one foot depth of soil, containing ½ per cent. of ammonia, there are above 16,000 lbs., or 4,000 lbs. per acre. This quantity is greater than what is

* There is evidently something wrong about the figures here, as there is a defect of oxygen to the amount .02.—Tr.

given to land by manure. If an acre of land contains 120 cwt. of manure, supposing it to contain $\frac{1}{200}$ th of ammonia, there are only 66 lbs. of ammonia, whereas in the soil just mentioned there are 4,000 lbs. The dung is by no means effectual merely by addition of ammonia, but besides by the accumulation of humus as a ferment for other constituents.

The mode in which ammonia is formed in the soil is elucidated by the experiments of Kuhlmann on the formation of saltpetre, and has been further followed out by Mulder in his "Physiological Chemistry." Ammonia is formed in rotting porous matters, which evolve hydrogen, while the nitrogen of the air combines with the nascent hydrogen, as in the rusting of metals by decomposition of water—as, for instance, in damp iron-filings, in consequence of which iron-rust also contains ammonia. So porous fermenting soil without dung forms ammonia by the elimination of hydrogen, which at a later period is oxidized into saltpetre. Thus humate of ammonia is first formed in the ground, and then nitrogenous geic acid and crenic acid, which are absorbed as vegetable nutriment. Decidedly, therefore, the ammonia is not contained in the soil as carbonate of ammonia. The nitrogen, on the contrary, is combined with carbon, hydrogen, and oxygen, in the form of geic acid, crenic acid, humate of ammonia, which exist in vegetable nutriment thus formed. This nutriment is therefore a single substance, whose different constituents are by no means gathered together from so many quarters as Liebig supposes. Carbonate of ammonia is never assimilated by plants.

Another form in which nitrogen enters into plants is nitric acid, which is widely diffused in the soil, and generally combined with clay, magnesia, lime, potash, or soda—in many places so abundantly that in Egypt, Tibet, the East Indies, Italy, France, Spain, Hungary, and America the saltpetre effloresces and is easily collected. Nitric acid is formed by the oxidation of the ammonia, which is produced by the combination of the hydrogen eliminated from the soil with the nitrogen of the air. In consequence nitric acid, nitrate of lime, and saltpetre always exist in humous clay and limestone soils. The nitric acid is assimilated by the plants in the same way as other acids and humic acids, since the oxygen is exhaled in light, the nitrogen retained ("Entd. der Pflanzennahrung," p. 120).

Saussure's view, reproduced by Liebig, that the nitrogen of plants originates from the carbonate of ammonia in the air, and that all manures operate only by the formation of carbonate of ammonia, is therefore altogether erroneous, and can only lead to great errors in practical farming. Liebig's theory of manures runs throughout on the evolution of carbonate of ammonia from the dung, and the addition of gypsum in order to its fixation. It is supposed that the effect of gypsum depends only on the fixation of ammonia. It is plain, from practical experiments on the effect of gypsum in horticulture and agriculture, that this view is altogether wrong. Gypsum promotes the growth of the leaves and stems only of leguminous plants, as clover and peas, but never the blossoming and ripening of the fruit. On the contrary, gypsum, in consequence of the continued luxuriant growth, hinders the formation and ripening of the fruit, and therefore is very injurious in the cultivation of peas in fields, since these plants, when strewed with gypsum, continue green for a long time and produce with difficulty only a little seed. We have also shown that no neutral salts, and therefore neither gypsum nor sulphate of ammonia, can be decomposed and assimilated by plants.

Ammoniacal, especially nitrogenous, matters have precisely the contrary effect on vegetation: they promote, that is, the blossoming and formation of fruit, and impede the growth of leaves and stem. We may therefore, by manuring, push the production of fruit and flowers, in fruit-trees to such an extent that they will at last perish, especially in dry soils. I have myself seen young pear and plum trees, in certain years, perish from over-manuring. Gypsum never produces this effect, whereas if gypsum operated by the fixation of carbonate of ammonia, it must have the same effect as animal manures.

(To be continued.)

Correspondence.

THE MOON AND THE WEATHER.—I observe you had inserted in your very valuable publication the communication I made respecting certain days of the moon being the indices of the weather for almost the remaining days of the moon. The past month I thought would be an exception. My reason for thinking so was from the extraordinary continuance of wet which we had hitherto endured. I now send you an extract from my journal of wind and weather we have experienced in this part since the 3rd day of the last moon. I do so because theories (if this can be called one) are all very well, but of little value unless practically illustrated. For once it may be well, but after an example any persons interested can inquire for themselves. The first day of the new moon was April 4th, 10:4 p.m., consequently the fourth day (the first to observe) would be the night of the 7th until ten o'clock on the night of the 8th. The record is as follows:

- April 7. Wind W., rainy night.
- " 8. Wind W., windy and wet.
- " 9. Wind W., fine but windy, showery evening.
- " 10. Wind W.S.W., fine, one shower.

These are the indicating days, and on each day there was rain, more or less. From this I presumed we should have generally showery weather, with occasional fine days and some heavy winds.

- April 11. Wind N., day fine, shower.
- " 12. Wind S.W., day fine.
- " 13. Wind S.W.S. — W.S.W., rainy.
- " 14. Wind S.W.S., rain, wind violent.
- " 15. Wind W.N.W. showery, otherwise fine.
- " 16. Wind W.N.W., showery and dull.
- " 17. Wind N.E., N.W., showery and cloudy.
- " 18. Wind S.E.S., day fine.
- " 19. Wind S.W., day very fine, slight rain evening.
- " 20. Wind S., S.S.E., showery.
- " 21. Wind W.S.S., violent wind and showers.
- " 22. Wind W., showery.
- April 23. Wind W., day fine, rain evening and night.
- " 24. Wind W., showers and sun all day, heavy rain night.
- " 25. Wind N.E., lowering, heavy rain early morning.
- " 26. Wind S.E., morning rain, day raw and lowering.
- " 27. Wind S.E., rain morning, day lowering, showery until two p.m.
- " 28. Wind E. by S., gloomy.
- " 29. Wind W.S.W., day very fine.
- " 30. Wind W. by S., showery, heavy hailstorm.
- May 1. Wind S.S.W., rain early morning, day lowering.
- " 2. Wind E. by S.W., lowering.
- " 3. Wind W., day very fine.

It will be observed that in this instance the days indicated the weather to

the very end of the moon. Blackthorn winter was not true to itself this year. On the 20th of April I heard the cuckoo for the first time, and on the 1st of May saw several swallows for the first time. Usually I hear the cuckoo from the 15th to the 17th of April, and see the swallows about the 22nd. I then put out verbenas, and when the swallows become plentiful put out my geraniums.—S. B.

HARDINESS OF MANDEVILLEA SUAVEOLENS.—I am informed that at Battle in Sussex the Mandevillea suaveolens not only flowers and flourishes, but ripens its seed on a south wall out of doors. Can you inform me whether this is an exceptional case, and whether it does equally well elsewhere on the southern coast? Our climate here (Wareham, Dorset) is mild, and fuchsias, hydrangeas, all kinds of roses, Exmouth magnolias, and myrtles, escaped with but little injury the past severe winter. Will you also tell me why my orange-trees become yellow and sick, with dead blotches on the leaves? I saw some oranges in Spain and Malta at this season of the year regularly irrigated like an English water meadow; and following that hint, I have had mine kept pretty moist. The Mandevillea flourishes out of doors in the south of France, where the winters are very severe, though the summers are very hot. J. B.

[Sponging with hot water will remove the black fungus on the orange-trees. They probably want more air than they get at present. We shall be glad if some of our readers at Battle will inform us as to the Mandevillea.]

Replies to Queries.

Grass-plot spoiled.—When I came to reside here two years ago, I found a small grass-plot in front of my house in a very neglected condition, full of weeds and coarse grass. A neighbouring nurseryman persuaded me to have it trenched in, and relaid with fine lawn grass-seed. He undertook the job, and procured the seed, and the result is worse grass than before; the habit of which is not to grow upright, but to run along the ground, the stems being thick and white, and the blades of grass of several shades of green. When just mown, the appearance is most objectionable. Can anything be done to remedy this state of things? An answer in the GARDENER'S MAGAZINE, which I take in regularly and value much, would greatly oblige A COUNTRY PARSON.

[This is a sample of the way things are done in hundreds of instances. People pay to be humbugged, and are made sick of gardening through the hideous result of work ill done. Probably the nurseryman employed knows as well as any body how to lay down grass-turf from seed, but, for an extra shilling or two of profit, obtained seed for the purpose that was only fit to sow down rank pasture, or waste ground for the grazing of donkeys and goats. It would have been well if Country Parson had insisted on purchasing the seeds himself, and had sent to some first-rate house for it, such as Messrs. Sutton for example. The result would have been a fine promising sward by this time, needing only a little care and patience to bring it to perfection. But what is to be done now? Mowing is all that can be done through the summer, and the more frequently it is mown, the more will the coarse grasses be checked, and the fine ones encouraged. But if appearances for the present are really of not much consequence, the ground may be again dug over and sown with good seed at once. Grass seed may be sown at almost any time, though the best times are the spring and fall.]

Japanese Seeds.—R. S. W.—The best way to deal with the aged seeds from Japan is to soak them six hours in a solution of nitrate of potash, using a quarter of a pound to a gallon of water; then sow them in pots in a good fuchsia mixture. The pots to be well drained, as it is possible the seeds may be a long time germinating. Place the pots in a sunny frame, lay a saucer or tile over each, and keep them all close shut up. Look at them periodically, and keep them only slightly damp, never wet; do not urge them with heat; and as soon as any seedling plants push through in the pots, remove the covering and transfer the pots to another frame in a shady place.

DIMENSIONS OF SOME FINE OLD TREES.

There are many fine old specimens of trees growing in various parts of Scotland, and some in very isolated positions, which would prove a source of considerable interest to many of your readers, especially those connected with arboriculture, were their size to be taken and sent to you for insertion.

The following is the measurement of some of the largest growing in the parks and pleasure grounds of Gordon Castle, the property of his Grace the Duke of Richmond, taken during the month of February, 1867. Girth at 3 feet from the ground; supposed age of some of the largest and oldest, about 200 years; soil, principally consisting of a dark sandy loam.

Sort of Tree.	Girth.	Ht.	Sort of Tree.	Girth.	Ht.
	ft.	ft.		ft.	ft.
Elm, U. suberosa	10 6	55	Fir, Scotch	11 5	75
" Wych	14 6	58	" Spruce	9 2	70
Poplar, White	13 7	60	" Larch	13 10	55
" Black Italian	14 3	75	" Silver	10 10	75
" P. suaveolens	8 6	60	" Western American		
" Lombardy	8 4	70	" Spruce	3 4	40
Chestnut, Horse	13 11	65	Cedrus deodora	3 0	26
" Spanish	13 8	55	Araucaria imbricata	1 9	16
Beech, common	14 2	65	Weymouth Pine	7 6	50
" Purple	8 3	60	Red Cedar	2 8	20
Oak, common	10 4	65	American Arbor-vitæ	4 2	30
" Turkey	7 3	50	Cedar of Lebanon	4 0	40
" Evergreen	9 10	30	Holly, 12 ft. clean stem	7 10	35
Ash, common	15 5	65	" Golden variety	3 6	40
Sycamore	10 6	55	" Silver variety	4 6	25
" Variegated	7 2	55	Alder	14 0	25
Gean	13 2	30	White Thorn	7 5	30
Lime	16 6	65	Birch	9 9	50
Maple, English	8 4	45	Pyrus Sorbus	5 10	25
" Sugar	4 8	45	Hicory	4 8	25
" Norway	7 8	58	Ailantus glandulosa	3 7	30
Robinia pseudo-acacia	5 4	40	Hornbeam, common	6 7	50
Yew	6 10	35	Walnut	11 8	55

—J. WEBSTER, in The Farmer.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1865.			M. Imp. avrg. of 43 yrs. Grnwh	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain.							
1867			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.				
19	S	4th Sunday after Easter	4 5	7 48	8 34	p. m.	4 59	a. m.	30-14	30-13	71	32	51-5	00	53-6	Cattleya Edithiana, M	Brazil	1907
20	M	Honerton Tulip Show	4 4	7 49	9 24	"	5 37	"	30-27	30-10	67	42	54-5	00	53-8	C. intermedia violacea, M	"	20
21	T	R. H. S. Exhbit. of Tricolor Pelargoniums	4 3	7 50	10 16	"	6 21	"	30-31	31-30	62	36	49-0	00	54-1	C. lobata, M	"	21
22	W	Alex. Pope born, 1668	4 2	7 52	10 58	"	7 9	"	30-27	30-20	63	30	48-5	00	54-3	Cypripedium villosum, I	India	22
23	Th	Cambridge Horticultural Show	4 0	7 53	11 36	"	8 3	"	30-14	29-60	71	35	53-0	00	54-4	Dendrobium Devonianum, I	"	23
24	F	Queen Victoria born, 1819	3 59	7 55	"	"	9 1	"	29-89	29-70	60	37	48-5	00	54-6	D. Falconeri, I	"	24
25	S	Princess Helena born, 1846	3 58	7 56	0 8	"	10 2	"	29-79	29-65	62	40	51-0	00	54-7	D. longicornu majus, I	"	25

The Gardener's Magazine.

SATURDAY, MAY 18, 1867.

A THIRD WINTER HAS SET IN, and those sanguine folks who got their bedding finished in the flush of torrid weather with which the month of May commenced, will in many cases have to plant again or see blanks all the summer, and perhaps find that the check now given the plants will cripple them for the season. We must be always on our guard against deducing general conclusions from isolated instances; but it certainly does appear that the climate of Britain is undergoing a change for the worse, as regards the welfare of tender forms of vegetation, and even of the most common and most useful plants of our gardens and fields. Whether such be the case or not, we have in the present arctic temperature, following close upon an outburst of tropical heat, for which neither animal nor vegetable life was prepared, a new argument added to the many that have been from time to time advanced in these columns, in favour of giving larger encouragement to hardy plants than has been the custom for many years past. It is our duty, and it is assuredly our pleasure, to assist in the gratification of every taste in horticulture, and our readers need not be assured that we are as ready to advise on the cultivation of tender plants as on hardy trees and shrubs and border flowers. Nevertheless, considering the happiness of many of more importance than the gratification of a few, we repeat, while the wind blows from the east, and people who have consigned their great-coats to the store-closet are shivering as if they had been deposited naked on a sheet of ice, that hardy plants are too much neglected, and deserve a considerable share of the energy that is at present bestowed on tender subjects of shortest duration. The public—such of them, at least, as read horticultural literature—experience a sensation when the story of Cliveden is told,—when they hear of Bicton or Dropmore; yet in those splendid gardens there are few subjects employed in the scheme of out-door embellishments but may be termed, without any violation of language, "poor men's plants." We saw, a few weeks since, in the garden of J. B. Saunders, Esq., of Taunton, a collection of variegated aloes that had been wintered safely in an outhouse which is lighted only by side windows, and they were as fresh and healthy as they could have been if kept in the grandest conservatory in the land. These aloes are during summer placed in urns on the garden walk, and thus contribute a classic grace and finish to a beautiful scene, without entailing upon their proprietor any more trouble or expense than the keeping of so many myrtles. In the splendid nursery of Messrs. Lucombe, Pince, and Co., at Exeter, we have lately seen specimens of the golden tipped Thujopsis dolabrata, one of the most elegant trees known, screened with an awning of canvas; and we may see any day anywhere in these islands, if we search out the good gardens, trees, shrubs, herbaceous plants, succulents, ferns, and even palms, that endure all weathers in the open, that fetch their own water, protect their own buds, and train themselves into shape, and that furnish to their possessors perpetual interest and beauty. Many good hardy subjects have indeed been incorporated in the bedding system, and we could not miss from that form of display the pelargoniums, and the tender plants with coloured foliage, which in a few weeks hence will, by judicious grouping, make superb chromatic harmonies for the delight of the eye and the refreshment of the mind. Yet there is need for increased attention to hardy plants, for what is gained in labour and glass, by a reduction of the numbers of tender subjects to make room for them, may be bestowed in a more plentiful production of fruits, and a better system of cropping the kitchen garden. The plants of the stove are for the most part exquisite in beauty, and oftentimes rich in materials for exciting wonder; yet the stove is not the place for general enjoyment, but the cool conservatory and the open garden are the places of assembly for the Republic of horticulture. At the present moment the parterre is in almost every case as bare as a newly-ploughed field. Yet it is the month of May, the "merry month of May," and we look for flowers, for an abundance of flowers; and if we ask where they are, we shall be told to wait a bit. Yes, we will wait; and just when they are in their prime we shall be off to the sea to bathe, or to the stubble to shoot; we shall—that is to say, a large proportion of persons will who live in the midst of elegance (real or hypothetical)—leave the home garden when it is at its highest, and have the satisfaction of hearing afterwards that it was glorious, which is not exactly a glorious satisfaction.

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In great places it scarcely matters whether the parterre be gay or dull, for there are pleasant drives, and the American ground is gay, and the grass and the trees are always delightful. But in the gardens that encircle our great towns, MAY FLOWERS are a desideratum, and if people could have them they would value them ten times more than all that belong to June and July, for they would see them, whereas the later flowers are in very many instances not seen, except by the domestics who remain at home on board-wages, and the gardeners, who go in a groove, and are spell-bound by custom without knowing it.

Our wealth in beautiful hardy plants is enormous. Few amongst us, even of those who are richest in knowledge and experience, know anything of its limits. The spring flowers lately seen in Hyde Park by thousands of persons are just an illustration of the case. Mr. Mann, ably backed up by Messrs. Gibbs and Co., has antedated the bedding season, and made a magnificent display with subjects that might be employed in precisely the same manner in every garden in the land. At this moment Mr. Salter, of Hammersmith, has a display of Pyrethrums and Pæonies that no kaleidoscope of summer bedders can surpass. There is no scarcity of subjects, but there is a lack of taste and judgment, or rather taste and judgment have been over-influenced by the éclat with which costly plants of tenderest constitution have been ushered into public notice; and to flower a rare plant, that can be seen only in a heated steam that acts as an ill-timed Turkish bath, costs more in money and time and strength than would suffice to make an entire garden splendid with elegant forms and brilliant colours, and useful with an abundance of good fruits. How many have found the pleasures of gardening so costly that they have given it up, in despair of keeping pace with the demands of fashion? What a pity they could not forget fashion, and think more of the variety, the beauty, the accommodativeness of the vegetable kingdom, which, if allowed, would have sent envoys to their doors and windows, and have blest them in their peaceable homes with elegance and fragrance, and subjects for thought and the means of elegant amusement! Well, it is not the first time we have broached this subject, and it will not, we trust, be the last. At all events, we continue as opportunities occur to direct attention to subjects adapted for British gardens, and that need but small service of money or labour to bring them to perfection. We must leave the public to accept or reject our proposals, but we are at least encouraged to go on, for we see already some good fruit of our labours.

HALL OF ARTS AND SCIENCES.—Her Majesty the Queen will lay the first stone of the New Hall of Arts and Sciences, which is to be erected at South Kensington, on Monday next, the 20th inst. The Queen will leave the Paddington Station of the Great Western Railway attended by a cavalry escort, and, passing through Hyde Park, will arrive at 11-30 o'clock at the site of the hall, opposite the memorial to the Prince Consort in Hyde Park, where a guard of honour will be drawn up and receive Her Majesty with a royal salute. The Prince of Wales, the Earl of Derby, Earl Granville, and the Archbishop of Canterbury, will severally assist in the ceremony of laying the foundation stone; after which His Royal Highness the Prince of Wales and the Provisional Committee will conduct the Queen through the south-east exit from the tent to the east door of the conservatory of the Royal Horticultural Society, where Her Majesty will be received by the Council of that society, and be conducted by the north-western terrace of the gardens to her carriage at the Prince's entrance in Albert Road. The Council of the Society have announced a floral fête for the occasion, when it is expected that the chief exhibitors will be well represented.

EXHIBITION OF TRICOLOR-LEAVED ZONALE PELARGONIUMS.—The exhibition announced by the Royal Horticultural Society will take place, at Kensington, on Tuesday next.

THE REV. MILES JOSEPH BERKELEY, the botanical adviser of the Royal Horticultural Society, the author of "British Fungology," and one of the principal contributors to the *Gardener's Chronicle*, has been assigned a grant from the Civil List Pensions of £100 a year, on account of his eminent services, as a hotanist, to practical horticulture and agriculture. To Lady Harris, widow of Sir William Snow Harris, the author of the "Law of Storms," and the inventor of an improved lightning conductor, a grant of £100 a year has been made; and to Mr. George Cruikshank, the artist, who is now in the sere and yellow leaf, a grant of £95 a year.

THE PARIS EXHIBITION is the subject daily and weekly of letters, descriptions, and eulogies in the pages of our contemporaries. It will be observed, however, that the writers are compelled to travel far and wide to gather a few facts of interest in relation to horticulture; for even now the horticultural part of the exhibition is in a very incomplete state. We learn from our correspondent in Paris that the inner garden is not yet planted, and that the recent cold weather has seriously checked all outdoor operations; but another week may make an immense difference in the state of things.

THE RHODODENDRONS in Hyde Park, especially those lately planted near Rotten Row, are now flowering superbly.

A HOLIDAY IN THE WEST.

PART I.—STOKE NEWINGTON TO TAUNTON.

It is a very odd custom we Londoners follow of making holiday at the fag-end of the summer, when the grass is burnt up and the song-birds have gone away. It is very delightful to indulge in boating and hatching, and hours of dreamy idleness upon the cliffs beside the sea, in the agreeable temperature of sunny September, and we must wait till autumn if the carrying of a gun through the stubble has an important place in our round of rural pleasures. But to see the country in the spring-time, when the London season is at its height, is worth an effort; so, at least, I thought when the primroses began to thicken in my garden borders, and it was said that already a score of nightingales had been heard at the reservoirs in the Lordship Road, and my neighbour Mr. George Spencer's glorious tree of *Pyrus spectabilis* began to show a kind of pink froth all over it, as the forwardest flower-buds acquired colour preparatory to the wondrous burst of glory which that tree makes every year in the month of April. Yes; I thought I would repeat, for the sake of one who has some claims on my consideration, and with perhaps a minute taint of selfishness, such experiences of the West of England in the spring-time as I had made in years gone by. I went down to Poole on some business many years ago, and was there seized with a fit of vagrancy, and forthwith commenced a series of rambles to Bournemouth one way, and to Ringwood, Christchurch, Minster, and Brocklehurst the other; and it happened in the month of April, and when I got into the New Forest, I felt that there was one spot on the big world whereon I should like to live and die—a spot shadowed with old oaks and paved with violets and primroses. There is scarcely a nook in the land that I have not seen in summer, autumn, or winter; but, like most other busy people, it is but little travelling I can do in spring. We talk of the West of England as a sort of elysium for hotanists and horticulturists, but it is impossible to estimate its beauty and capabilities except by visiting it in spring; and so I said to some one whose confidence I enjoy, "We will see the Devonshire dales and the country thereabout in the first leafing of the trees, when the primroses are as thick upon the earth as the stars in heaven." Confidante assented, and on the 19th of April we started from the Waterloo terminus by express train to Yeovil, Somerset, as the first stage of a holiday tour. To see the spring break in the west was the central idea around which revolved our various anticipations of pleasure, but we were longing too to grasp some loving friends by the hand, and enjoy the sweets of communion in a better way than by mere correspondence and occasional hurried meetings at flower-shows and public assemblies. The country was bleak and bare, the ground was sodden and cold; scarcely a fruit-tree except on walls had shown flower; not an oak or elm in the eastern parts had shown the faintest tinge of colour; the dreary winter long drawn out had nipped the tender spring, and the sprouting herb was blighted as it grew, and people were downcast about the crops. I was glad to see before we started that the double furze, which appeared to have been blasted by the winter, was just beginning to push forth a new growth on the lower parts of the main branches, and I said, "We shall see plenty of furze in bloom in a day or two." On the way down we noticed that the furze on the embankments of the South-Western line was as dead to look at as if it had been stacked for fuel; whereas, many a time on the same embankments I have seen it blooming gaily in the month of March. All about Bagshot and Woking the black peat was dreary to look at; few flowers were to be seen, and we had travelled nearly a hundred miles westward ere there were any definite evidences of a milder climate, and then the furze showed here and there a few golden blossoms; farther on it became more gay, and that was the only sign we had from London to Yeovil, on the 19th of April, that towards the west Nature is kinder to man in spring-time than hereabouts.

We got a bad dinner and a good rest at Yeovil, and we saw one pretty sight, and one only, that gave us any interest. Close beside the railway station is a bank facing the highway. On that bank a fine plantation of strawberries, to all appearance Keen's Seedling. Those were just coming into bloom most gaily. Every fourth or fifth plant had two or three flowers open. We left Black Prince at home just showing flower-buds, and they did not flower till May 6th. So we made a mark for Yeovil as a fortnight at least in advance of the northern suburbs of London in respect of strawberries. What else we saw in Yeovil is not worth putting down, except it be a clever chesnut horse on the railway; a horse that understands shunting as well as any civil engineer, and in making up a train acts a good deal on his own account, and with a knowing nod of the head says to the porters, "Leave it all to me."

I like Taunton, for I have some friends there, and they had invited us to eat, drink, and be merry. So to Taunton we sped away, and made amends for a bad dinner by a good supper and a happy rest at "The Laurels," where J. B. Saunders, Esq., and his bonny wife cultivate the herb called heartsease, and understand its value too well to keep it all to themselves. Such generous and considerate hospitality as we experienced at Taunton may not be a proper subject for lengthened remark in a public journal, but I think this page would miss a streak of light that made more beautiful the face of nature, were I to omit mention of the fact that, as your humble servant, seeking knowledge for you while making pleasure for myself and Confidante, Mr. and Mrs. Saunders gave us a welcome equal every way to the brightest benediction of the spring-flowers that now began to spring up in our path. I have your commission to inquire into the ways of nature, and I take license to say that human nature has some goodness in it, and that the kindness that began at Taunton, with unaffected earnestness and gentleness, attended us at every step; so that in truth, as we started to see trees and flowers, we returned with deeper impressions of the western people than of the western vegetation.

On the 20th we had our first out-door feast. Close beside the residence of Mr. Saunders is an old nursery, and far back in the most interesting part of it is the residence of Miss Young, a lady whose taste and knowledge in matters floral and botanical will not be readily matched even amongst public writers on those subjects. We paid a visit to Miss Young, and were received with the most genial cordiality. The big trees surrounding this charming residence were forward in leaf, nightingales sang lustily above our heads and in the adjoining thickets, and the public road through the nursery, by which access to the residence of Miss Young is gained, was gay with the flowers of many trees and shrubs, and with the new growth of many beautiful coniferous trees. Miss Young has not followed the fashionable mode of embellishing the exterior of her residence; there is no parterre, no ribbon-borders; but there is grass-turf, and there are trees, shrubs, and

flowers; on every hand objects of interest and beauty, and the very atmosphere is calm and odorous, and shut in as it were from the general world by walls of verdure. On the turn round from the public to the private road, we were greeted with a spectacle quite novel in its way, yet, like many another spectacle, consisting of most commonplace materials. There were hanks and borders of *Berberis aquifolium* in bloom; not dotted with yellow, as we see them in the eastern parts of England, but presenting solid sheets of the purest gold, the intensity of which, in the sunshine, was heightened by the sprinkling of red leaves every where about the mass. Looking down towards the lawn, through a kind of avenue, a great old rustic basket was to be seen sheeted over with the charming flowers of *Auhrietia purpurea*. Here again the flowers were so thick as to present an unbroken mass of the most delicate purple. We stood some time at a distance enjoying the glitter of gold in the foreground, the rather distant and dreamy blotch of purple, and the general admixture of greenery beyond, while the nightingales, thrushes, and blackbirds, made glorious music to accompany the welcome we received. Before we quitted this place we had experienced as much surprise as pleasure. On the lawn, and in the heds and borders, were numerous interesting objects in addition to fine trees and shrubs. *Arundo donax* has been allowed to make stools eight or ten feet through, and the old canes are ten feet high. For many years this grass has stood out winter and summer without harm, but the winter of 1866-67 has punished it severely, though it is not killed. There were some large stools of what appeared to be *Bambusa gracilis*, with old and withered canes about ten feet high; this was still fresh at the base, and has stood several winters preceding the last, which cut it down and spoiled its beauty. *Lilium giganteum* is here one of the hardiest plants; on the 20th of April plants in the open ground, and that have passed three winters there, had leaves already a foot long, and looking very much indeed like the leaves of *Arum maculatum*, as they peep forth now in the hedgerows. These lilies are planted in good peat; they flower finely, and demand no care at all. *Rhododendrons* were in many instances full of bloom; a fine *Jacksoni*, six feet high, had a grand appearance; and a very old *Arboreum*, rather lean in habit, but handsome nevertheless, was just showing the fine colour of its flowers. In a sheltered nook on the wall of the house *Acacia dealbata* has grown fifteen feet, and for many years has thus flowered profusely, but the last winter nearly destroyed it; it is dead to within a foot or so of the ground, and will be many years getting up again to its former height. It was in full bloom in February last, when the second frost made havoc of it. Close beside it is a white camellia, about ten feet high and six feet through, a splendid mass of dark green glossy foliage. This usually blooms freely, but this year has not flowered at all. On a fine old wall, *Cloth-of-Gold Rose* has had its way for many years, sending out rods of eight or ten feet length, and flowering gorgeously. It is worked on a brier, which is now considerably thicker than any respectable though stout walking-stick. This passed through the terrible frost of January 4, 5, and 6 last, without harm, but began to grow in the warm weather of February, and was cut to pieces by the second frost that came at the end of the month. It is now growing again freely from good breaks near the head of the stock, and probably will nearly fill up its old space before the season closes. Harrison on the same wall is unhurt, and the good old *Noisetete Lamarque*, with several *Teas*, are quite as fresh and vigorous as if they had been protected, though they were as much exposed to the weather as *Cloth-of-Gold*. Before I left the garden I was asked to prescribe for a cork-oak that bleeds profusely all the summer long from an excrescence on the bark. I did not prescribe; but I said if the tree were mine, I should cut off the excrescence, and make a clean edge to the wound, and then hind it up with grafting clay and tarpaulin, in hope of inducing a healthy cicatrization, but I could not recommend this course, for I was not at all sure it would be successful. The tree appears to be none the worse for the discharge, which is probably the result of plethora, but it is unsightly and undesirable. Will any of our readers, who have had to deal with difficulties of this sort, give us a word on the subject drawn from experience? "Experience," I say; but really, with the remembrance of this delightful place still fresh in my mind, I want most of all to get away from experience of the prosy kind, and keep alive the thought of a quiet retreat like this, wealthy everywhere with the gems and jewels of the vegetable kingdom, and all cared for and loved with a sincerity that we boastful horticulturists by profession know nothing at all about. I would rather call to mind, in connection with these scenes, some of the sweetest passages in Keats or Tennyson than speculate on any practical matters. Indeed, I found myself more than once humming half-forgotten verses, and one passage from "Endymion" occurred to me as if written in sheer description of this "happy island," this miniature elysium:—

Paths there were many
Winding through palmy fern, and rushes fenny,
And ivy banks; all leading pleasantly
To a wide lawn, whence one could only see
Stems thronging all around between the swell
Of tuft and slanting branches: who could tell
The freshness of the space of heaven above,
Edged round with dark tree-tops? through which a dove
Would often beat its wings, and often, too,
A little cloud would move across the blue.

By way of a shady walk past a pretty rustic house, we reached the out-door fernery, a most simple but interesting spot. Under the shade of large trees on one side, and a wall on the other, there extends a long bank consisting principally of good peat, supported and faced with blocks of stone. This is so far superior to the "hurrs" from the brick-kiln that Londoners are forced to be content with, that every stone has upon it a beautiful growth of moss or lichen; everything is softened down in outline and colour, and the charm of naturalness—the perfection of a fernery—is one of its principal characteristics. The ferns in this long bank are in a most luxurious condition of growth. Already, on the 20th of April, *Struthiopteris germanica*, the graceful "ostrich-feather" fern, had made fronds eighteen inches in length, and far more than *Osmunda regalis*, in its exquisite grace of form and delicacy of colour, fitted the idea that Do Quincy took from Wordsworth to light up his denunciation of the "insane substruction" that swept *Osmunda* from one of its ancient haunts at Windermere—

Plant lovelier in its own recess
Than Grecian naiad seen at earliest dawn,
Tending her fount, or lady of the lake,
Sole sitting by the shores of old romance.

That *Osmunda regalis* should be here is a matter of course, and here too we found its near relatives, *Osmunda interrupta*, *O. cinnamomea*, and *Onoclea sensibilis*; the last-named fern has long since become quite naturalised at Stoke Newington, and is as hardy as the common poly-

pody. Amongst the lady ferns here were several with rod stems; there were fine tufts of *Cystopteris fragilis*, *Asplenium fontanum*, the rather scarce *Ceterach officinarum*, the delicate *Woodsia ilvensis*, *Scolopendrium* beyond number and in great variety. The father of Miss Young was an enthusiastic collector and cultivator of British *Scolopendriums*; and one of his best seedlings bears the name of Youngii, in commemoration of its raiser. As for the rest of the ferns, I leave you to imagine them, when I say that there were examples of all that a fern-grower would look for as typical and essential to an out-door collection, not omitting the beautiful Cambriom variety of *Polypodium vulgare*, and the stone-loving *Asplenium trichomanes*, *A. virides*, and *A. ruta-muraris*.

Quitting the fernery, we were conducted to a rustic paradise, primarily consisting of dwarf walls and protective hods, where in years gone by there had been formed and kept a superb collection of hardy herbaceous plants; and here they remained still, with the growth and glory of age upon them—a growth and glory that in these plants is equivalent to perpetual youth, for, unlike the tree that may become unsound at the core, these have the power of sempiternal renewal. What do you think of dog's tooth violets and American cowslips thick as pile velvot on a gigantic scale, and forming fields rather than patches? at all events, we saw masses of *Erythronium dens canis* of some twenty yards square in extent, and clumps of *Gentiana acaulis*, dotted over with its gorgeous azure blue bells, of more than a square yard each in extent. *Orobus vernus* had grown into bush-like tufts, and smothered with rosy purple flowers. There too were masses of *Hacquetia epipactis*; the lovely *Dianthus cæsius* and *petræus*; *Corydalis bulbosa*, the simple *Asperula odorata*; myriads of double-flowering *Anemone nemorosa*, a gem of the first water, and with it two formidable rivals in the department of vegetable jewelry, in the shape of *Myosotis sylvatica* and *Myosotis alpestris*, the last named being the choicest perhaps of all the spring flowers native to these climes. A great bed of *Alströméria Van Houttei* filled me with speculations as to the possibilities of the bedding system without the aid of an inch of glass or a single plant of Mrs. Pollock. I cannot hope to give an idea of a thousandth part of the treasures I met with here—such things as *Dielytra spectabilis*, *Alyssum*, *Arabis*, *Iberis*, and *Bellis* I cannot even enumerate, but I must remember *Chrysosplenium oppositifolium*, *Cyclamen coum*, and *C. hederifolium*, *Dielytra eximia*, *Erinus alpinus*, *Hydrocotyle vulgaris*, *Omphalodes verna*, *Phlox alpinus* in variety, *Saponaria cæspitosa*, and *Saxifrage* and *Primulas* past enumeration. Miss Young has a pretty conservatory, which was rich with ferns and flowers; yet these things were all tame to me after the feast in the herbaceous garden, where the growth of years has given to a majority of the finest subjects the distinctive character and true splendour of colour that they have in their undisturbed homes on the moor and the mountain, so different to the little bits that we call plants in ordinary gardens.

S. H.

ELDORADO.

There have been rumours about the north side of London for a year or two past, touching the growth of a nursery where a few trade rules have been set at defiance, and the wants of amateurs are considered in a spirited and conscientious manner. I first heard of it when conversing with my much esteemed friend and neighbour Dr. Denny, on the subject of roses on their own roots, when he told me such roses were being produced in quantity at a place not many miles distant. Again, when making a call on my excellent friend Dr. Brickwell, of Tottenham, I heard of the same place, and saw some roses that had been obtained from thence, and I now began to be curious on the subject. By and bye Mr. Dunbar, who represents Mr. Lynch White in the hot-water business, suggested that I might meet with a few good things if I would visit this place; and so from time to time it has been on my mind, and at last, on a fine day in the early part of last month, I made my way thither, having for companion Dr. Denny, who first called my attention to the claims he thought this nursery had upon my time. So at last we found ourselves in the Hale Farm Nursery, Tottenham, within a furlong or so of the Tottenham Station, on the Great Eastern Railway, chatting on things in general, and plants in particular, with Mr. Ware, the proprietor. I was rather disappointed, nay, to speak the truth, considerably disappointed. I saw no glass, no trees, no display of either work or its results, and I began to regard the Hale Farm Nursery as "all a hum." Close beside the entrance were some narrow borders, which Mr. Ware described as a "winter garden." I thought it weak, almost puerile, though there were some interesting things in it. The borders were divided into diagonal plots with divisional lines of double daisy, polyanthus, double primrose, and in the spaces were clumps of *Iberis*, *alysum*, *saxifrage*, *arabis*, and other useful spring flowers. My idea of a winter garden demands quantities of coniferous trees, hollies, berry-bearing shrubs, and variegated ivies, and then the herbaceous things come in nicely to light it up, both during winter and early spring.

But we pursued our way, becoming interested by degrees, and presently got amongst the houses. Nothing particular for some time, but all neat and tidy, and plenty of stock of what may be collectively termed things of the day. At last we found ourselves amongst the roses, and began, as they say in the game of "hunt the slipper," to "get warm." First a few low-roofed houses, full of *Manetti* roses, all thrifty and promising. Presently we dropped into the midst of some thousands of "own roots." I knew them by their looks, without examining the collar for the scar. All the good sorts of *Perpetuals*, *Bourbons*, and *Chinas*, done in the same way, and with big heads, the pots mostly 54 and 48 size; but one side of a house was occupied with half specimens blooming superbly, and paying their rent very well for cut flowers. We began to talk and criticise in earnest; my friend the Doctor being a thorough rosarian, and Mr. Ware, the cicerone, as eloquent as Cicero on a subject which evidently has a place in his affections apart altogether from business. To give the names of the varieties met with would be only like making elegant extracts from a rose catalogue. But we noticed *Maréchal Niel*, plenty of it; a first-rate rose, apparently, to do on its own roots. Amongst a batch of *Chinas* we picked out some old and almost obsolete kinds, such as *Knights White China*, a very neat-habited *Lawrenceana* sort, which produces myriads of small snow-white flowers in clusters, a counterpart of *Aimée Vibert*, the flowers smaller, and the leaves not glossy; *Saucyer's White*, more robust than *Knights White*, and producing larger flowers in twos and threes.

We saw bedding plants in endless quantities in long pits, the hack wall of the pits being a bank of turf, within which is laid a bed of hot manure, and over that a bed of soil, and last of all the lights, admirably simple, but consuming an immense quantity of stable-dung, which happens to be plentiful on the spot, and costs next to nothing. We found all the new

Alloternantheras, the *Toliantantheras*, the *Amaranthus*, *Colons*, and the rest of the foliage novelties. A few specimen *Lobelias*, *Geraniums*, and *Calceolarias* looked rather promising for exhibition and decorative purposes; but we paid very little heed to such things, for we still wanted to see the herbaceous plants, and began to wonder if they were hidden in one of the furnace chimneys. But we followed our cicerone, and lived in hope. After a walk up a lane and through a gate, and along the side of a ploughed field, and across a piece of meadow, we at last saw before us an almost endless prospect of herbaceous plants grown farm fashion; the Hale Farm had, in fact, changed from a routine of wheat, cabbage, and roots, to one of Sweet Williams, *Polyanthuses*, *Saxifrages*, and *Alyssums*. We found that we had before us twenty acres of such things, and our guide wished us to explore the whole, though the sun was as hot as on a June day. All I could say at first was, "Eureka!" but the Doctor, seeing before him a furlong or so of wallflowers, spoke of *El Dorado*, and remembering that, I put the expression at the head of this notice as a title for it. Yes, Eureka, certainly; I wanted to see herbaceous plants in quantity, and here they were at last. We began with about two acres of Sweet Williams, which were being taken up and sent away in dozens and hundreds. Then we got upon *Alyssum saxatile*, a few thousand plants, with heads bigger and brighter than any of our heads; *Iberis sempervirens*, ditto; Double *Daisies* of fine quality; *Spirea Japonica* enough to make an edging all along the western coast from Land's End to Orkney, where it would do better, doubtless, than on the east coast of this country; yet at Tottenham, which is a cold place, it takes its chance in the open, and flowers as freely as if under glass. So we went on from piece to piece, measuring the acres by the number of rows right and left of this and that, noting especially that pinks and carnations covered extra large spaces. In due time we found our way to the pot plants, and the packing sheds, and the proving border, and we found more to amuse us here than in going over the farm. In order to supply plants at any season without risk, quantities are potted in small pots at the seasons when this may best be done with particular groups of plants, mostly of course in autumn. These potted pieces are set out in batches on beds of cocoa-nut fibre refuse, and they become established in the pots and fit to plant out at any time at the whim of the purchaser. In these beds, therefore, we saw gatherings from the entire collections, and I am bound to say that, though they have not everything (nor has anyone else), there is here one of the most complete and correct and extensive collections of herbaceous plants I have ever yet seen, not forgetting the splendid stock in the cradles at Wellington Road. Close beside this department are two long borders, on which are planted two plants each of every herbaceous plant in the place. As heights and colours are of comparatively small consequence, and facility of finding any particular plant of the utmost importance, this collection is arranged alphabetically, and thus, with the exception of a few difficulties arising out of synonymy of names, it explains itself: if we want to see the species and varieties of *Arabis*, we go to one end of the ground, and if we want *Orobus* we go to the other; and if *Zauchneria californica* is the subject of search, we find it opposite A, for the alphabet goes down one side and up the other.

I shall now make note of a few plants that we took particular notice of, and arrange my notes alphabetically, as we found the plants in the borders. *Alchemilla alpina*, with variegated leaves, an exceedingly pretty plant for a shady place. *Anemone nemorosa plena*, the double white wood anemone, a plant so beautiful that to see it once in a day's march is to be satisfied with life and the constitution of the planet, and forget all the ills that flesh is heir to. *Aristolochia clematis*, a rare and curious British plant, usually regarded as an introduction. *Arundinaria falcata*, the hardy bamboo, which merits attention as one of the best of poor men's plants for the sub-tropical system. *Astilbe rivularis*, such a thing as we may expect to see largely used some day at Battersea—it is very distinct and interesting. *Primula auricula nigra plena*, a black double-flowering auricula, a gem for the choice border. Of show auriculas we saw none; but as we were too early to see them in bloom, we may simply have missed them. *Baptisia Australis*, a scarce but good thing; it is quite tender at Stoke Newington, and we lose it in the winter; but at Tottenham, which is colder and more open, it is quite hardy. *Campannas* in profusion, especially *Barrelieri*, *carpatica*, *garganica*, *glomerata*, *persicifolia*, *pyramidalis*, and *rotundifolia*. *Convallaria majalis*, with striped leaves, one of the most elegant of all known variegated-leaved plants, but scarce, and more likely to become dear than cheap. *Corydalis bulbosa* in great sheets, a superb spring flower. *Delphiniums* and *Dianthus* of many kinds, in plenty of course. *Dielytra eximia*, a good stock; only choice people, who have choice rockeries, care about this very choice but not showy plant. *Dondia (Hacquetia) epipactis*; this is both peculiar and pretty: we have had a tuft of it for ten years past on a raised bank of peat at Stoke Newington, and we consider it one of the best of out-door subjects in the month of March, when its coin-like discs of yellow appear in advance of its leaves, and make little heaps of money on the ground. *Eryngium amethystinum*, so often recommended as a fine plant for the shrubbery border, but which few except botanists appreciate at present, and as a rule we give the botanists all the ugly things, as a punishment for their love of ugly names. *Ranunculus ficaria*, here called *Ficaria ranunculoides* (which is the proper name in books that separate this from *Ranunculus*), in several forms—the common yellow, pure white and double yellow, and double white: after all, I think the common single yellow the best of them, and it is a charming plant when the sun shines on it in March and April. *Gentiana acaulis*, true as steel, and reflecting to the clear firmament its intense deep blue. *Gypsophylla repens*, a most elegant plant for a rockery; every single flower appears to be designed for a fairy's button-hole—if fairies have button-holes; it is in profusion and great variety. *Juncus effusus spiralis*, a very curious and by no means ugly plant; it is, of course, a rush, but its peculiarity is that every one of its cylindrical leaves twists like a corkscrew, and a good plant of it is a study in curves for disciples of Euclid. *Litbospermum fruticosum*, the plant which Mr. Gibson uses so skillfully to bring out the red and gold of Mrs. Pollock geranium; its dark green leaves and dark blue flowers are unique. *Meum athamanticum*, a plant for bold effects, well adapted to afford variety in the parterre. *Muscari botryoides*, the grape hyacinth, rarely seen, yet fit for the grandest garden in the land; *Nepeta violacea*, the neat glaucous-leaved plant that throws up spikes of bluish labiate flowers all the summer, and which Mr. Gordon has used so skillfully to make belts in front of China roses at the Crystal Palace. *Orcis maculata*, a great pit full, all in pots with fat leaves, and promising to flower well. *Primula acaulis*, the common primrose, in great variety, double yellow, double white, double lilac, double crimson—all in plenty; the last a superb variety that will never stay long with any nurseryman.

pity it cannot be propagated from its leaves, for divisions are not fast enough. *Primula elatior*; the *Polyanthus* in great variety, but mostly border sorts, the laced flowers being such as we call "promising;" very few fit for a stage, but all worthy of admiration. *Saxifragas* we must deal with in the lump, save and except that they have a prettily variegated variety of *S. umbrosa*, the London pride. *Schizostylis coccinea*: this has been in the open border at Stoke Newington since first received from Backhouse in 1864 until the close of the year 1866; that is to say, it stood the winters of 1864 and 1865, but succumbed to the severe frost of January, 1867. Mr. Ware says it is quite hardy with him, another interesting exemplification of the difference in the behaviour of the same plant in places only two or three miles distant from each other. Strange to say, what little attention I have paid to it convinces me that its absolute hardiness is a matter of very little consequence, except, of course, that if quite hardy, a stock of it in nursery quarters can be very safely and simply preserved. But as to its use as a flowering plant, its ability to endure severe frost is not a matter for consideration, for it does not bloom (here at least) till the middle of November, and then it blooms freely; but one night of frost is sufficient to spoil all its flowers. The proper way to manage it is to plant it out in spring, and leave it to grow as it pleases, and in October to take it up and pot it, and place it in a cool house to flower during the winter. By this course of procedure it will be valuable at a time when flowers are scarce, and possibly may be one of the best subjects we can find to cut flowers from at Christmas. Sedums are numerous here, but I need only remark on one of them. There is something in the soil of this nursery favourable to those extravagant forms of fasciation to which the term "cocksoomb" is applied. It is a sound loam, fit for wheat, cauliflowers, or forest trees—one of the best of soils; probably unfavourable to the production of variegated sports, but certainly in the production of cocksoombs admirable. The reader will understand I am not now referring to proper cocksoombs, such as the flower-heads of *Celosia*, but to the abnormal consolidation of stems which results in the production of a great frill in place of a multitude of branches. We see many examples of fasciation in the growth of the fir, ash, and willow; some asters are much subject to it, and Lord Wellington hyacinth is as likely to present a compound spike, formed of two spikes united, as to present its spikes *pur et simple*. In looking over the Sedums at the Royal Botanic Gardens lately, I saw several respectable cocksoombs, but I have never anywhere seen such as are to be found in some of the beds of Sedums at the Hale Farm Nurseries. I brought away with me a cocksoomb specimen of *S. virescens* which measured across the head fourteen inches, and consists of five bold frill-like volutions, which are beautifully green, with linear leaves set upon their edges like the teeth of a comb. The stem is a flattened leathery fan-like growth, scarcely able to support the heavy cocksoomb, consequently the plant is always placed so that the head can lean against a clean brick or flower-pot. *Silene alpestris* and *pendula*, two of the choicest of herbaceous plants, in plenty; the fern-like *Thalictrum minus*, looking like *Adiantum cuneatum*, a beautiful weed, to which the O'Shane directed the attention of our readers a year ago; a double *Tormentilla repens*, which of course is good; a very good lot of hardy *Veronicas*, amongst them the pretty *incana*, so well adapted for a sunny rockery, and a variegated form of the common *spicata*; the scarce *Vicia sylvatica*, and all the *Violas*, from *cornuta* downwards (or upwards). The collection of Pinks is good, and so is the collection of *Geraniums*. Thus a bad beginning made a good ending. When the Doctor and self started for home, we were thoroughly tired out with our perambulations, but we had the satisfaction of having seen something, and were well repaid for our journey. We agreed that Ware's nursery was in some sense like one of Scott's or Cooper's novels—dreadfully dry and uninviting at first, but winning by degrees, and at last fascinating, surprising, and delightful.

S. H.

BEDDING GERANIUMS.—No. XXXIX.

Wherever I go amongst the geraniums, I find the old pernicious rule rigidly adhered to, that they must all be judged by their behaviour in beds, which is half equivalent to a condemnation of the broad-petalled race, the pink and prime of all, but the worst generally for out-door bedding. In very few instances yet have the stage varieties—I mean varieties fit for the stage, for many go there that are not fit—met with appreciation; and where a capable cultivator takes in hand a dozen to train for show, it is usually a dozen out of the bedding set; and so we find at exhibitions superb examples of Tom Thumb, Stella, Cybister, Hendersonii, and Punch—varieties quite unsuitable for competitive purposes, and unworthy of the care and time required to make them fit for exhibition. On the shield of Gresset was the motto, *L'aigle d'une maison est un sot dans une autre*—"The eagle of one house is a fool in another;" and a plant that is A 1 with a cultivator who never rises above bedding, will be an object of contempt to a man whose taste has been formed in the midst of auriculas, pansies, and picotees, and who has no more care about bedding than about the fee simple of the planet Jupiter. These are essentially eclectic papers, and we ignore no taste and no purpose that admits of a reasonable vindication. At all events, the bedder has no cause to complain; and if the stage flowers are occasionally thrust upon his attention, it is for his good solely, that he may some day be persuaded to look for nobility and beauty when in respect of colour he is completely satiated. Some sapient (or not sapient) advisers think it a fine thing to accompany their selections with a confession that they know nothing of the broad-petal kinds, or the nose-gays, or the intermediate varieties that bed well and are sometimes good enough for show; but this pen has been dipped in the sap of every member of the great family, and makes no boast of its fitness on the ground of being only half informed or utterly ignorant. Its duty to-day is to select for everybody and for every purpose; to select the best for every taste and every use; to select without prejudice, favour, or affection; and to select on the basis of

knowing—not as some do, by marking off so many from a catalogue, and assuming them to be good. You are now to reverse the purport of the good old French saw, *Le moyen le plus sûr de se consoler de tout ce qui peut arriver, c'est de s'attendre toujours au pire*. You expect no worse, but much better, and throughout the best; and you will prove thereby that in cultivating and collecting zonales, you prepare for contingencies by a process the very opposite to that recommended for the regulation of the feelings. Earl Grosvenor's motto—*Nobilitatis virtus, non stemma, character*—shall govern this day's deeds; no matter whence the thing comes, if it is good, we will have it; and if bad, its destination is limbo. But the "nobility" which is to be characterized by virtue is noblest in the race of noblest flowers; and of these we want just a comprehensive

120 SINGLE-FLOWERING VARIETIES FOR POT CULTURE.

Scarlet and Shaded Scarlet.—Chieftain, Clipper, Herald of Spring, Dr. Lindley, Monsieur Galland, Andrew Marvel, Julius Cæsar, François Chardine, Monsieur G. Nachet, Lord of the Isles, Marquis de Lambertye, Mexico, Monsieur Manganet, Ossian, Prime Minister, Sir Robert Peel, Sobieski, St. George, Valiant, Victor Emmanuel.

Rose and shades of Blue.—Tintoret, Countess of Sefton, Duchesse of Sutherland (nosegay), Duchess (nosegay), Le Peyrouse, Nora, Hector, Notable, President, Beauty of Meldoise, Cecilia, Fairy Queen, Forester, Gloire des Roses, Lucius, Poet Laureate, Provost, Shirley Hibberd, Rubens.

Pink and Peach.—Beauté de Suresnes, Boule d'Asperides (nosegay), Fascination, Hibberd's May Queen, Lady Martin, Rose Rendatler (nosegay), Pink Beauty, Pink Perfection, Reserve, Serena, Mrs. W. Paul.

Salmon and shades of Red.—St. Fiacre, Archevêque de Paris, Bel Demonio, Charles Rouillard, Christine de Dergine, Coquette de Rueil, Emile Licaun, Enamel, Excellent, Highgate Rival, John Veitch, Madame Chardine, Marie Drouart, Princess, Rosamond, Victoria de Puebla, Wood Nymph, H. W. Longfellow.

Painted.—Ary Zang, Berthe Porte, Havilah, La Prophète, Madame Calcot, Eugénie Mezard (syn. Madame Rudersdorf), Mons. Rendatler, Amelina Grisan, Bride, Christabel, Diadem, Madame Gueffier, Madame Werle, Monsieur Gueffier, Rosebud, The Clown.

White.—White Perfection, Virgo Marie, Comtesse de Cambourn, Lara, Madame Barillet, Marie Mezard, Snowball.

Variegated leaves, whitish or creamy predominating.—Rosetta, Bijou Improved, Alma, Flower of Spring, Italia Unità, Countess of Warwick, Kenilworth, Mrs. P. J. Perry, Scutellatum, Silver Chain, Stella variegata, The Bouquet, Venus, The Countess.

Variegated leaves, yellow or sulphur predominating.—Golden Chain, Reine d'Or, Luna, Goldfinch, Mrs. Pollock, Sceptre d'Or, Sunset, Yellow Belt, Sunrise, Bronze Shield.

Double.—Triomphe de Gergoviat, Ranunculæflora, Gloire de Nancy, Gloire de Corbeny.

If smaller selections are wanted, there can be none better than those at page 109 of the "Garden Oracle" for 1867, where will be found groups of fifty and twelve, and a selection of the best in all classes for 1867. But I will try once more, and make a list of

A very select Twenty-four.—Dr. Lindley, Clipper, Herald of Spring, Lustre, M. Galland, Beauté de Suresnes, Pink Perfection, Forester, Chieftain, Gloire de Corbeny, Triomphe de Gergoviat, Eugénie Mezard, Madame Werle, Virgo Marie, White Perfection, Amelina Grisan, Andrew Marvel, Poet Laureate, Flower of Spring, Italia Unità, Rosetta, Mrs. Pollock, Luna, Golden Cerise Unique.

The foregoing are practical lists, for all the varieties are obtainable; and there is not one named that need cost more than half-a-crown, while the majority may be obtained at an average of 9d. each. A five-pound-note will buy one plant each of the whole collection, and, if trading were in my way, I should like to sell them at that rate as fast as I could propagate them. If more expensive kinds are wanted—as they should be—the names and descriptions of the best novelties will be found in Nos. XXXVII, and XXXVIII. We shall have to deal with Tricolors shortly *in extenso*, and I am waiting till I can sit down in my garden snuggerly and leisurely review them in a proper light, and in their best condition; meanwhile, as this is a buying time, I shall say that *Lucy Grieve will grow* if people will have patience with it. It has not grown hitherto, for much the same reason that Baron Munchausen's horse could not get full of water after the affair of the portcullis. The horse left his latter half behind in the enemies' breeches (Shade of Hood, forgive me!), and as fast as the water was sucked up by the beast, it ran out at the other end, as see the history, Chapter XVII. If you keep cutting the tops off Lucy Grieve, it is impossible it should grow to a respectable shape and size; every cutting removed makes the plant so much less in size, and also checks its root-action. There is such a clamour for cuttings, and such a hunger to increase it, even where they have enough already, that the plant has no chance. But give

it a chance; do not cut it, do not force it; be patient, and I repeat **IT WILL GROW.** *Sophia Cusack* is, to my eye, the best of the series for a specimen, and when seen in an elevated position, so that the eye glances over the discs of its leaves, it gives a hint of the next step in the production of coloured leaves, for it is then seen to contain a considerable amount of *blue* in its colouring. The present generation will see *blue* in these leaves: it is there already in plenty; the task for the breeder is to separate it. *Beauty of Guestwick* I have seen lately, and have no doubt at all of its fitness for a specimen. Smith's *Sir Joseph Paxton* will be famous, and some others of Smith's. One of the best old florists living told me the other day, that he went to Dulwich last summer to see the house of geraniums there, and he finished by remarking, "I wouldn't have missed the sight for twenty pounds." *Sunset* makes a grand specimen. Witness, in proof of the assertion, in spite of its wiry habit, one in the tricolour house at Wellington Road; it is perfect, and proud enough is the cultivator, Moxon, of his triumph. In that way *Sophia Dumaresque* is a genuine advance, and quite worth the 31s. 6d. at which, with *Lucy Griev* and *Sophia Cusack*, it will be sent out this season. Saltmarsh's *Meteor* is glorious, and threatens to supersede Mrs. Pollock, and Henderson's *Lady Cullum* will no doubt make as good a bedder as it is already seen to make a fine pot-plant.

Now let us turn to the bedders, and lump the round and nosegay flowers together; but we will distinguish the latter with the letter N.

A SELECTION OF NINETY GERANIUMS FOR BEDDING.

Scarlet.—Attraction or Perfection, Editor, Baron Ricasoli (N), Boule de Feu (the true variety is quite different to Attraction, Perfection, &c.), Kate Anderson, Comte Zamoyksi, Cybister (N), Flambeau, Eleanor, M. Thiers, Mars, Minimum Nosegay (N), Multiflora Nosegay (N).

Crimson and Purple Shaded.—Banneret (N), Black Dwarf (N), Miss Parfitt (N), Stella (N), St. George, Imperial Crimson, Christine, Beauté de Suresne, Excellent, Lady Martin, Madame Barré, Model Nosegay (N), Pink Perfection, Wiltshire Lass, Minnie, Model Nosegay (N).

Rose and Rosy Purple.—Countess of Sefton, Duchess, Lady Middleton, Picturatum, Purple Nosegay (N), Purple Unique, Titian, Cliveden Rose (N), Fairy Queen, Hector, Lucius, Lord Palmerston.

Orange and Orange Scarlet.—Indian Yellow (N), Harkaway, Orange Nosegay (N), Harry Hieover (N), Rival Stella (N), Hieover's Pet.

Pink.—Christine, Madame Barré, Pink Beauty, Christine Nosegay (N).

Salmon.—H. W. Longfellow, St. Fiacre, Emile Licau, Enamel, Jean Valjean, Minstrel (N), Salmon Nosegay (N).

Painted.—Amelina Grisan, Eugénie Mezard, Souvenir de Nancy, The Clown.

White.—Purity, Galanthiflora, Snowball, Virgo Marie.

Blush.—Madame Vaucher, M. Gueffier, Rosebud, Madame Gueffier.

Variegated Leaves, White or Creamy.—Alma, Annie, Bijou, Flower of Spring, Flower of the Day, Jane, Lady Plymouth, Manglesii (first-rate for edgings), Mrs. Lennox, Queen of Queens, Shottesham Pet, Silver Chain, Harcourt's St. Clair, Variegated Nosegay (this looks as if the leaves of Bijou and the flowers of Christine had made a match and eloped, and their first child partook of the complexions of both parents), Italia Unità, Oriana.

Variegated Leaves, Yellow or Sulphur colour predominating.—Golden Fleece, Annie Williams, Golden Chain, Goldfinch, Luna, Sceptre d'Or, Yellow Belt, Mrs. Pollock.

Here again for a small collection I must refer to the "Garden Oracle," where a dozen of each class is given, and in each case a dozen that cannot be beaten. But we have not yet done with the subject of this day's labours. In seeking out sorts for this and that purpose, we inevitably meet with sorts that are not fit for any purpose, yet are too good or too peculiar to be ignored. Hence we want a class for nondescripts, which we may as well call

OUTSIDERS.

Glowworm.—A fine nosegay, the colours of the flowers crimson-shaded purple or magenta. When at its best beautiful, but too shy for a bed. It is superb for the plunging system, because it can be brought forward when full of colour, and removed when the colour wanes.

Lady Colum (Beaton).—This is a pretty well known nosegay, of dwarf habit. It is not fair to place it in a list of bedders intended for general purposes, because it is peculiar, and on some soils scarcely blooms at all, and to show its best qualities requires a warm season. But it is one of those peculiar and beautiful varieties that every practitioner of bedding should try his hand with, and there is no better way than to make an odd bed, and thereby judge of its future uses. The colour is put in the cata-

logues as "magenta;" it is rather lilac-pink, soft, delicate, fresh, original, and beautiful.

Premier (Beaton).—In the way of *Lady Colum*, but more inclining to rose colour, and with foliage more striking.

Magenta (Beaton).—This is a superbly coloured but shy nosegay. To bed it may be to spoil a scheme, to be without it is to be in the dark. Remember, in respect of bits of wealth like this, the Horatian rule, *Imperat aut servit collecta pecunia cuique*,—if we do not govern our goods, they will govern us. I saw a grand piece of planting humbugged by *Magenta Nosegay* last year; where there should have been a bold band of purplish lake to balance a band of crimson, there was a band of green with purple dots. The man who made that mistake is one of the ablest colourists in the country, and one of the most ingenious and experienced judges of the capabilities of plants adapted for bedding. In this case he exemplified the maxim of Rochefoucault, *Il est plus aisé d'être sage pour les autres, que pour soi-même.*

Eugénie Mezard.—This is also an insider, as seen above. It is so good in the painted series when grown as a pot plant, that many would fear to make a bed of it. But it is a first-rate bedder, and in the full sun loses its white margin, and becomes a clear salmon. In the event of cold wet weather it does not wear well.

Peach Nosegay is a lovely subject for delicate shading; make an odd bed of it, if you do not know it already.

Rose Rendaller makes a grand bed on its own merits, but is too robust and peculiar to be easily worked into a scheme. As a bedder, generally speaking, it can only be handled by a master.

Rosetta, in the silver-leaved section, is in its place above as a first-rate bedder. I place it here in order to say that it is one of the most elegant examples of colouring we have, and fit only for the most refined work in the parterre. The leaves are abundantly creamy; the flowers are soft lilac pink. It is one of those that should be planted, if possible, for both flowers and leaves; but if used for leaves only, will be found A 1. It requires a good climate, and is not fit for the London gardens.

Venus (Lennox) is a creamy-leaved variety, with peculiar and beautiful rosy pink flowers. With *Rosetta* it would associate superbly for chaste painting.

Beauty of Oulton is grand in a sunny position, and better without flowers than with them to show its rich brown zone.

Golden Harkaway is scarcely inferior to *Golden Chain*, though many degrees hardier.

Brilliantissima is comparatively unknown. It leaves the old *Brilliant* far behind. Let those who love lightning, volcanic fires, burning prairies, glaring furnaces, and the flashes that result from a blow on the ossa nasi, look after it. If any difficulty, inquire of Messrs. E. G. Henderson. When I know it to be cheap, I shall put it in the list of bedding scarlets; but while ignorant of its price, I make no risk, else how could I aver that 120 sorts could be obtained for the average amount paid for a vote at Yarmouth?

MINIATURES.

The following are of the smallest growth, and all are good:—Saltmarsh's *Little Treasure*; this puts *Baron Hugel* out of court; it is equal to *Attraction* in style, but the plant never grows larger than a penny loaf, even when bread is at 9d. Carter's *Christabel* is a miniature *Christine*, admirably suited for edgings; it might have been called "Pink Cushion," but we will keep that name for future use. *Multiflora* is a pigmy nosegay: the flowers scarlet, and plenty of them. *Minimum Nosegay* is of the smallest size; a good scarlet. *Harkaway* makes a good orange edging. *Harry Hieover* will do for a match to *Harkaway*. *Spread Eagle* is scarcely so small as to be called a miniature, yet it is so dwarf as to be well adapted for marginal lines, and it is a first-rate orange scarlet. *Dandy* does not always please, for it is a quiet gray, and never shows up bright and sharp; but for small work, where strong colouring is not wanted, it has its value still, though it is steadily going out of cultivation. *Manglesii* makes a lovely edging, but few people do it properly. At the Crystal Palace it is largely and skilfully employed. All the ivy-leaved race make good edgings if carefully trained down. The *Golden-edged Ivy-leaf* is a beauty for edging; and the scarlet-flowered, lilac-flowered, and white-flowered ivy-leaved make good beds and pleasing lines.

S. H.

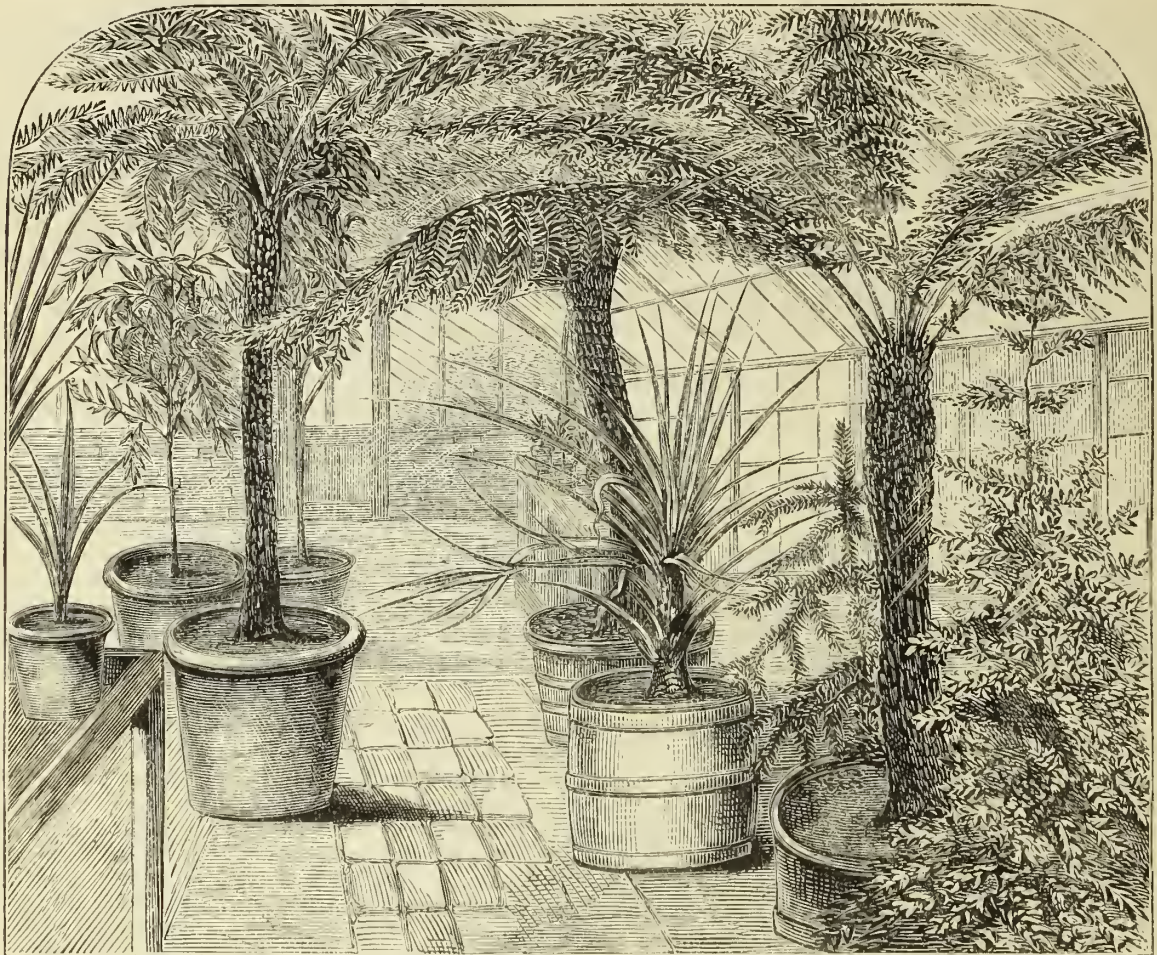
CHEAP CONSERVATORIES.

When talking with our Editor a few days ago, he showed me some sketches of various kinds which have been made for the purpose of providing engravings for the Magazine, and amongst them I observed one taken in the nursery of Mr. Burley, of Bayswater, in which there are represented some tree-ferns, dracænas, and other such plants. I said I could see in that sketch the suggestion for some useful words to the lovers of beauty, who I find are most prodigal of their means for the gratification of taste, but not always so successful as I would wish them to be in their results. My friend told me at once to put down my thoughts in English as I best might,

and I am now doing so, my object being to promote the love of the noblest forms of the vegetable kingdom, and at the same time show that much money may be saved from the customary outlay on the houses that are built for enjoyment.

I, of course, can have no objection to the erection in gardens of costly plant-houses, with elaborate wooden stages within side, and the valuable plants all placed so that the best views we obtain in walking round are of the sides of the pots, the diagonals of the timber, and the under-sides of the leaves of the plants. But, in behalf of the thousands who dwell near the great towns, I wish to say that none of these things are necessary. There are thousands of tasteful persons who would enjoy the collection and cultivation of choice plants, but are terrified at what they hear the cost to be, and abandon the promptings of a pure taste through fear of being led into extravagancies beyond their means. To such I will remark that, in the first place, a very large proportion of the finest plants of the whole world can be preserved in health in all the temperate parts of Europe, as far north certainly as the 45th parallel of latitude, if kept safe from frost. I have heard of some tree-ferns that have been planted out several years in some part of Ireland; and about them I shall not only inquire but travel; but I call to mind the

they have instead a stuffy stove that few people can endure the heat of, and that costs a great sum of money, and gives little real pleasure to the members of the household. But Mr. Williams's house is of a far more expensive kind than such as I mean. Let us mark out our house, and adopt the ridge and furrow with light iron pillars (or iron gas-pipes) for supports, and use a light framework with glass to the ground. To do this well, consulting utility only, with a little ornament on the façade to prevent a mean appearance, and we may cover a given space of ground at one-half, or perhaps one-third, the amount usually paid for elaborate structures, that are not a whit more useful than the simple sort of thing that is in my mind. Why, if I were to set up a nursery, I should build houses that would do their work well at a fourth part of the cost usually incurred in private gardens. Instead of glass to the ground, we might have raised banks of earth to form rockeries outside, and sloping borders inside. Within these banks I would put square piers of rubble and cement, or in a stone district blocks of stone, or in a wood district butts of big trees; and on such supports the house should rest, and they would receive the thrust; and, in the case of a tenant building on another man's ground, give the tenant the right to move the house



TREE-FERNS AT MR. BURLEY'S NURSERY, BAYSWATER.

report, because I can believe it, and it exemplifies my meaning, that plants of the highest nobility are not all in need of costly hot-houses when imported into these cool climates. I am no advocate for planting out subjects that require to be protected with mats, or that are pretty sure to be destroyed by frost; for even if such things live in the midst of hardships, they have not their proper beauty. There has been much folly of this sort; it does harm not only by the waste of money, but it checks the taste for pure horticulture. But give the shelter of glass, and there is little more required for the preservation of plants of the most eminent renown. Then as to the kind of shelter. Why indulge in a grand lofty structure, when one of the most simple kind will do? My idea, for a man of taste who is not also a man of fortune, is to build a *large house*, tall enough for the plants, and to employ either wood or iron, and to arrange the mechanism so that it will hold together during a storm, and to have heat enough to keep out frost, and no more. Mr. B. S. Williams has built a noble house at Holloway, and it is furnished with just such plants as are most worthy of being seen in every private garden. That is a large house; it is heated most admirably by means of Jones's Terminal Boiler; it is at all times cool, never subjected to frost, and is in truth a garden under glass. Just such a house might be in many a garden where

at the expiration of his tenancy. To compensate for the absence of solid walls and heavy timbers and deep foundations, I would employ cross tie-bars, which cost nothing and afford almost indescribable strength; and the lightness of the structure would be in favour of its long lasting, for the only strain it would be subject to would be during gales of wind. As to the ventilation, I would have shutters at the ground line, and under the line of the ridge; with such I would cause the whole body of air to move, and to move constantly, and in summer they might all be open day and night.

In the inside the arrangements must depend upon the size of the house; the larger the house the better, as in a large house plants with bold handsome foliage grow best and look best, and, in the event of severe frost, the larger the house the less rapidly does the air within it cool down to the freezing-point. As to stages, I would have none. Observing, in the sketch of Mr. Burley's house, that the tree-ferns stand on the floor, gave rise to my remark that this is the kind of house for the man of taste; for while saving the enormous cost of interior woodwork, he gains the advantage of seeing his plants in such a way as to enjoy all their beauty; and too often it is a painful task to look at the plants at all; it makes one's eyes ache, and there is danger with putting the head back so much that it might fall off. Well, suppose I have room, I would make gravel

walks eight feet wide, and beds between, with sometimes a raised bank, to vary the surface and for the special display of flowers. Many such things as Camollias, Acacias, various Climbers, Sikkim Rhododendrons, and Japanese shrubs, might be planted out, but others that it would be thought best to keep in pots might be plunged to the rim, so that we should see them situated as in nature, and should literally walk about amongst trees and flowers in this our winter (and summer, and all-the-year-round) garden. To be sure, this is not shown in the sketch; for Mr. Burley sends his plants to exhibitions, and to embellish at festivals, and has them also for sale. But we see them on the ground, as I wish to see them in places where they are now up in the sky, and we ought to be as the angels in Jacob's dream, going up and down ladders to see the beauty of the world. A great space filled with plants such as we cannot see in the open garden is a grand spectacle, if well done; but very different is it when the plants are mounted on a tall platform, and the path is wide enough only for a walking-stick to pass along, and the eye can only distinctly perceive the pipes for heating, the edges and under-sides of the woodwork, and the exhibition of pots above, while outside there is a huge stokery and an ugly chimney. I have just said that I would have gravel walks; but I know that in early spring, if the gravel happened to get wet, it would be very cold, and I should like such a house to be always attractive to ladies. Let this be considered, then, that gravel is sometimes cold to the feet; but cheap tiles are warm and always dry, comparatively speaking; and the best way to put down tiles is to bed them in sand; they never move, and the sand quickly takes from them superfluous water.

As to the plants, there is no end to the possible variety; the noble Dicksonias give us forms of the grandest type, it is impossible to surpass them. To grow them needs no more skill than to manage any greenhouse fern; in fact, their only peculiarities are that they like shade and moisture. Then the Camellia, which is grown at so much cost and, I will say, anxiously wishing not to offend the English gardeners, with very much of fuss, what does it want more than a good loam to grow in, a rather dark position, at least, to be not in a strong glare of light, a humid atmosphere, and protection from frost. Those are all its requirements. Then the tender Rhododendrons, the wondrous Nuttallii, the chaste Edgeworthii, and others of equal beauty, that will scarcely live in the open garden, except in some peculiarly sheltered spots,—a cool house and a shaded position are the utmost of their requisites. Shall I say again that the brilliant Azalea, that succeeds the camellia in the spring, when a garden under glass is most precious; here is the place for it; keep out the frost, and as regards temperature you have done enough. That glorious tree the Araucaria excelsa, a tree which surpasses in beauty any average hundred trees that can be named, needs just such a house as I propose and nothing more. Ferns, Lilies, Dracænas, Dasyliirions, Aloes, Yuccas, Ericas, Palms, Vallotas—no; I dare not enumerate the families that would furnish beautiful and sublime forms of vegetation to such a house; and as for colour, I have mentioned a few showy subjects already, and I would add that any number commensurate with the space at command of bulbs could be flowered in the spring, and the zonale pelargoniums would take up the pleasing tale when bulbs, camellias, and azaleas had become unattractive; and thus we should reach the autumn safely, and then would look for chrysanthemums to continue the story that should never all be told. In such a house the shadows alone would be a treat; I think there is much joy to be found in shadows. I sit at the window on fine evenings now, and observe the shadows in my landlord's garden; they fall from the old picturesque fruit-trees athwart the smooth green grass like as if they had a life of their own, and they move round and round as if afraid of the sun, yet dreading his setting; for his sleep is their death. Ah, how it minds me of the theology of the Brahmans! who say that when Brahma wakes, the universe is peopled with orbs that swarm with life; but when Brahma sleeps, creation passes away; *it is not*. Better is the faith we follow; for it teaches the truth that Jehovah, who is our God, never slumbers nor sleeps, and the creation He has fashioned will never pass away: He maketh not to destroy, but to bless, and to bring forth praise to His most worthy name.

To draw up a list of plants adapted for such a house would be no difficult matter; the difficulty would be to keep it down to moderate dimensions, because the range for choice of selection is almost boundless. The best of all known climbers would be suitable, from Tacsonia Van Volkemii to the renowned Lapageria rosea. And when the amateur had exhausted the list (impossible) of cool plants, he could go the stove from June to September, and obtain some more. So if the cheap house had not perpetual beauty, it would not be the fault of the house, but of the master. For a last word, I shall say that in soft plants much money is expended that would buy hard ones. The difference between them, in respect of purchase, would be that the hard ones would improve from year to year, and be as it were everlasting, but the soft ones would want to be renewed annually; there is in fact no end to the expense of soft plants, if

good collections are kept. But I have no prejudices; I love everything that the earth produces, and I wish in my day and generation to assist, as far as my few talents permit, my brethren of the great human family to share that love with me, and enjoy it more even than I do myself, if that be possible. KARL PROSPER.

THE FLOWER GARDEN AND THE BEDDING ARRANGEMENTS.

The planting-out of the various bedding plants has now commenced in earnest, especially in the southern counties, the month of May having made her *début*, accompanied by such remarkably fine weather as to induce many of our horticultural friends to push on the work of bedding with more haste than is usually adopted at this early period of the season; and should the weather continue to favour the operations during the remaining part of the month, why those who have seized the earlier opportunities will have gained a considerable advance in growth ere the flowering season has begun; yet, in the ordinary course of things, we may expect some adverse weather. I can remember some very chilly nights, with some severe nipping frosts, to have occurred towards the latter end of this month; and experience has taught me to be very cautious about exposing my bedding plants too early. To those who have not completed their bedding, and are contemplating its various arrangements, such as the harmonizing of colours in the distribution of their different varieties of plants, perhaps a few ideas or so in relation thereto may be useful, especially to such as entertain doubts as to the effectual working of some of their plans. In considering the many modes now employed in contributing to the embellishment of the flower garden, we must, in our endeavours to add to its effect, be guided by the scenery and the growth of the various kinds of vegetation that surround us. Although our public gardens and parks afford us some bright examples of elegant planting, yet, before we attempt to copy or otherwise imitate them, we must not forget the scale on which they are executed, because breadth and length in planting considerably heighten the effect of even the commonest kinds of plants. If our grounds are somewhat limited, then is our difficulty increased as to the fulfilment of our tastes and desires; but, on the other hand, if we have sufficient scope, then to some extent, our gratification may be more easily secured, because we are thus enabled to carry out some of the designs and prominent features of successful planting we may have previously observed in our rambles abroad. This, then, brings me to my subject, the consideration of which is not so much intended for those who possess large establishments, but more especially for those whose means of display are somewhat contracted in regard to space. In referring to the harmonizing or contrasting of colours, so as to impart a refined tone to the garden, we must say that, although there are laws which teach us to blend them in harmony—and certainly such teachings are of great value—yet, independent of these, there must prevail a taste with the individual, for a man who has no taste of his own cannot apply principles. There must also be knowledge derived from practical acquaintance with the various shades of colours and habits of the numerous classes of plants that are used for bedding. I would offer, as a general advice, to avoid where the space is small the planting of many beds of one kind of plants, particularly if they are high-coloured self-flowers, as yellow calceolarias, &c., because they are calculated to detract from the interest which should be bestowed on the other kinds. An excess of strong colours is antagonistic to that mellow but refined softness which ought to be more or less perceptible in all floral arrangements. The aim of the planter or designer should be to find out the shades or colours which are most pleasing to the eye, when associated with the objects that overshadow or surround them, or come in contact with them; and this is one of the reasons why we should not be mere copyists, or, in other words, we should not merely borrow the ideas which are adopted in other gardens for our sole guidance.

There are many reasons to be assigned why the order of planting or bedding should be changed in small private gardens, as compared with public or large private grounds. Now some persons have a great objection to planting beds on what may be called the mixed system, that is, of having borders or bands of two or more kinds of plants of opposite colours planted in the same bed, believing that it only tends to confuse, instead of affording a pleasurable gratification to the mind of the beholder. There may be logic in this argument; but, with all that, circumstances entirely alter plans that are even stamped with the approval of the many. Some maintain that beds which are entirely planted with self-colours produce the best effect; and most certainly they do, if the extent and position of the grounds are favourable to such; for it is only where the grounds are large and the bedding extensive that we would advise its general adoption; but where space is limited, there would the mixed or banded system of bedding look best, for by it we are enabled to develop the character and beauties of a greater number of species and varieties

than we could otherwise do, and thus enhance the interest of the garden; but with it there is more after-care devolving on the cultivator, that he may preserve throughout the season the distinctness of the outlines, so as to clearly define their separate shades of colour. With this, as with everything else in general practice, that we may approach perfection, it is well for us always to be provided with a memorandum book, and note not only that which is satisfactory, but all that admits of improvement, with suggestions for the following year's planting.

Having said something respecting the planting of beds, we will now offer some observations on the ribbon style, which has been somewhat modified by the introduction within the last few years of what is termed "panel" gardening; that is, nothing more than plots at equal distances being planted so as to represent beds, without the customary walk and edgings, the ribbon planting being connected and continued at each end. Nothing, perhaps, for grandeur of effect can surpass a well-arranged border planted ribbon fashion, but what contributes most to realise this effect is Length, for the longer it is the more imposing it is. A straight but even surface of border is another essential. I have seen a good many borders planted in this style, but nothing, to my way of thinking, has exceeded the beauty of two borders I saw planted, about 120 feet in length, and from 7 to 8 feet in width, each side of a gravel walk. They presented a perfect level, save a slight curve towards the end. They were planted thus:—

LEFT-HAND BORDER.	RIGHT-HAND BORDER.
A back row of young laurels.	Back row, mixed dahlias.
Ageratum.	Ageratum.
Perilla Nankinensis.	Perilla Nankinensis.
Yellow calceolaria.	Yellow calceolaria.
Scarlet geranium.	Scarlet geranium.
Purple King verbena.	Purple King verbena.
Edging of variegated mint.	Edging of variegated mint.

JOHN F. M'ELROY.

THE ORNAMENTAL GOURDS.

Amongst the curiosities of horticulture that have sprung into favour during the last few years, not the least important are the Ornamental Gourds. Amongst the seekers of what is curious—professional as well as amateur cultivators—these have found many admirers. Nor is this at all surprising when we consider their claims to notice in the way of curious forms and colours, to say nothing of the beautiful markings of some of the varieties. It is now six years since I first began to cultivate them in any number, during which time I have learnt some of their peculiar requirements to grow them successfully, and I am tempted to give the readers of these pages the benefit of my experience in these few notes, hoping they may be useful to the few, if not to the many. In the first place, I have found that they rarely do well when raised in heat and nursed under glass, as when so treated it takes them a long while to recover the exposure to the elements, even when carefully hardened off; they do better when sown in the natural soil where they are to stand, as then they suffer no check by removal, and throughout the season plants so raised are more healthy, and make altogether a more vigorous growth than those raised in heat under glass. Not that they dislike bottom-heat, because, when the position will admit of it, I take out a couple of barrow-loads of soil and fill up the space with two barrow-loads of rather dry stable-dung, to which I add one barrow of short grass from the lawn. This is well mixed and trod firmly into the place from whence the soil was removed. Upon this I place six inches of soil, and then sow the seed. In a few days a mild bottom-heat is generated by the grass, and the young plants soon show themselves, and grow with a freshness and vigour that would surprise the advocates for planting out from pots; there are no yellow or sickly leaves, and no flagging after planting, which necessarily follows the planting-out system.

There are very few of the Continental varieties but will endure full exposure to a southern aspect better than they can endure a more shady one. This is especially the case with the more beautifully marked varieties, such as the Prince of Wales, as their colours are brought out much better, and consequently they make a richer effect. A strong rich soil is not so essential for the more ornamental varieties as a rather light open one, as their roots delight to ramble and ramify in an open porous position. Therefore, to confine them in a given space, say in a square hole two or three feet over, is not the best system that can be adopted to secure success, as if their roots have free scope to search out food some few feet round about, their fruitfulness and vigour will be greatly increased.

I must not be understood to mean that they will do well in any poor soil or position, because the whole structure and habit of the plants speak to the contrary, as being vigorous growing subjects, they of necessity require a good deal of nourishment; and although such may be given them in the form of liquid manure, I have found they never thrive so well with that as when their roots can

collect sufficient for their purpose, by rambling amongst any half decayed organic matter that may be collected into a heap in every well ordered garden. A few very weak doses of sewage water will do good when the roots are confined for space, but it should not be repeated at every watering. Ordinary rain-water or, what is better, soap-suds may be applied liberally during a continual drought.

C.

Calendar.

WORK FOR WEEK COMMENCING MAY 18.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—High culture should be aimed at now with all vegetable crops, frequent stirrings between the rows with the hoe to keep down weeds, and abundant supplies of water and liquid manure. It is hardly possible to give too much water, and in exposed situations, and on thin soils grass mowings should be used as a mulch to keep the ground moist, but should be examined occasionally to guard against its becoming a harbour for slugs. Put sticks to rows of peas as soon as they require it; well bank up those that are forward. Thin parsnips and carrots to eight inches apart, and go on transplanting from seed-beds as fast as the plants are large enough to handle, leaving the smallest to get stronger before moving them. Choose showery weather, if possible, for transplanting, or else give shade for a few days, and gentle watering. Flat-hoe potatoes, and draw but little earth to their stems: the old method of moulding them up has proved to be of no benefit at all, rather an injury, as the heat of the sun cannot have too ready an access to the roots. Thin out celery, and make up small beds for the plants on very rich hard ground. Trenches should now be made for celery, and six inches of rotten dung forked into the bottom of each. A dull or showery day should be chosen to put out the plants, and plenty of water given during dry weather. Look to seed-beds, and transplant; well hoe and clear the ground as may be necessary. The use of liquid manure and frequent stirring of the ground between growing crops will hasten and improve the growth of all things.

Sow beans and peas for succession, savoy for late crop; cabbage, broccoli, kale, beet-root, kidney-beans, both runners and dwarfs, lettuces, spinach, turnips, cucumbers, and marrows may now be sown in the open ground for a late supply.

CELERY.—In pricking out, choose a hard bottom for the bed, on which lay four inches of rotten dung, and two inches of light rich soil. Handle the plants tenderly, water lightly and regularly, and keep the lights over till they look brisk and growing. They will lift from such a bed with vigorous roots, and at the first planting out choose the forwardest plants, and let the others remain for the next set of trenches.

POTATOES.—Hoe between the rows as soon as the plants appear, and hoe frequently irrespective of weeds and moulding up. If planted deep enough in the first instance, we consider further moulding an injury to them.

RIDGE CUCUMBERS AND MARROWS.—Marrows, cucumbers, and melons may still be sown; the latter require the most heat, and cannot be well fruited unless they can enjoy a temperature of 70° to 80°, and five more degrees of bottom-heat. Pumpkins and gourds of all kinds, as well as Stockwood, Southgate, and short prickly cucumbers, may be grown to great perfection in the open air, by starting the seeds in a gentle heat, and when the plants have formed their rough leaves turning them out on a bed of dung or loam well enriched, and giving them the protection of hand-glasses for the first fortnight. Those who have no hand-glasses should protect them every night till June, by turning over each plant a flower-pot with the hole stopped. Ridge cucumbers bear well and give little trouble. Cucumbers and gourds should not be stopped, but allowed to ramble as they will, either on the ground or a rough trellis. They should have abundance of manure water in dry weather, and the fruit cut as fast as it is ready, as, if one is left to ripen, the vines cease to be prolific.

BEEF of the first sowing to be thinned to one foot apart as soon as large enough. Time enough now to sow for a crop of moderate-sized roots to store for winter.

BROCCOLI.—Sow both early and late sorts, not forgetting Snow's Winter White.

CAPSICUMS AND TOMATOES may be turned out on warm borders towards the end of the month, but there will be nothing gained by over-haste. Tomatoes planted against hot walls should be covered every night till the first week in June.

Flower Garden.

CHRYSANTHEMUMS lately struck to be potted off, and have a little bottom-heat for a week or ten days, and after that to be plunged in beds of coal ashes or cocoa-nut waste. Cuttings put in now will make nice shrubby plants by autumn, if well treated. When shifted to 60's, let them have a firm loamy soil, plenty of turf and well-rotted dung, abundance of water overhead, as well as at the root, and exposure to all weathers. Chrysanthemums make nice plants for ordinary purposes from May cuttings, and better without than with bottom-heat.

DAHLIAS should never go out till quite strong, unless to be protected every night with inverted flower-pots, each pot to be covered with a mat. Dahlias should be potted in rich stuff, to ensure strong plants before planting out, and be gradually hardened. Cuttings put in now will root in a few days, so that sorts of which the stock is small may soon be secured.

EDONOS newly formed to be watered in dry weather. Saxifraga Icelandica makes a beautiful bright green edging for a close line.

HYACINTHS to be kept green until they have completed their growth. If carelessly turned out from pots and glasses, the hot sun and dry winds will all but kill them. They really want kindness, and it is best to turn them out with great care in a bed of rich sandy soil in a frame, and keep them rather close until the foliage begins to turn yellow; then expose them to the full sun to encourage ripening, but do not touch the bulbs for at least a fortnight after the leaves have quite perished. By that time the bulbs will be ripe, and may be cleaned and stored away.

FLOWER GARDEN.—Successional sowings should be made of all hardy annuals that may be required to succeed those sown in March; and

tender kinds, such as asters, zinnias, &c., may now be sown in the open ground. This is a good time to sow hardy and half-hardy perennials of all kinds, to get strong plants for winter, either to remain out, or have the protection of a frame, or to take up and pot for early blooming in the greenhouse. Lovers of the Chinese primula should sow now for the next spring. Late planted roses should have plenty of water, and the surface mulched, and similar treatment given to hollyhocks and chrysanthemums put out last month. Carnations and picotees should be staked without delay, and their shoots thinned. Part and plant polyanthus and primroses that have done blooming, and give them a rich loam and a shady aspect. Where it is intended to have new gravel, it would be advisable to defer it till the beds are filled, and the whole garden acquiring its full summer gaiety; a coating of fresh gravel then will add much to its fresh and bright appearance. Roll and mow grass turf frequently, to promote a fine close growth. Any watering of plants in the open ground should be done in the morning now, as the nights are often very cold.

APHIS BRUSII.—The soft brushes sold for the removal of aphides are of great service where a few plants are affected, and it is worth while to fumigate; and it obviates that too common practice of crushing the vermin on the plants with the fingers. Pinks and auriculas are better cleansed by the brush than by any other method.

CIRCUMPOSITION is a method of propagating without removing the shoot to be rooted. An incision is first made in the bark, say of a rose-shoot. When that has healed, the shoot is drawn through a pot, which is fixed by some support according to the requirements of the case. The pot is then filled with light soil, and kept moist, and in about three weeks is full of roots. The shoot is then separated from the parent plant by cutting it through close under the pot. Of course when the pot is placed some of the leaves and buds must be removed where the shoot is to be covered with soil. This is the best time to propagate by this method, and it is of great value to get plants on their own roots which it is difficult to strike by other ordinary processes.

ANNUALS are held in light estimation because people do not really cultivate them. Thin out the patches and top the branching kinds, and they will bloom so vigorously as to be altogether unlike the crowded spindling things on which people vent their abuse. Quick-flowering annuals sown in shady places at the end of the month, or early in June, will come into flower for succession to those that are exhausted, and prove of great service.

BEDDING PLANTS to be kept growing till of sufficient size for hardening off, and fresh cuttings put in of those of which the stocks are short. Sorts that are in a fit state for turning out to be carefully hardened first, as any severe and sudden check will put them back tremendously. Place them in cold pits first, and shade from midday sun, and cover up at night. By degrees, let them have full exposure, and to be left uncovered night and day before turning out. Plants purchased from nurseries generally require careful hardening, owing to their having been pushed rather fast. In selecting at nurseries, prefer plants from open frames if you can get them. If dahlias are turned out early, they must be protected at night with inverted flower-pots with the holes stopped, and by bell-glasses during the day, should the weather be wet and cold. The 15th is quite early enough to begin to turn out dahlias. Put the stakes to them at once. Take cuttings of everything that is wanted to bloom late in the season, and for next year's stock. Verbenas and petunias struck now in a brisk heat will bloom well at the end of July.

AURICULAS.—Pick off the seed-vessels as fast as the plants go out of flower, but do not cut down the flower-stalk. When done blooming, place the pot on a pavement of tiles out of doors, and let them have air and showers. But very heavy showers must be kept off by means of a spare light or a few boards, to be removed as soon as the storm is over. Any infested with fly, smoke well before turning out.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Plums and pears, and indeed all bush and pyramid fruits, will want pinching in to the third or fourth leaf from the base. Where large crops of fruit are set, thin severely, but not all at once, as the more fruit the poorer will its quality be. Give strawberries plenty of water. If raspberries have not been mulched, give them at once a top-dressing of half-rotten dung. Do not dig it in.

Greenhouse and Conservatory.

GREENHOUSE.—Hard-wooded plants will want plenty of air, and specimen plants in flower must have shade. Allow nothing to form seed, unless seed be specially desired. Cut back all kinds of shrubs that are out of shape, and keep them rather close afterwards, to get good breaks, so as to bring them into decent shape, and get the wood well ripened for next year's bloom. Where plants are crowded, many may be removed to frames, so as to allow of a freer circulation of air. Shift, stop, and tie out all soft-wooded plants that are advancing in growth; but if required to bloom shortly, they must not be disturbed, merely kept in shape, and have plenty of water and free ventilation. Continue to strike bedding stock for late blooming. Fuchsias, geraniums, verbenas, and petunias make beautiful specimens for pot-blooming in the autumn, if struck now and kept regularly stopped till July. They should not have a high temperature, fuchsias especially, which like shade and moisture. Cinerarias done blooming should be cut down and planted in rich soil, in a cold frame, to furnish offsets for potting. Camellias and azaleas that have made their young shoots should have a little more ventilation to prepare them to go in the open air next month to ripen their wood. All growing plants, and especially hard-wooded ones, must be regularly stopped, and have plenty of air, to ensure a sturdy short-jointed growth, and tiffany, or the canvas called "strainer," put up inside the house, where moderate shading may be necessary. Pelargoniums out of bloom to be cut in, and allowed to break before repotting them, and the syringe and fumigator kept in use as may be necessary, to destroy red-spider and green-fly. Fire-heat should be dispensed with as much as possible, preparatory to clearing and cleaning out the house.

CONSERVATORY will soon want embellishing with plants in flower, as many of the climbers and other large subjects will be past their best, and tree-pæonies, forced roses, deutzias, &c., will be gone. Celosia pyramidalis, stocks, balsams, and globe amaranthus should be pushed forward; fuchsias and pelargoniums will of course be coming on well, and herbaceous calceolarias ought now to be making a grand show. It is necessary to have plenty of these things, because of the demand for cut flowers at the season when lawn parties are in vogue, and a good supply will allow of frequent

changes in the conservatory, where, if anywhere, variety and change are charming. Permanent occupants of the conservatory will now be growing with vigour, and must have plenty of water. Use shading sufficient to prevent scorching, but do not treat the sunshine as an enemy.

AZALEAS must now be growing freely, and the best place for them is a viney or pit. It is not good for them to be near the glass, even if it is shaded; much better to be far from the glass without shade. Weak manure-water will greatly benefit those that are well established in their pots, and are not to be shifted this year; but any lately shifted should not have a drop of anything but pure soft water. A damp atmosphere is eminently favourable to the new growth. Any just done blooming to have the trusses removed, ill-placed shoots cut back, and then be shut up.

CAMELLIAS that were put into heat to start them into growth must now be cooled down preparatory to hardening off. At the same time lessen considerably the supply of water. It would be better in many gardens no doubt if camellias were never put out of doors, for the cultivator who is hard pressed for work is apt to leave them to take care of themselves, and as one part of that abandonment consists in giving them no water, it follows that they are sometimes quite dried up, and the newly-formed flower-buds receive a shock which causes them to fall when they ought to flower. The fact is, the most important season in the management of the camellia is now before us, namely, the season when the growth is ripening and the flower-buds are forming.

EPACRIS.—All the early-flowering kinds will now require a shift, and it should be done before the new growth has proceeded far. They should first be pruned into shape. It is not necessary to break the ball, but the crocks and pieces of charcoal must be removed. Put them in pots two sizes larger than they are in now, using peat of a kind that can be broken up without soiling the fingers, and with it a good proportion of silver-sand. Put a few nodules of charcoal over the crocks, and pot firm. Place them in a pit or cool house when potted, and give a little shade, and keep them close. When growing freely, nip out the points of the shoots to promote a bushy habit. The best place for epacris all summer is in a pit on a bed of cocoa-nut fibre. They must never be exposed to the full blaze of the summer sun, but must not be constantly shaded.

ERICAS must be removed to cold pits, unless they are grouped with New Holland plants in a very light airy house built especially for such plants. Those that are growing freely require abundance of water. Our own native heaths grow to an immense stature in bogs, though they live and flower finely on dry gravelly slopes where not a drop of water can lodge. There is not a single species of Cape heath but will derive benefit from abundance of water in the growing season. In like manner, they enjoy air and light, and close houses or pits are death to them.

CUTTINGS of all the bedders should be taken as far as they can be spared, either by bushy plants, or to stop leaders of those that ought to be bushy. Always allow the plants cut from to break before disturbing them at the root, as one check is sufficient at a time. Hardy spring flowering plants may be propagated from cuttings as soon as they have flowered, and a stock of Alyssum, Arabis, double Walls, &c., got up very quickly and with less trouble than by sowing seeds.

FUCHSIAS for exhibition to have frequent and regular attention, the growth to be symmetrical, plants never to lack moisture; not much sun. Bedding fuchsias are best from cuttings of the season, the old stools to be thrown away. Make the beds deep and rich with plenty of old dung and good leaf-mould.

GERANIUMS struck now will make fine plants to bloom from July to November. Cuttings of geraniums should now be inserted singly in thumb-pots, so as to be ready for shifting to 60's without injury to the roots as soon as large enough.

BALSAMS AND COCKSCOMBES for exhibition to have a good shift in rich light soil, and a little extra heat to promote new roots. They must have abundance of water to prevent green-fly, which is sure to attack them if they are starved. As they fill their pots with roots, give manure-water, but not till the roots touch the sides of the pots. Balsams required very large must have the bloom-buds nipped out as fast as they show, and the points of the shoots stopped, to cause them to break and form dense bushes.

CINERARIAS to have a little sandy compost placed around the stool, into which the suckers will throw roots, so that when taken off they may be put into thumbs singly at once, which is a gain of time and strength to the plants. As they are cut down and moulded, place them in a cold frame, and shade from midday sun.

RESERVE PLANTS.—There will be a certain number of Geraniums, Verbenas, Calceolarias, &c., left after the beds are filled, and these may be grown into specimens for keeping the houses gay, and to make good any gaps that occur in the planting. A few cuttings of geraniums of all the sorts in stock should be taken now and potted singly in thumbs, which they will soon fill with roots in a warm house, and form stocky plants for autumn bloom. Odds-and-ends of plant stock for which there is no immediate use should be placed out fully exposed to the weather, and the best material to stand the pots on is the cocoa-nut refuse, in which no insects will harbour. It is always sweet and moist.

Stove and Orchid House.

ORCHID HOUSE.—In the Indian and Mexican houses abundant moisture and a liberal temperature may be allowed. By far the greater number of the most valued species derive their chief subsistence from the atmosphere, hence frequent sprinkling of the paths and stages should be practised. Where there are large plants needing abundance of atmospheric moisture, the walls and tables near them should be drenched frequently, and the tanks should be kept full. This treatment will be most needed by Saccolabiums, Vandas, Phalenopsis, Dendrobiums, and Aerides, which make little progress unless liberally treated. Manage, however, to get the houses rather dry once a day by means of ventilation, so as by shutting-up and watering to imitate the natural deposition of dew of the jungles, from which these plants come. When syringing, use a very fine rose to cause the water to fall in a shower. Plants on blocks must be dipped twice a day. Plants recently potted must be kept alive chiefly by means of atmospheric moisture, until established, when they may have dipping and syringing as required. In any case of accident to a plant, cut away at once any bruised leaves. Plants newly received from abroad place in damp moss in a warm place until they begin to grow, then pot or block them, and give very little water until they have taken to their stations. These should always have the warmest part of the house and plenty of atmospheric moisture. Plants in flower to be kept cool, and in a dry atmosphere. To prepare them for removal to the dwelling-room, where they are

always welcome, remove them first to the cool end of the stove, and let them go nearly dry, having only enough water to keep the roots moderately moist. Water should never be thrown upon the blooms of orchids, and as far as possible bees and other insects should not be allowed access to them, as in case of the blossoms being fertilized they soon wither. Temperature of Indian house 65° to 70° by night, 75° to 85° by day. During sunny days the temperature may be allowed to rise to 90°, if the air is saturated with moisture, without harm. We must repeat the advice given last month, to use shading, which may now be kept up for the season.

WINTER FLOWERS.—This is the best time to propagate a supply of Cannas, Begonias, Euphorbias, Justicias, Poinsettias, and other quick-growing soft-wooded plants, for display during winter. Specimen plants to be assisted with manure-water, and the shoots to be stopped of all shrubby and branching kinds. Justicias especially should be freely grown now, to get the wood well ripened for a good bloom at the turn of the year.

STOVE CLIMBERS now want plenty of room, and liberal culture; the syringe will do wonders to keep down vermin. Average temperature for pines 75° at night, 85° to 90° by day; for general collections, 65° to 70° at night, and 75° to 85° by day.

Forcing Pit.

PINES.—Suckers should be removed as soon as they make their appearance, except so far as they may be required for stock. Queens never produce good fruit unless the suckers are removed early. Young pines, for winter fruiting, should be in a rather light soil, to prevent excess of moisture from stagnating about them. Pines for fruiting in autumn to have a bottom-heat of 90° by day, and 75° by night, with abundance of moisture. Plants throwing up suckers to have abundant watering and every necessary attention. In too many instances they are neglected at this stage of their growth, and the consequence is that stock has to be raised from poor weak suckers instead of the strongest that the plants can make.

VINES that have their roots in inside borders should be liberally supplied with water, and the shoots should be tied in in good time. Vines in pots will require frequent supplies of liquid manure, and stopping of laterals must be attended to, to regulate the growth. Red-spider must be kept in check by the use of sulphur, and the best method of using it is to paint the pipes with a mixture of sulphur, lime, soot, and water. Go over the bunches occasionally, and thin them regularly, to promote their beauty and the size of the berries.

MELONS just planted must be kept close and warm till the roots get to work, and then a short-jointed growth should be encouraged by moderate ventilation and abundance of light.

CUCUMBERS IN FRAMES will require plenty of air and a brisk bottom-heat. Re-line the beds where necessary. Train and thin the shoots. After lining, give plenty of water round the insides of the frames. Sow or strike cuttings for succession. Ridge cucumbers to be planted out under hand-lights or trenches two feet and a half wide and one foot deep, filled with dung twice round to a foot above the level. The dung should not be soiled over for a few days after making the bed.

PEACHES ripening to have as much air night and day as can be given; if the lights are off, all the better. Keep the atmosphere pretty dry, but the border must be moist while the trees are still growing. As soon as the trees show that they have made sufficient growth, assist them to ripen the wood by letting the border get rather dry, and the more the sun roasts them the better. We have frequently advised the clothing of the lower part of leggy trees by inserting grafts. Where that was neglected at the proper time, the object may be accomplished by inserting buds, which will now take directly.

ON THE NUTRITIVE CONSTITUENTS OF WATER.

By PROFESSOR SCHULZ-SCHULTZENSTEIN.

(From the Journal of the Royal Horticultural Society.)

(Continued from p. 202.)

In my treatise "On the Discovery of the Real Mode of Nutrition in Plants," I have thoroughly explained the operation of gypsum, and illustrated it by experiments. It rests simply on the supply of sulphuric acid and the assimilation of sulphur, whereby the oxygen is carried off by respiration. The sulphate of lime in the gypsum is not immediately appropriated by plants; but the abundant oxalic acid in leguminous plants sets the sulphuric acid free, since the oxalic acid, in consequence of its greater affinity for lime, combines with it to form oxalate of lime. In the older parts of the plant, therefore, as a residuum of this process, large quantities of crystallized oxalate of lime are found, which often fill the whole tissue.

There was aware that pure attenuated sulphuric acid sprinkled on plants has the same effect as gypsum, which is easily explained by the fact that gypsum itself operates by means of the elimination of sulphuric acid by means of oxalic acid. Gypsum, therefore, has no effect on plants like grasses, which contain little or no oxalic acid. This old experience is explicable only in this manner. Exactly in the same way as gypsum, phosphate of lime is decomposed by oxalic acid, and the phosphoric acid assimilated, and exactly in the same way all other salts of lime, and amongst them the humate.

Were Liebig's theory true, that gypsum acts only by the fixation of ammonia, the effect on all plants must be the same, and similar to that of animal manure; in this case gypsum must be as profitable a manure to meadows, rye and wheat crops, as to clover and peas, which is, however, notoriously contrary to truth.

The Liebigian theory of patent manures, which rests on erroneous views of the nutrition of plants by means of carbonate of ammonia, and according to which a mixture of salts of potash and soda with lime and magnesia is prepared with carbonate of ammonia, has not been confirmed by its practical use, and the sanguine hopes which were entertained by many in its favour have been sadly deceived. Prince Dimitrii Dalgoroucki has in consequence lost a whole crop of *mangel-wurzel* in the south of Russia. Curiously enough the majority have not given up the theory of the nourishment of plants by carbonic acid and carbonate of ammonia, and especially that of their nutrition by means of the air, though Liebig's manure has proved a failure.

The theoretic grounds which have been brought forward since the time of Van Helmont, De Geer, and Bonnet against nutrition from the soil, and in favour of the sustenance of plants from the air, have been constantly repeated, to the prejudice of science and practical cultivation, without any thorough refutation. They deserve therefore to be recapitulated and illustrated. Van Helmont, in 1651, instituted an experiment of planting a willow,

of 5 lbs. weight, in a pot filled with 200 lbs. of dried earth, and watered this in a covered pot with river-water only. At the expiration of five years, the willow weighed 169 lbs. 3 ozs., and the soil after being dried 198 lbs.; so that the earth had lost 2 lbs., while the tree, without reckoning the fallen leaves, had gained 164 lbs. On this it was concluded that nutrition takes place by the decomposition of water and from the air, without a knowledge of the large quantity of *humus* contained in the river-water, which was more than enough to supply the whole of the increase. Similar experiments were made by Eller (1752) and Duhamel (1748), and admit of the same explanation, the error involved in them being inevitable so long as the quantity of *humus* in spring and river water was imperfectly known. Bonnet sowed in a wet sponge and moss oats and barley, and obtained a few miserable plants, a circumstance which admits of explanation if it is considered that all dead organic substances are changed into *humus* by contact with the roots of plants. De Geer endeavoured to raise plants on strips of paper, cotton-wool, and sawdust; he produced only a few shoots, but regarded these as the product of nutrition from the air, although it does not appear why, in this case, as gigantic plants should not be developed as in good soil. He left out of sight the partial decomposition of the organic matrix; the experiments moreover were imperfect, inasmuch as it was not observed that in new sawdust plants not only would not grow, but soon perished.

Very recently the theory of the aerial nourishment of plants has received some support from the communications of the English traveller Darwin, which, it may be assumed, were brought forward without a proper knowledge of the circumstances by Liebig, Schleiden, &c. Darwin had before him especially the cultivation of tropical countries—the culture of rice, sugarcane, bananas, coffee, yams, and mandioca, which is conducted by mere irrigation without any animal manure. Darwin has himself visited but few tropical countries where such a cultivation takes place without manure, and has observed even this very imperfectly. He instances the cultivation of maize in Peru and Chili, which is conducted in barren river-sand, without remembering that it is irrigated by rich humous water from the mountains, and in consequence receives the richest possible nutriment. Further, he concludes from the cultivation of the oil-palm in Guinea, in the moist sand of the coast, that nourishment takes place from the air. Schleiden, Liebig, &c. have spoken with amazement of the fact that 33,000,000 lbs. of palm-oil are exported every year from Guinea, which contains some 24,000,000 lbs. of carbon, without any animal-dung from which it might arise, and conclude therefore that dung and soil supply no carbon. Had they known that a single moderate-sized German river—the Elbe, for instance, at Magdeburg—yields daily 1798 cwt., or yearly 64,728,000 lbs. of humous extract, which contains above 40,000,000 lbs. of carbon, their amazement at an exportation of 24,000,000 lbs. from the whole of Guinea would be much diminished, especially since the waters of tropical lands are far richer in diffused *humus* than those of colder districts. Darwin and Tschichatschew ("Travels through the Pampas," 1844) estimate that a proportionate quantity of carbon is afforded, without any manure, by the luxuriant growth of the herbage in the Pampas of Buenos Ayres, from which countless herds of wild oxen and horses are supported—simply from the skins of these animals, which answer to a weight of 6,000,000 lbs., which therefore must arise from the carbonic acid of the air and the decomposition of water. When, however, we consider how rich the water of the soil is in *humus*, we shall see that the alleged amount of organic matter is nothing in comparison with the carbon which flows yearly into the sea with the *humus* of the Amazon and Orinoco, into which rivers pour whose waters are almost black, and which is constantly renewed from the soil. According to Darwin's theory, the culture of palms in our stoves could certainly not be accomplished.

To arrive at a correct judgment of the cultivation of plants without manure in warm climates, great distinctions must be made of different lands and localities. We may reckon as countries in which, with few exceptions, cultivation is carried on by mere irrigation without the use of manure,—in Asia, Arabia, Persia, Turkistan, Chiwa, Bochara, the East Indies, Siam, Cochinchina, China, Japan, Malacca, Birma, Ceylon, Java, New Holland, Tasmania, and the South-Sea Islands; in Africa, the Cape, Guinea, Madagascar, Senegal, Morocco, Egypt, Abyssinia, Madeira; in America, the Brazils, Mexico, Chili, Southern North America, and a part of Canada. In these different countries, however, in spite of the irrigation, the soil is not equally favourable to cultivation, but the nature of the ground is as important an element of fruitfulness as with us. It is a very great error, therefore, when Schleiden, Liebig, &c., decide from the very imperfect and one-sided observations of Darwin on the perfect indifference of tropical soils as regards the success of cultivation.

As regards the nature of the soil in Hindustan, especially Malabar and Coromandel, we have the excellent observations of Franc. Hamilton (Buchanan, "Journey," ii. pp. 504-857, as also of Christie (Jameson's "New Edinb. Journ." 1829, April-Oct.). Good and bad classes of soil are generally distinguished there, as in Germany, with reference to their constitution, colour, aridity and moisture. The richest black soil is the "cotton-ground," which covers the whole basin of the table-land of Darwar, in the Deccan, in beds which are often from 20-30 feet thick, and are frequently deeply cut by the tributaries of the Kistna. This soil becomes extraordinarily hot in dry weather, and affects the plants by its temperature. It has arisen from the decomposition of the trap rock, which extends far and wide through the Deccan, and derives its dark colour from root-fibres and animal and vegetable *débris*. This soil produces from year to year without manure, which is not surprising, from its great depth, inasmuch as its thinnest stratum is at least 3 feet.

Cotton, however, can be cultivated on this soil only every third year. It is sown at the end of the rainy season in August and September; it vegetates in a week, and grows in the dry season, with indigo, spring-wheat, and tobacco. The harvest is from January to March.

A second sowing takes place at the end of May, or the beginning of June, at the commencement of the rainy season, as soon as the ground is soft, of barley, cleusine, and sesamum, which are capable of enduring considerable moisture.

The third summer's sowing takes place at the end of June or the beginning of July, during the height of the monsoon rain, especially of leguminous plants, as beans, lentils, *Dolichos Lablab*, *D. Catiang*, *D. tranquebaricus*, and *Cytisus Cajan*, besides sorghum and rice. The mountain-rice, according to Christie, is manured.

Even the sandy bottoms on the coast, where the coco-palms are cultivated, may be divided into good and bad. In good moist soil the coco grows so fast that it bears fruit in eight years, and in twelve has attained its full diameter, lasting to eighty. The poorer the soil, the later the palm is in coming to perfection, and the shorter the duration. In good soil each tree produces monthly twenty, or yearly 100 nuts, while in bad soil it yields only from

two to six. It bears blossoms every month in good soil only, and yields palm-juice the whole year; in poorer bottoms the produce of wine is small and at the most continues for six months only.

All this is quite incompatible with the theory of air-nutrition. We have information with respect to the soil of the island of Java, from Raffles in his "History of Java," and from Junghuhn. According to the fertility, they distinguish: 1. Rich black mould in the course of rivers (Tana ladin), such as occurs between Batavia and Weltowreden, with a rich vegetation of banana, mango, tamarind, custard apple, and coffee. The richer in humus, the lighter and looser the soil, the more it is adapted for coffee-plantation. 2. Tana linchad is a pure white clay with sand, which in plains fitted for irrigation yields a single rice-harvest. 3. Tana pasir is the alluvial soil in the maritime district—the delta-land.

The nature of the soil in the North of China has been described by Fortuno ("Wanderings in the Northern Provinces of China," London, 1847). The cotton-ground is here a rich but never boggy loam, though it is manured with canal-mud. Tea succeeds only on very fruitful rich sandy loam. Since the agriculturo here does not depend on breeding cattle, the use of green manure is general. In the rice-fields a *Trifolium* and *Coronilla* are cultivated for manure, which is of use in the case of rice, which is poor in nitrogenous matter, but does not answer for wheat.

The sugar-cane attains a height of from 10-16 feet in Guiana, in the flooded levels of the Essequibo; while in the hungry limestone it is but from 6-10 feet high. We see, then, what enormous errors require rectification, as regards the accounts of the fertility even of the most barren soil within the tropics.

One of the most important observations is that even the richest soil, when it is tilled year after year without any manure, is at last completely exhausted, which would be quite impossible if nourishment were derived from the air. The richest sugar-plantations in Guiana, on the Essequibo, endure only forty years. The unmanured coffee-plantations of Java last about the same time. According to Junghuhn, those on the terraces of Tjisonari, planted in 1804, had grown quite wild in 1846,* and yielded very little fruit; whereas recent plantations, made since 1836, were so luxuriant that not a sunbeam could reach the earth. The richest soil of Texas is exhausted in twenty years; the poorer in from eight to ten. This exhaustion depends, not upon the exhaustion of ammonia, as asserted by Liebig and Boussingault, since, according to the observations of Baumhauer and Krocke, the contents of the soil in ammonia without any manure are far larger than could be the case were it exhausted by the growing plants; besides, ammonia, according to the observations of Kuhlmann, is naturally reproduced in the soil itself. The exhaustion of the soil depends rather on the exhaustion of the humus; and from this arises the possibility of restoring its fertility by means of mouldering humific dung. But where no manure is used, fertility is restored after many years by the growth and decomposition of hardy weeds which are supported by the moist innutritious soil. We find, according to Junghuhn, in Sumatra and Java abandoned plantations turning into Allang-fields (tracts overrun with species of *Saccharum*), while the inhabitants avail themselves of new plots of forest-ground. The effect of fallowing is nothing more than that of dressing ground with green weeds, which live on the water of the soil (which is poor in nutritious matter), and then form humus by their decomposition. The process which favours the nourishment of plants is the process of decomposition.

The assumption of Liebig, in favour of the carbonic-acid theory, that every acre of land, whether it be meadow or field, produces on an average 20 cwt. of dry vegetable matter, either as hay, wood, clover, corn, or tubers, rests upon entire ignorance of the experience of horticulture and agriculture, and is as wrong as the imperfect observations of Darwin, according to which tropical plants grow from pure sand by means of the air. Such notions can only lead to error in practice, and act injuriously on cultivation if it is conducted in accordance with such theories. All experiments on the fertility or sterility of soils, on the restoration of fertility by means of different kinds of manure, on the different produce of woods, meadows, fields, and gardens, are useless in the face of such assumptions; we may as well give up speaking of fruitful and barren land. The reckonings of pounds and hundred-weights of carbon, nitrogen, and hydrogen in plants, which proceed on such fundamentally erroneous prejudices, are altogether worthless, and lead only to perplexity in things of every-day experience. The carbonic-acid theory has long retarded and confused the physiology of plants, and separated science from practice, as its theories are practically useless. Such errors and such ignorance must be expressly and clearly exposed, in order first to get rid of them, and then to make progress possible to something better.

The fertility of the soil depends upon its capability of furnishing nutritive dissolvable substances, with which the surface-water may be impregnated. The humus must be capable of being dissolved. The insoluble condition of ulmin in peat does not allow water to extract from its nutritive matter; therefore peat-moss, though moist, is sterile without contact with the air through desiccation. The soluble humous constituents of the soil must be difficult of solution, in order to their entering into the water in a very weak proportion, since plants can receive nourishment in very weak solutions only. This is a very important point, that plants can endure no concentrated food. The richer the soil, the greater must be the quantity of moisture to attenuate properly the nutritive liquid. This is the reason why strong manure is so injurious in a dry soil. Inquiries into the injury of plants from concentrated manure, suggested the idea to Ingenbousz that dung does not enter principally into plants in the form of a solution, but must be converted into a gaseous form by decomposition, and that carbonic acid and nitrogen are the peculiar nutritive elements of plants,—a theory which cannot be made to agree with the practice of manuring.

A consequence of the reception of very attenuated nutriment is the great need of water, and the great quantity which plants consume. The strong evaporation of plants, on which we have the old statistical experiments of Hales, Duhamel, and Bonnet, as well as the more recent ones of Schübler, corresponds with this large quantity of water. A surface of water covered with *Pistia Stratiotes*, according to Isert, gives off six times as much as that which is free. The negroes in Guinea, as Forster relates, place this plant in pots of water at the doors of their houses to cool the air. Schübler found that a square foot of meadow-ground, covered with grass, gave off twice as much evaporation as 40-45 cubic inches of water. The evaporation of a moderately large potato-plant may be reckoned at from 1½-2lbs. daily; so that when full-grown it consumes mostly about 60lbs. of water. It appears that no physical drying takes place, from the fact that,

as the plant in autumn withers and decays, the evaporation diminishes in an extraordinary degree.

The very attenuated condition of the humous nutritive matter in surface-water makes an easy transmission of it possible. There exist in surface-water, besides the humous extract, perhumate of lime and ammonia, humates containing nitrogen, erenic acid and its modifications, geic acid, humic acid, ulmic acid. Instead of these acids there appear in the raw sap, after imbibition, gallic acid, acetic acid, tartaric acid, malic acid,—also, instead of humous extract, on the thickening of the raw sap, as for example in birch, a gum which assumes the colour of a humic brown. These new acids are slight modifications of the proportionate ingredients of humic acid; and it may be regarded as a proof that they arise from those, that the colourless sap containing these acids is very easily reduced through boiling to humus, of which it assumes the brown tint. Carbonic acid and carbonate of ammonia are never found in raw sap. The further alterations are these: the change of mucilage (dextrino) in the sap into grape and cane sugar, as also the separation, by respiration, of oxygen from the above-mentioned vegetable acids, which are the only sources of the oxygen eliminated from plants, whereby the plant assimilates not only carbon, as in the carbonic-acid theory, but at the same time the hydrogen and nitrogen of the base of the acids to form gum, sugar, wax, fatty matter, starch, and wood. The easy transformation of humus and of the bituminous constituents of the soil into gum and sugar, appears from the extraordinary tendency of both, especially in black soil, to form sugar in the cultivation of beet-sugar and wine. The dark bituminous lime in the Crimea produces a rich development of bunches and large berries; the black clay, early ripening and great sweetness. A large production of sugar, from which wine acquires its peculiar strength, is found only in dark clay and calcareous soil: the vineyards on the light-coloured Jura lime and white chalk yield a rich gathering, but a much weaker wine. The darker the ground is with humus, the greater is the quantity of sugar in the beet. Manuring with turf mouldering in the air has afforded the richest harvest of sugar-beet; the formation of sugar in beet is almost entirely prevented by ammonia and fresh animal manure.

The process of nutrition through the gradual transformation of the humic particles dissolved in the water, the humic extracts, and humates, may be traced through every step, which is quite impossible according to the carbonic-acid theory.

The leading fact is, that the materials of the sap are imbibed from the soil with the water, but that carbonic acid and carbonate of ammonia are not found in the water, and that these substances are not found in the raw sap. Nothing is more natural than that we must find in the imbibed raw sap those materials which, after the Ingenhousz-Saussure theory, are the chief nutriment of plants. Let them come whence they will, whether from the air or from the ground, they must be present in the raw sap, if they are really the nutritive matter of plants. But since they are not found there at all, they cannot belong to this category. It is, moreover, quite impossible to explain the origin of the matters which really exist in raw sap (as gum, sugar, tartaric acid, gallic acid, malic acid) from carbonic acid and carbonate of ammonia, which, however, must be the case if that theory is true. On the contrary, the origin of all the component parts of the sap from the constituents of the water which we have enumerated, is easily and fully explicable, since the altered constituents of humus really exist in the sap of plants.

The near relation of humous extract to grape-sugar was pointed out by Saussure, though possibly without knowing that this was a constituent of sap, and in ignorance of the presence of dextrine and its relation to humous extract. These relations, in the perplexity of the views which have arisen from the carbonic-acid theory, are never mentioned. Sprengel, who was the first, after Saussure, to examine humus completely and to exhibit its different salts, set out from the notion that humic acid alone, in the form of humate of lime, was the prime nutriment. Liebig contended against this view; and it is easy to prove that neutral humate of lime is not the only or the chief nutriment of plants, since, independently of their difficulty of solution, neutral salts cannot be directly assimilated, as I have proved.

Sprengel, as well as his opponents, had overlooked the importance of humous extract and perhumates. Liebig was exasperated against the notion of the reception of humous extract by plants, since this is brown, while the juice of plants is mostly colourless. It was overlooked, however, that very weak solutions of humous extract, as those in river-water or surface-water, are often quite colourless, though when concentrated by inspissation they become brown. The clearest waters of mountain-streams contain humous extract, since by evaporation they give a dark-brown residuum.

On the other side, Liebig was not aware that the colourless sap of such trees as birch and maple yields a brown humous residuum when evaporated, as I have proved by experiment. The brown tint, therefore, of humous extract is no argument against its imbibition from water.

The humous extract imbibed, together with humic acid and perhumates, forms the foundation for the formation of dextrine and sugar in raw sap, whence the gum is transformed into sugar. The dextrine is therefore, at first, of a humous brown, as also grape-sugar. The formation of all the constituents of sap out of the humous particles dissolved in surface-water and river-water, which may be regarded as belonging to the same category as the bituminous particles in the older alpine formations, and in consequence the process of nutrition, may therefore be regarded as incontestable. The further development of these constituents into vital sap has been followed out by us in our treatise "On the Discovery of the Mode of Nutrition in Plants," through observations on the respiration of plants, according to which the oxygen given out does not arise from the decomposition of carbonic acid, but simply from the decomposition of the hydrated vegetable acids, or the mineral acids containing sulphur and phosphorus. All this was inexplicable according to the earlier notions on the nutritive power of humus, while the facts which have been detailed were unknown. This was the cause of the value ascribed to the carbonic-acid theory, and of the practice of manuring in gardens and in the fields being so perplexed; so that it was a matter of absolute necessity in behalf of agriculture and horticulture to get rid of the errors of this theory; while it is a subject of regret that, in botanical teaching, theories the most contrary to nature and in contradiction to all practical experience, and leading only to botanical perplexity, should be preferred. It was necessary to show previously that it is not the air, but the water alone, which conveys nourishment—that the nutritive matter is dissolved in water, by means of which it preserves its nutritive powers—and how it works.

The observations of the long-sustained vegetation in many succulent plants, as *Sedum*, *Epidendrum*, *Tradescantia*, are very deceptive as regards the carbonic-acid theory and the nourishment of plants from air. Such plants when hanging in the air, while the pots are unwatered, flourish only after having first formed fleshy stems, shoots, leaves, or other organs, and then, like a ger-

* Literally had been converted into Allang-fields, a term explained below.

minating potato, live at the expense of the fleshy organism, which is at length completely exhausted—which frequently happens for many generations, as the older portions die off and the young shoots are developed. This happens especially when the plants are in rich ground up to the time of flowering, when the young shoots, as also the blossoms, live from the nutritive matter laid up in the older stems. These phenomena are easily explicable from the laws of anaphytosis, though not comprehensible from those of metamorphosis. It is never possible to raise a plant from germination into a perfect individual in pure sand, in distilled water, or in pure air, without any nutriment from soil. All attempts, since the days of Bonnet and De Geer, have failed. Plants raised from seeds germinating without soil die off as soon as the nutriment which was laid up in the albumen or cotyledons is exhausted. No one has ever been able to raise plants from germinating seed, irrigated with water containing carbonic acid, or in air charged with carbonic acid: carbonic acid acts as a poison on germinating plants, as it does on animals; and it has been a mere superstition of many savans, causing them to dream of the possibility of such aerial nutriment, while they do not see with open eyes the real course of nutriment, and it can only be a matter of surprise that so many cleave more to the old botanical superstition than to reality.

The knowledge of the fact that so-called pure water—pure spring-water, pump-water, river-water—contains an inexhaustible supply of nutriment—the knowledge that water is the real staple of nourishment to plants, as also of the gradual development of the constituents of raw and elaborated sap from the ingredients in water, is calculated to throw light on many puzzling phenomena in vegetable physiology and culture; and it is to be hoped that it may contribute to the understanding of many circumstances of vegetable nutrition which were formerly explained artificially and unnaturally, from ignorance of circumstances which might have suggested a better explanation. The art of making water nutritious will be the true aim of horticulture and agriculture.

MODERN PLANT NAMING.

A French botanical author ridicules, in a vein of irony which will scarcely survive a free translation, the frivolous distinctions upon which genera and species of plants are often established, and the slender claims to discovery which led to personal names being assigned to, or assumed by, the minute philosophers who make such distinctions:—"I have not ended (he says) the enumeration of the pleasures of the plant-gatherer; there is still another source of satisfaction, the liveliest of all perhaps—it is that which he finds in the indulgence of his vanity. It will be readily understood that I speak here only of a certain class of collectors, and not of earnest scientific botanists. He of whom I wish to speak is proud to be the sole possessor of a species—proud to be the only man who has gathered it—unspeakably proud to be alone in the knowledge of its habitat. What would he not give to be the discoverer of a new species—still more, to found a new genus, and distinguish it by his own name! The ambitious thought fills and fires him with a charming enthusiasm which takes the very sleep from him, and often prompts him to rise before the sun, and go forth hopefully upon the theatre of his explorations. There are certain rare plants the characters of which are imperfectly known, because the authors who have described them have been able to examine them only in the dry state. Who knows but they may have confounded them with allied species, or even united two distinct genera in one? Our herborizer searches after such plants with a curious interest: the most insignificant details of their structure become to him the objects of a minute analysis. If he meet with the slightest exceptional character, or even with a simple variation in size or colour, the difference acquires exaggerated proportions in his eyes. He readily persuades himself that he has made the discovery of a new type, and he knows no rest until his name—he it French or Teutonic, ending in *our*, or in *ard*, or in *ier*, or in *ach*, or in *mann*, or in *berg*, or in *ski*, or in *dorf*—can be lengthened by the Latin termination *ii*, and made to constitute a generic name. I figure to myself one of these ecstatic monomaniacs falling upon a rare species, which he has long been in quest of, and I think I hear his exulting soliloquy:—

'O happy day! O most auspicious hour!
And happiest botanist in Flora's bower!
To whom alone a species stands revealed,
Long sought in vain o'er many a weary field,
And here at last it bursts upon my sight,
And here at last I welcome with delight,
Which future memories shall oft revive,
A plant Linnaeus never saw alive.
Caducous petals! fleeting anthers, too!
Ye could not, though ye would, elude my view:
Your organs marvellous, which now I see,
Shall never more be mysteries to me.
Pistil! I hail thee with fond admiration!
Stamens! receive my loving salutation!
But what see I there?
An articulate hair
At each nectary's basis, I vow and declare!
Linnaeus's description fails
In one of the essential details.
That jointed hair, now first disclosed to view,
Behold! to science adds a species new,
And henceforth it shall flourish in the books
Under my name—the immortal name of Snooks!
And, consecrated there, as ages fly on,
Shall o'er the world be known as Snooks's Dandy—lion!"

Correspondence.

INFLORESCENCE OF *BOHMERIA ARGENTEA*.—Could you kindly give me some information respecting the enclosed specimen? I have shown it to several gardeners and nurserymen, and they all say they never saw anything like it, and don't know what it is. It was supposed by one to be a malformation of the leaf at first, but I don't think it is that. The plant from which it is taken (*Bohmeria argentea*) is between three and four feet high; it has been pinched all the winter in a smallish pot, and sometimes has been very dry. Directly after Christmas it began to throw out these things from the base of the leaf, one about half-way up, and two more near the top; it is throwing out another now at the top. My own opinion is that they are similar to the catkins of the hazel—in fact, the male blossom. The reason it was punished so is this—it was to be thrown away through being too tall for the place, but when I found it throwing out those curiosities, I kept it on to see what they would come to? Would it do any good cut down? PERPLEXED ONE.

[The specimen sent is a tuft of long thread-like stems, of a brown colour, to which are attached a few scattered brown scales. In the letter in which the specimen was enclosed is a little heap of brown dust. *Bohmeria* belongs to

the natural order *Urticaceae*, and produces its minute flowers, which have four angles on thread-like racemes, of which the specimen sent is an example. In passing through the post the flowers have been reduced to dust, and the stems alone remain intact. One of the stems measures 30 inches in length. It is a rare occurrence for this plant to flower, and in the present instance is no doubt due to the starving process to which it has been subjected. If any yet remain intact on the plant, a good lens will reveal their character. The flowers resemble in some degree four arms proceeding from a central axis. These arms are the calyx. Beyond them project four oval bodies; these are the stamens. The central axis is the pistil. The fruit is a star-like body, and consists of a number of nearly globular nuts, each furnished with a horn-like process.]

Replies to Queries.

Greenhouse Vermin.—W. B., Gresham Street.—From the few particulars you give of your plants, we conclude that they neither want smoke nor pastils, nor any other medicament. But they want more air and more water; they are too hot, too close; they are in an insect-breeding atmosphere, not a plant-growing atmosphere. It must be so if azaleas and camellias are smothered with fly immediately after the employment of tobacco, Keating's Powder, and other remedies. Turn the plants out in a shady spot, and syringe them over head every morning, and the vermin will soon disappear.

Geraniums Diseased.—W. S.—The plants that are affected like the sample sent have for months past been in a bad state at the roots. Probably the drainage has been choked by worms, and during the miserable weather of February, March, and April they were becoming more and more soddened and sour. Shake them out, prune back the roots a little, and repot them, using an extra bed of crocks and an extra quantity of sand, and put them on a hot sunny shelf, where they will no doubt recover in a few weeks.

Heating a Small Plant House.—J. T.—A stove burning coke or coal in a very small greenhouse will be likely to destroy all your plants, or at least spoil the best of them. We know of nothing so good as Hays's Constant Stove, both because of its efficiency and harmlessness and the comparative cheapness of the fuel used. Owners of small plant houses intending to use such a stove next winter should obtain both a stove and a store of fuel now, or at all events before autumn. Last winter the demand for stoves and fuel exceeded the means of supply, and many persons lost their plants because they could not obtain either. A still cheaper contrivance is the upright cylinder stoves made by Swan Nash, of Newgate Street, London, and called "Joyce's Patent." In this common charcoal can be burned, and that we suppose can be obtained in any part of the country.

Hardy Plants in the Parterre.—S. W. B.—There is no difficulty at all, except in your own imagination. You want a piece of open ground, rather sandy if possible, and this should be your nursery. On this ground plant out the various subjects, whether raised from seeds or cuttings, clear the beds of the geraniums, verbenas, &c., as soon as they begin to decline in autumn, say early in October, and then transfer, by simple transplanting, the herbaceous plants from the nursery piece to the parterre, and so arrange them that their colours in spring will make a tasteful display. When they have done blooming, say in the middle of May, take them up and plant them again in the reserve ground, and so on from year to year, taking care occasionally to get up fresh stocks from seeds and cuttings, that the old plants may be destroyed. As for subjects, the best are to be found in such genera as Iberis, Arabis, Alyssum, Cheiranthus, Saponaria, Phlox (alpinus section), Myosotis, and Primula.

Perishing Spruces.—C. W. C.—The description given of the spruces, which are getting leaner every year and losing their leaders, pretty well convinces us that when they were planted the ground contained many dead roots of former trees, and that these dead roots have given rise to a growth of mycelium of fungi. When this takes place trees are sure to die. We could point to many great places where the handsomest specimen coniferous trees are doomed, and have already the seeds of speedy decay in them, derived from roots of former plantations. There is no cure for it at all. The preventive is a thorough cleansing of the ground before planting. Wherever white silky fibres are seen running amongst dead wood the most potent of tree-killers is revealed.

CATALOGUES.

JAMES CARTER AND CO., 237, HIGH HOLBORN. *Vade Mecum, Part III. List of Stove, Greenhouse, and Bedding Plants for 1867*.—A huge book, crammed full of interesting papers on sub-tropical plants, foliage hedges, and bedding effects. It is truly a "Vade mecum," and well worth the shilling at which it is offered to a discerning public.

WILLIAM BULL, KING'S ROAD, CHELSEA. *List of New and Beautiful Plants for 1867*.—A valuable list, for the novelties announced are in many cases plants that have been much exhibited, and have thoroughly established their character. We see announced a whole batch of double-flowering Zonale Pelargoniums, two new Continental Roses, viz., *Comtesse de Jancourt* and *Madame Martin de Besse*. Cultivators and collectors of choice subjects should at once obtain this list.

CHARLES TURNER, SLOUGH. *General Spring Catalogue, 1867*.—The usual substantial list of Auriculas, Carnations, Picotees, Azaleas, Dahlias, Pelargoniums, &c., &c. The Slough collection is the richest in England in florists' flowers.

F. G. HENDERSON AND SON, ST. JOHN'S WOOD, LONDON, N.W. *Catalogue of Stove, Greenhouse, and Bedding Plants*.—Amongst the special announcements occur *Blandfordia Cunninghamii*, one of the grandest greenhouse plants known, and which is likely to add much to the beauty of the flower-garden in summer. There are batches of new Pelargoniums, Verbenas, &c., &c., with many of which our readers are already more or less acquainted. The catalogue is indispensable to connoisseurs in Tricolor Geraniums.

CHARLES GUY, MONKTON NURSERY, RYDE. *Spring Catalogue, 1867*.—Contains everything in demand at the present time for greenhouse and garden, and the lists show that Mr. Guy keeps pace with the times in placing the best subjects before his customers, and weeding out to make room for them such as they have superseded.

T. SAMPSON, YEovil, SOMERSET. *Catalogue of Bedding Plants, Roses, Conifers, &c.*—This is of more than average merit, many of the subjects being carefully classified according to their styles and colours. The arrangement of the geraniums is particularly good.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1867.					M. temp. avg. of 43 yrs. Growth	Orchids that may be in bloom, I, Indian House; M, Mexican House; G, Greenhouse.	M D						
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain.	Max.	Min.	Max.	Min.				Max.	Min.				
1867			h. m.	h. m.	h. m.	h. m.	h. m.																	
26	S	Rogation Sunday	3 27	7 58	0 30	p. m.	11 8	a. m.																186
27	M	Venerable Bede died, 735	3 26	7 59	1 4	"	"	"																26
28	T	Sir Humphrey Davy died, 1829	3 25	8 0	1 30	"	"	1 25	p. m.															27
29	W	Royal Botanic Society 1st Great Show	3 24	8 1	1 51	"	"	2 34	"															28
30	Th	Ascension Day	3 23	8 2	2 22	"	"	3 53	"															29
31	F	Battle of Palestro, 1859	3 22	8 3	2 53	"	"	5 11	"															30
1	S	New moon June 2, at 3h. 12m. p.m.	3 21	8 4	3 28	"	"	6 29	"															31
																								1

The Gardener's Magazine.

SATURDAY, MAY 25, 1867.

GRAB-ALL IS THE NAME OF A SECT. It consists of exhibitors who practise clutching, and are not particular about ways and means. A high-priest of this sect is one who can scarcely grow a plant fit to be seen on an exhibition table, but is good for gin-and-water and the sweepings of the van-yard. On the day of the show he hovers about. He enters as an exhibitor, and by this means is enabled to read over the several competitions as the plants are being staged. If he observes a deficiency somewhere, he generously proceeds to amend it, for his own good solely. He goes about, he smiles, coaxes, and perhaps swears (jocosely) a little; and the gross result of the gross proceeding is that he manages to borrow odd plants, and makes up a few exhibitions in his own name, and pockets a few prizes. Grab-All is his doctrine, and his heaven is Swag. Our readers must pardon the low language we use, for this is a low subject. But our object is not a low one, for we desire to see exhibitions purged entirely of the Grab-All class. The question is how to do it. Probably one step towards the consummation so devoutly to be wished would be for managers of exhibitions to leave off winking. They wink at the black marauders, knowing well of their movements; and the motive for winking is to have the tent as well filled as possible, and if half a dozen good groups are made up in this way the manager's conscience is satisfied—he has tolerated evil that good might come. But it is not good, after all; it is an evil that strikes at the very root of success in exhibitions. High-minded men who are beaten by such tricks are filled with loathing, and they give up exhibiting because of the superfluity of trickery that is practised. To the uninitiated it may appear strange that such things should occur; but given a capacity for lying, and the thing is easy enough. An exhibitor must make his entries prior to a certain date, and give a guarantee that the plants to be shown have been in his possession a certain length of time. This is easy enough for a man who does not possess a plant of any kind, and who perhaps could not produce one fit for exhibition in any length of time. A man without honour thinks nothing of a declaration, even if there be not a particle of truth in it. Genuine exhibitors, who really grow plants for exhibition, usually take with them a few more than they intend to put up, and the priests of the Grab-All sect go about begging the use of these surplus specimens, and by hook and by crook make a respectable appearance at last, pocketing prize-money dishonestly won, and rewarding their benefactors in liquor. It is no fiction; it is a dreadfully commonplace fact, and is so well known and understood that exhibitors will feel the force of these remarks, whether they approve of them or not, and their disapprobation will not trouble us.

There has been much discussion about the prospects of exhibitions, and how exhibitions may be improved. Now, we say it advisedly, the first step towards the improvement of exhibitions should be the establishment of an inviolate system of honest showing. Every man who objects to have his pocket picked or his name defamed should put himself in an attitude of antagonism to systematic borrowing for impromptu competitions. A man who can grow plants should be hatefully jealous of one who cannot grow them, when grower and non-grower are to be placed on equal terms before the judges. Honest men should stay their hands, and keep their generosity for better objects. When the borrower makes his customary appeal, he should be refused; for it is quite certain that, apart from the low motive by which he is actuated, he is otherwise worthless. He will be found ready to lick the feet of any man who has a little money, or who can do him a good turn. He will be found to be as full of treachery as he is of deceit—a humbug on a committee, a blackguard in a social gathering, a hypocrite at a public meeting, and a liar at any time. Why do not respectable men, who would never put their hands to a dishonest deed, put an end to this miserable business, and shut up the Grab-Alls for ever? They can do it; they lack only moral courage, and an appreciation of the fact that good-nature is pernicious when it promotes evil ways.

Mr. D. T. Fish has made a proposal which, if it meets with a favourable reception, will do something towards the moral purification of the exhibition tent. He proposes to give cups instead of money, and there are some spirited men who would prefer cups or

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any valuable article worth keeping to money of any amount. Still there are, on the other hand, worthy men—men whom it is a pleasure to meet and an honour to know—who despise “gcwgaws,” and prefer money, for the very good reason that they can put it to a better use than cups or medals, or any other elegancies. Nevertheless, the cup-system is worth a fair trial, and a system of medals is worth trying; but the society attempting either must have high prestige, and be everywhere known, or the honorary awards will be of no value. We shall never quite do away with money prizes; they add to the income of the professional cultivator, and have actually helped in no small degree to set up in business some of our best nurserymen. Nevertheless, when amateurs exhibit in their own name, as is frequently the case where florists' flowers are encouraged, money prizes are no attraction, a bit of ornamental gold or silver would be much preferred; indeed, we believe money to be objectionable, and when naught else is to be got we know that many gentlemen who would exhibit in their own names keep away; they could not touch the money, yet would gladly take some memento of having exhibited and made a good position. The gardeners always look for money, and we cannot blame them, for they do not earn over much in the shape of wages, and exhibitions afford them the means of improving their social position and putting something aside for a rainy day. The system of the Royal Botanic Society is admirable in this respect. All the prizes are nominally in medals, but winners can take the value of the medals in money if they prefer it, and for the most part they do prefer it, and there can be no complaint made either way. Every thriving society should do the same, especially in the country; for there are always exhibitors to be found who would prefer a medal for the simple reason that they covet honour and are not in need of cash. Small societies can scarcely attempt this, because the cost of getting up medals is considerable in the first instance. But even the smallest could act upon the medal principle, and offer elegant objects in certain classes instead of money, and they would gain the esteem of many who now hold aloof from them by the proceeding. We frequently observe that prizes of 5s., 10s., 15s., or even of the enormous sum of 20s. are offered to ladies (!) for dinner-table decorations, bouquets, window plants, and other cognate subjects. We cannot but think the ladies would prefer an offer of elegant books, or silver teapots, or trinkets, in fact, of anything acceptable except money.

But coming back to the Grab-Alls, we must beg to be allowed to characterize them as the Bohemians of the exhibition tent; a race to be put down or cut up, to be snubbed by managers, disqualified by judges, shunned or tormented by honest exhibitors. Like vermin, there is no infallible specific for their extinction, but they may be kept in check by the determination of men who really can grow plants to give the quietus to those who cannot. Let this be done; let there be an exhibition of public spirit as well as of plants and flowers by horticulturists this season, and we may see the beginning of the end of a nuisance. The Grab-Alls have already made exhibitions to be mere shops and gambling booths in many instances; surely we do not need to go any further downward; the case is quite bad enough to need mending, and those who love plant-growing apart altogether from what they gain by it, and who would scorn to profit by falsehood and trickery, are the men to purge the tent of its corruptions. We leave the case to men who are worthy of respect, begging them to call to mind what they used to write in their copy-books, and which is taken from the best of all books—“Evil communications corrupt good manners.”

THE DECLINE OF FLORICULTURE is the subject of occasional despondent utterances of a class who appear to consider it the highest attainment of patriotism and virtue to utter lugubrious bewailings on this subject. Having delivered themselves of some stale regrets, and flattered themselves that they have made a display of the sublimity of grief in the presence of wondering novices, they go to sleep and slowly gather strength to repeat the same vain regrets, and play the same farce of pretending to mourn over the departed glories of the exhibitions that were wont to be constituted entirely of genuine florists' flowers. We can call to mind a few public writers who for twenty years past have indulged in this nonsense, and we could point to a few of their lachrymose successors who, like undertaker's men or hysterical women, appear to have tears always at command, and who do little else than feign to weep

at every opportunity offered them to bewail the decline of floriculture. We have not seen these ministers of woe busy in attempting to discover the causes of the alleged decline; they could always bellow to Jupiter, but they could not put their shoulders to the wheel. With the permission of all whom it may concern, we will point to one of the causes of the decline of floriculture. The one cause to which we now direct attention is the practice with the florists of hiding their light under a bushel. They labour the whole year round to produce a show; the show takes place at last; but having failed to inform the world thereof, they have it all to themselves, and it is so dull, so wearisome, so absurd to make an exhibition and have no company, that a few of the active spirits drop out of the ranks every year, and as the general public know nothing about the movement, there are no recruits to keep up the force. It is quite a common occurrence for notices of shows to come into our hands a few hours before the time fixed for their opening, and quite a common thing for reporting of such affairs to be left unattempted because of previous engagements, and the impossibility of employing balloons and express trains on this sort of business. We could point direct to several societies that are perishing solely through the habitual negligence of secretaries in sending out notices of meetings; the notices are sent at the last moment; very few respond to them; and the absurd verdict is pronounced that "men who ought," &c., &c., care nothing at all about the movement, though the "men who ought" have been booked long before for other business on these occasions. It will be remembered that not long since we called attention to the snug manner in which the committee of the "National Auricula Society" reserved the announcement of their exhibition for an obscure monthly work that never had a position, and that perished very soon after that announcement was made. They had resolved to light a candle—true, it was but a dip—and proceeded slyly to hide it under a bushel; first, that nobody might see it, and secondly that they might have reason to complain bitterly that its beauty was not praised. National societies should have national aims, be animated by a broad and generous spirit, should not become the shibboleths of small cliques and parties, should know of no interest but the interest of the cause, whatever it be, to which the term "national" is applied, and should labour much more for the good of the nation than for the gratification or profit of their promoters and officers. When we find floral societies acting in a generous and impartial manner, we always take care to give publicity to the fact; but we dare not name all the instances of jobbery and cliquism that come under our notice, and can only deal with the case generally, and leave it to others to make the application.

But in many societies that are conducted in the most upright manner, and where there are no interests to secure, the practice of putting the light under a bushel is so steadily persevered in that it is evident the light must soon go out, and the dark empty bushel will remain as a token that the life was wasted, and opportunities were thrown away. We have just been compelled to witness an example of a movement in process of decline through this very cause. The Amateur Tulip Society, meeting annually at the Greyhound, Dulwich, must shortly cease to be unless reformed. In every respect except one it is admirably conducted. The members are men of the highest private worth, who cultivate and exhibit out of pure love for the flower. They have no secondary ends to gain, but so long as they hold a public exhibition, they must bear the public responsibility of praise or blame, according to the prudence or otherwise of their endeavours. In years gone by a trip to the Greyhound to see the tulips was one of the pleasantest pastimes for London florists in the month of May. Since that time the railway has diverted attention from the romantic village and the very respectable Greyhound. More than this, it has diverted coaches and omnibuses, and to reach the Greyhound, except for such as live next door to it, is pretty well a day's work. Good society, good flowers, good house, good landlord, nice dinner, lovely spot,—what a feast! and in the midst of the feast a skeleton. Our report says, in respect of the attendance of the public at the exhibition on Monday last, that one lady entered the room after the flowers had been removed. Was that the only visitor? So we infer, and are in no way surprised at it. To get up a show needs a knowledge of floriculture; to make it a success requires some knowledge of public business, and, at all events, some earnest endeavour to ensure publicity.

AMATEUR TULIP SOCIETY.

The exhibition by this society took place as usual at the Greyhound, Dulwich, on Monday last. Considering the season, and the few encouragements such flowers as the tulip meet with in these days of sensational gardening and bedding to excess, there was an admirable display. In the section for COUNTRY GROWERS, the 1st prize was awarded to Mr. N. Norman for *Rosa*, *Cerise Primo*, *Anastasia*, *Triomphe Royale*; *Byblomens*, *Salvator Rosa*, Mrs. Pickercoll, Mrs. Norman; *Bizarres*, William King, Sunbeam, Mrs. Ingleton. 2nd, Mr. J. Brown, with *Ro.*, *Heroine*, *Rose Celestial*, *Anastasia*; *Byb.*, *Violette Aimable*, Walker's Duchess of Sutherland, Princess Royal; *Biz.*, Caliph, Sir Joseph Paxton, Ulysses. Equal 3rd,

Mr. Mercer and Mr. Phillips. In the section for TOWN GROWERS, 1st, C. Williams, Esq., of Harsey, with *Ro.*, *Triomphe Royale*, *Seedling*, *Cerise Blanche*; *Byb.*, Walker's Duchess of Sutherland, Lady Denman, General Bournanville; *Biz.*, Everard, Delaforce's King, Mr. F. Perkins. 2nd, B. Williams, Esq., of Stamford Hill, with *Ro.*, *Aglaia*, Groom's Duchess of Sutherland, *Claudiana*; *Byb.*, General Barnevelde, Walker's Duchess of Sutherland, Siam; *Biz.*, Truth, Dr. Horner, Mr. F. Perkins; 3rd, Mr. Reeves; 4th, Mr. D. Aust. There were a few spare flowers shown, amongst them were some of very high merit, particularly Elizabeth Norman, General Barnevelde, and Sarah Headly. There were only some ten or twelve exhibitors in all, and no company. We beg pardon, we saw one lady enter the exhibition room after the flowers had been removed. The evidences of dullness and decline were somewhat relieved by the high quality of the flowers shown, and the unexceptionable good character of the winning stands; but still more perhaps by the fact that we saw the same names that we have seen again and again for years past, and in much the same positions as on previous occasions. We see in this an agreeable exemplification of the force of habit and the value of persistency and perseverance. Tulips have had a trying time this year, and it is creditable to this old established society to be able to make a show at all.

SOUTH HACKNEY AND HOMERTON TULIP SOCIETY.

The exhibition of this society took place as usual at the Lamb and Flag Tavern, Homerton. It was a good show, and comprised collections of twelve only throughout. 1st, Mr. Summers with *Terriff* (?), *Isabella*, *Cerise Royale*, *Aglaia*, *Leonidas*, *Joseph Hume*, *Barnevelde*, *Lady Jane Grey*, *Thomas Williams*, *Caliph*, *General Gough* (fine), *Heroine*. 2nd, Mr. Gaunt with *Albion*, *Triomphe Royale*, *Queen of Beauties*, *Rose Aglaia* (fine), *Plantagenet*, *Trebizond*, *Grotius*, *Mahomet*, *Father Gavazzi*, *Emperor of Austria*, *Mountain Sylph*, *Princess Royal*. 3rd, Mr. Bishop with *Mountain Sylph*, *Glory Alborum*, *Marshal Sout*, *General Barnevelde*, *Polyphemus*, *Livin's Charles Dickens*, *Terriff* (?), *Triomphe Royale*, *General Gough*, *Plantagenet*, *Platoff*, *Miss Catherine*. 4th, Mr. Disley with *Julien*, *Belleforme*, *Juliet*, *Charles Jeffries*, *Abd el Kader*, *Commissioner*, *Ponceau de Blanc*, *Trebizond*, *Mahomet*, *General Gough*, and *Father Gavazzi*. 5th, Mr. Stimson with *Star of Venice*, *Anastasia*, *Maid of Orleans*, *General Gough*, *Costum* (?), *Rose Emily*, *Triomphe Royale*, *Joseph Hume*, *King John*, *Polyphemus*, *Mason's Matilda*, and *Revenge*. 6th, Mr. Stillwell with *Polyphemus*, *Rose Aglaia*, *Grotius*, *Vicar of Radford*, *General Gough*, *Catalina*, *Franklin's Harriett*, *Eldorado*, *Lord Byron*, *Charles Jeffries*, *Heroine*, *Violet*. 7th, Mr. Tilber with *Sphinx*, *General Gough*, *Lallah Rookh*, *Rose Aglaia*, *Charles Jeffries*, *Empress Eugénie*, *Disley's King*, *Triomphe Royale*, *Don Capett* (?), *Ophir*, *Goldham's Maria*, and another. 8th, Mr. Bratt with *Optima*, *Rubens*, *Ponceau de Blanc*, *Rose Aglaia*, *Costum* (?), *Harriett*, *Bacchus*, *Rose unknown*, *Charles Jeffries*, *Emperor of Austria*, *Wade's King*, *Magnificent*. 9th, Mr. Addicot with *Catafalque*, *Ponceau Rose*, *Sir Sidney Smith*, *Ponceau Sanspareil*, *Emperor of Russia*, *Orion*, *La Reine*, *Surpass Catafalque*, *Camuse de Craix*, *Charbonnier Noir*, *Leomedam* (?), and another. In addition to the foregoing, Mr. Disley put up twelve nice flowers, including two unnamed seedlings, not for competition. The ten named varieties were *Lord Denman*, *Triomphe Royale*, *Disley's Exile*, *Father Gavazzi*, *Disley's Camlypus* (?), *Vicar of Radford*, *Mrs. Ashton*, *Mrs. Disley*, *Eldorado*, and *Towley's Queen*. The reporter took in every case the names appended, but a few of them appear to be apocryphal; to these, in correcting the lists, we have appended notes of interogation.

PARIS UNIVERSAL EXHIBITION, 1867.

(From our own Correspondent.)

No. II.

Your contemporaries have had so much to say about the Exhibition, that I am afraid you will think I have been consigned to the Morgue, or have built a nest in a tree in the Champs Elysées, and gone to sleep in it. Well, the reason of my long silence can be explained in a word. I have seen very little worth reporting on, and I was instructed by you not to report for the sake of filling columns, but solely for the purpose of conveying useful information. Well, things are looking up in our department. We have had an outburst of intensely hot weather, followed by weather intensely cold. Paris has been an oven and a refrigerator, and horticultural matters, you may be sure, have been greatly influenced by the extraordinary weather. And talking of the weather reminds me that the other day I was discussing with M. Chauviere about it, and he explained to me that the cold was the consequence of the heat, just as extreme prostration must be the consequence of a season of unwonted activity. He says the extravagant heat resulted from a blast of hot wind that came direct from the tropics, and the blast of cold was simply the "return current" direct from the north pole. I can understand that if a breeze goes up one way it must come down another. Of course, it is a very great comfort to have these learned explanations, though they do not exactly cure one of the catarrh caught through untimely reduction of one's clothing, or restore to life tender plants that were put out in the belief that summer had set in *en permanence*.

English gardeners will, I think, be generally pleased with the sample of English style displayed in the "Paro," though they may find therein a few things to laugh at. This part of the park is now being dressed up for summer, and will, I am quite satisfied, prove a success; and it will probably furnish to my unhappy country, which I hear is being ruined by the Compound Householder, some new ideas in out-door embellishments. In the Champ de Mars there is now a nice sheet of grass-turf as could be desired, raised, I am told, from seed supplied by Messrs. James Carter and Co., of High Holborn. Now, I must tell you that the grass used in Paris for such purposes is invariably the true Italian rye-grass, which endures the heat better than any other kind, quickly makes a close sward, and keeps growing and growing till very late in the season. All kinds of fine lawn mixtures have been tried and failed, but the rye-grass never fails, and may be sown at almost any season, though of course the best season is early in the spring, when vegetation of every kind is waking up. The plant houses here are richly furnished, and on every hand surprises occur in the shape of fine groups of plants, fine specimens, and bits of curious colouring. The sub-tropical movement is to be vindicated here and everywhere, and more especially in the inner garden, which, though not yet planted, has been described most elaborately in the English newspapers. Within a few days of this, however, wonders will be done, and the last stroke will be as if a curtain had been withdrawn from a work of art that has been in pro-

gress for years, and is at last wrought up to a condition of unsurpassable splendour. If the park and central garden are not wonderful places in respect of richness of display, and perfection of taste in grouping and contrasting, very early in the month of June, I shall never again believe in good intentions.

To report the exhibitions that have been held already would be absurd. You would have to print an extra sheet weekly, and charge a shilling for it; for very few, even amongst the most enthusiastic English horticulturists, would care to see more than one such report. But let me speak of some things that are really interesting, and remembrances of which will be lasting and pleasant.

The collection of coniferous trees in the garden in the south-eastern part of the Champ de Mars is the best exhibition collection ever seen. The first prize for the best miscellaneous collection was awarded to M. Desoigne, of Bougival, for a group comprising 350 plants. Messrs. James Veitch and Sons took the first prize for new kinds and the best 50 species; and M. Seneclausse took first place for trees used in the arts. Amongst the kinds especially noticeable in these groups, I must name *Larix Kempferi*, a beautiful specimen 10 feet high, and which perfectly justified the complaint made in the GARDENER'S MAGAZINE against M. A. Verschaffelt's picture; the tree is, in fact, far more beautiful than any picture has hitherto represented it. In Messrs. Veitch's group I noted *Retinospora plumosa* as one of the most elegant of the smaller kinds of conifera hitherto introduced to Europe. The habit is light and graceful, the branches and branchlets all showing distinctly, like sprays of lycopodium; the colour being a fine glaucous hue, almost metallic. From the same exhibitors came the pretty *Retinospora filifera*, which grows in a pyramidal outline, and produces numerous drooping shoots, which become crested at the tips; the colour is brilliantly glaucous. *Thuja dolabrata*, with all the new growth showing a brilliant golden hue, is equal in splendour of form and colour to the most superb fine-foliage plant ever staged in an exhibition. I was rather surprised to see that the premier place in the whole collection was assigned to *Thuja gigantea*, which undoubtedly is a glorious tree, and the specimen shown could perhaps not be equalled anywhere in Europe; but there was a *Wellingtonia gigantea* of faultless proportions, and an *Abies Khotrow*, that might have been likened to a mountain made of bright green ostrich feathers, and a *Cedrus deodara*, with new and old growth mixed together in such a charming manner that was as good an emblem of day and night, and even of life and death, as the wreath of poplar leaves that Hercules bound round his brow when he went down to hell (in Greek fable), and got the outsides of the leaves darkened in colour, as we now see them on the tree, while the undersides remain white. Let me not forget *Retinospora ericoides*, which is so well adapted for introduction to the parterre, to break up the formality of the colouring; and *Retinospora obtusa*, *R. pisifera*, and *R. leptophylla*, as also worthy of the attention of your readers who love beautiful trees. The collections of Yews are very interesting, and full of suggestions for variations in out-door display, their solemn outlines and colours being in many cases calculated to enhance very much the brightness of green grass and the glow of beds of flowers. Touching other garden conifers, I have been deeply impressed with the beauty of *Cupressus macrocarpa*, which is undoubtedly the same as *C. Lambertiana*, let the makers of varieties and dividers of species say what they please. I have always cherished the notion that *C. Lawsoniana* was the best tree of this genus, but now I incline to the opinion that *C. macrocarpa* should have the first place; it is so neat in growth, so vigorous and accommodating (you remember there are good examples of it in the Royal Horticultural Society's Garden at Kensington), and so peculiarly fresh and distinct in colour. But let me not by implication lessen the esteem in which *C. Lawsoniana* is held; its beauty is of another kind—it is dark, massive, majestic, and has its place in the list of indispensables.

I have spent a good deal of time in admiring the specimens of trained fruit-trees, of which there are many. But I must confess that amongst these trees there are examples of extravagance as well as of utility; many of the cultivators have evidently just made up their minds to show what they could do, to illustrate possibilities in fact. Take a nicely-shaped juvenile pear or plum, and bend all its branches back, so that they can be tied to their parent stem; now graft the points of those branches to the stem, and what a queer thing you have produced, and how utterly useless! Now take another tree, and train the outside parts of the main branches round and round on an imaginary wheel placed at the circumference of the tree, and graft them together, so that the tree forms a hoop of its own, within which all its leaves and fruit are enclosed—very curious, very clever, but, like an elephant I saw in London just before I left, and which blows a farthing trumpet, and tosses a penny like an experienced street-gambler, of no earthly use, and really indicating that the producer thereof loved to waste his precious time. But never mind, there are two trained peach-trees on a white wall that I particularly wish English gardeners who are coming here to enter in their note-books at once as things they must see. I shall not attempt to describe them, save to say that they are covered all over with varieties; they are multiple trees with a vengeance, and their training and condition are extraordinary. As they happen to be in the immediate neighbourhood of M. Rousseau's plantation of oaks, or rather I should say his truffle nursery, two birds may be killed with one stone. Touching this truffle business, we are no nearer than ever in respect of the rapid production of truffles, which some enthusiasts believe to be possible; but we may be said to have had a trifling contribution to their history from M. Rousseau. It is this: truffles grow plentifully in some plantations of oaks, where the soil is loamy or chalky. So it is inferred that by planting oaks on such soils, and in a southern exposure, truffles may be produced *ad lib.* Well; M. Rousseau speculated in truffle growing; he planted oaks, waited seven years, and then obtained a crop at the rate of 50 lbs. per acre. So he comes here, makes a plantation of oaks, and sticks in the centre of them a case filled with truffles, and visitors admire or despise the whole affair as they please. I do the last-named shabby thing, but possibly my judgment may be warped by the fact that I detest truffles, and have the courage to confess it. And talking of truffles reminds me that in group V., in the French department, the Administration des Forêts exhibit along with forest timber some interesting examples of wild fungi, truffles of course amongst the rest. But, strange to say, there are few collections of fungi of any kind in the whole of the exhibition. I noted in the Spanish department, in group V., the other day, many examples of mushrooms, that I shall pay attention to some wet day; but I want to see samples or models of the species of fungi that we consider poisonous, but which the French, Italians, and Spaniards, but the Italians especially, cook with elaborate

care, and eat (it is said) with indescribable relish. I can find them, I know, in Dr. Badham's hook, and in Berkeley's "Elements of Fungology," and elsewhere *in print*; but that is not enough, I want to see the things themselves, even if dried, or coloured models of them, for I am certain that we might eat more of these things than we have the courage to do at present. In the Italian department of this group there are numerous exhibits of mushrooms and truffles, but none of the questionable fungi, that are said to beat oyster patties, cream-cheese, and custard. That vile delusion *gigantio asparagus* has been shown in plenty. Why do they not disqualify every particle of such trash and imprison the exhibitors? Gigantic! why I saw some that measured five inches round the stem, and it was just fit to lay on the top of a heap of burning weeds to increase the total bulk of the ashes, which are at least useful to scatter over seed-beds. I declare that this asparagus was fit for no other purpose, and I am surprised that there should still be found either Frenchmen or Englishmen capable of such folly as to waste money, time, and land in producing it. I had a few days ago, when dining with M. Barillet, some small purple asparagus, as thick, say, as my thumb, which is not a monster, and every particle was eatable and most delicious; this I was told had been grown in the simplest possible manner, with very moderate allowances of manure, without salt, and in beds of the same level as the rest of the ground. It is cut so as to leave a small stump visible in the ground, and thus many latent buds are spared.

I have been much charmed with the collection of cactuses from various exhibitors. These plants are now everywhere much neglected, and it is really wonderful that so many beautiful examples should have been brought together. Mr. Pfersdorf, of Kentish Town, makes a great figure, but he has plenty of competitors. Apart from the intrinsic beauty of many of the plants, and the great interest that attaches to the collection as a whole, the most amusing part of it is to be found in the extravagancies of the grafting. There are great round-headed spiky masses grafted on slender stick-like forms, a huge head upon three or four thin legs; others imitate the cromlech—there is a great flat growth supported by two upright slabs; some of the Epiphyllums grafted on clear stems are superb in form and elegance, though as curious, too, as most others. Just now I am enjoying the silken gold-coloured flowers of a plant of *Echinocactus concinnus*, the rosy flowers of *E. Anconianus*, the red and pink flowers of *Mammillaria conica*, *depressa*, *echinaria*, *speciosa*, and *pusilla*, all entered in English books as stove plants, but no more needing the stove than a houseleek does; at all events, a greenhouse is enough for them in respect of heat. In the course of making up my notes for permanent use I shall, I hope, be enabled to make a good selection of succulents adapted for private cultivators, for here are opportunities for so doing that are not to be made light of. But, as to that, one might spend weeks in making lists of good things. *Au revoir*. I shall at once devote a few hours to such work.

Garden tools, implements, and ornaments, and agricultural machinery and implements, are shown in abundance, yet I miss many of the notable things that we have got used to at the Agricultural Hall, London, and at Bingley Hall, Birmingham, and at the annual meetings of the Royal Agricultural Society. M. Barriere has taken great pains to prove to me that our machines are not, generally speaking, adapted for French soil. Most of the lands are small, and small properties are prohibitory of steam-ploughs. Then in gardens the grass is thin and wiry; there is not a thick sward, such as we have (that is to say, such as you have, for I ought to speak as a Frenchman now), and there is literally nothing for a mowing-machine to cut. To work a mowing-machine to advantage you want a resisting mass of herbage; if it yields to the edge of the cutter, it is not cut, but passed over. Now, in France the lawn-mower simply lays the grass down, it does not cut it; hence the scythe is the favourite instrument for mowing. As for garden tools, there are many admirable things that would be useful to English gardeners; and I could heartily wish that a selection were made from the best things to be seen here, and transferred to some place in London to remain *en permanence*. This is just such a task as the Royal Horticultural Society might charge itself with, and, indeed, I think the Society might very well make a purchase of such things here as the foundation of a horticultural museum. This would remove the affair out of the region of "shop"; for when manufacturers exhibit on their own account, we are not sure to see all the best things, but we are sure to find it begin and end in "shop." You will be glad to hear that Mr. Wells has brought his "portable ground vineries" here, and has them embellished with artificial grapes. If he does not sell many to Frenchmen, he will, I daresay, to the Yankees and the Danes, Dutchmen and Germans, with whom, and especially the first, Paris is now well peopled.

MANCHESTER NATIONAL EXHIBITION.

One evening last week I took one of my occasional walks through the Manchester Botanical Gardens, and was particularly struck with the extensive preparations that are being made for holding the great national flower show in the month of June next. It occurred to me that a brief account of the arrangements that have been made, and are now being carried out for the occasion, would be interesting to your numerous readers who reside in other parts of the country. It is, I suppose, generally known that there is in the garden a large glass building called the Exhibition House. This structure is 200 feet in length, and 60 feet in width, and in this all the ordinary flower shows are held. All along one side of this structure, and connected therewith, there will be erected a large tent of the same dimensions as the house, and the large sliding doors in the side of the building will be drawn back, so that persons can easily pass from one to the other, and the two structures will be, for all practical purposes, the same as one building. By this means the amount of space available for exhibition purposes will be doubled. There will be a broad walk down the middle of this tent, and a stage on each side for the various collections which it will contain. Then, in addition to this, there is in the course of erection another structure, at right angles with the other two, running past their ends, and extending far beyond them. This consists of a wooden frame-work, covered with canvas, and is of the same width as each of the other two, viz., 60 feet, and is 300 feet in length. The internal arrangements of this wing are somewhat similar in style to that adopted for the great international show in London last year, and consists of a series of grass banks and gravel walks. The 300 feet are divided into six equal portions, and in the centre of each of these a circular mound is thrown up, some six or seven feet high, with three tiers or stages, all covered with green turf. These are surrounded by a gravel

walk 12 feet in width, and on the other side of this walk more grass-banks of two tiers or stages, extending the whole length of the building.

It will be understood from the above description that the general form of the show will be something like the letter L, and it will be evident to the reader that a person standing in the angle thus formed would be able to see the whole length of both wings without changing his position. This circumstance has been taken advantage of, and an artificial mound has been made some 12 feet high, over the top of which the broad walk, which runs through the tent first described, is made to wind in its way to the grass banks in the other wing. From the top of this mound the whole of the exhibition will be seen at a glance, and will no doubt present a very imposing appearance. Orchids, and the more tender stove plants, will be placed in the exhibition house. Fruit, vegetables, and cut flowers will be arranged in the tent at the side of the building; and the larger specimens of flowering plants, ferns, and ornamental foliage, will be staged on the grassy shelves which surround the mounds in the long wing. The place of exit from the exhibition is so placed that the visitors on emerging from the building will find themselves on a broad gravel walk, which surrounds the flower garden, situated on their left hand, and a lake of water with its islands and ornamental bridges on the right. The various ranges of hothouses, greenhouses, &c., together with the lodges and entrance gates, are all being repainted for the occasion, which, so far as I could gather, is likely to prove a great success.

THOMAS JONES.

THE MOST BEAUTIFUL WILD FLOWERS: WHERE TO GATHER AND HOW TO CULTIVATE THEM.

Few people have any idea of the number of really beautiful plants that are natives of the British Isles, and even those who study the subject to some extent rarely regard them as garden plants, or, remembering that our pinks, carnations, &c., have come from native plants, ever look among the large number of species inhabiting the British Isles for an addition to the charms of our gardens. Botanists know a good deal about wild flowers, to be sure, but as botanists rarely or never cultivate them, they can add but little to our knowledge in this way. One difficulty in the way of acquiring knowledge of them [is the fact that few have an opportunity of seeing a great variety of our wild plants; the Londoner has within his reach, or within twenty miles, as fine a collection of lowland plants as any in Britain; but then he rarely has an opportunity of seeing those of high mountains, or those of the west of Ireland, and *vice versa*. It is only by a careful selection of all the plants in the British flora that you can get good material wherewith to make a pretty and interesting "English garden;" and that such would prove a charming addition to all but the very smallest places, I venture to submit. We all know how slowly the study of botany progresses amongst us. May it not be attributable to the fact that we never approach the subject in any way but the cut-and-dried, so to speak? We collect a certain number of species, flatten and dry them, and in due course leave them by and forget them, never deriving anything that might be called pleasure from the study of our British wild flowers. Why should not a tasteful amateur or gardener take pleasure in preserving in good health the rare and beautiful *Gentiana verna* of Teesdale and the western shores of Galway,—one of the prettiest things ever seen,—as well as a native of the Cape or Australia? Need we grow weeds to have a fair representation of beautiful British wild flowers? No such thing! It will be my pleasant task to look over the whole British flora with the reader, to tell him where to find and how to grow the rarer kinds, and to enumerate every one that is really good; and in doing so I shall have to name a great variety of plants, but not one weedy subject I hope. This is the season of wild flowers, when most of us stray into the fields, or on to the hills, to find many a gem which I advise should be grown in the garden instead of being put in what we may call pickle. You may have heard of a little plant named after Linnæus. I have a lot of this now growing under a painted hand-light in peat, as well as in pots stood in saucers, and kept in a shady place; and it is this very plant that has induced me to begin what I often thought about ere this. It has been my fortune to grow most of the really good plants in Britain, and I am not without hope of being able to convey some original information about them.

The first plant to which I shall introduce the reader is this *Linnæa borealis*, a native of fir-woods in some of the eastern counties of Scotland, and therefore difficult for most people to obtain in a wild state; but being a great favourite with lovers of curious plants, it may be had in some nurseries, and not a few private collections. It has been named after the great master of natural science, with whom it was a special favourite, on account of its native beauty. It is of the easiest culture. Grow in pots of peat in a cold frame, or plant out in peat and cover with a hand-light which is darkened, or rather daubed over with paint, if you happen to live in a very hot and dry locality as to soil or climate. Growing in woods in northern regions, it is fond of shade in cultivation. I have seen fine specimens grown in pots, and large pans of peat, kept behind a hedge or high wall in summer, and placed in a cold frame or pit in winter; and I have also seen it grow freely planted in a little artificial peat-bog in the garden of the late Mr. W. Borrer, in Sussex.

Most worthy of notice, in the Stellate or Galium tribe, is the

little white-flowering Woodruff (*Asperula odorata*), which bears its white flowers profusely in many British woods in spring, and I have seen it flowering very abundantly among the trees and shrubs round some of the colleges at Oxford. It should be known to every garden, in consequence of the sweet smell it yields when dried, and when kept for a long time, preserved in drawers, or aught else. There is no plant more worthy of culture for this purpose alone, the dried stem being as fragrant as the sweetest new hay, and continuing to give forth its odour for a long period—an indefinite one, so far as I know. It is fond of slight shade, and worth planting where not found in a wild state. When green, the "haulm" of this plant betrays no noticeable fragrance, but begins to emit it very soon after, and merely requires to be placed on some dry shelf or half-open drawer, where it may become quite dry and ready for use.

The common Red Valerian, as it is called, or *Centranthus ruber* botanically, is a really ornamental garden plant, and makes a conspicuous ornament for banks, borders, or large rockwork. As it may be readily raised from seed, there can be no difficulty in procuring it, and it should be noted that there is a fine deep red as well as the ordinary variety, and also a pure white, and all the three are really ornamental plants. Their best use is to stud here and there among diversified or sloping banks, in the English, or gardenesque, or natural, or whatever-you-like-to-call-it style of laying out grounds. Like the wallflower, it does well on old walls, &c., and thus has become "naturalized" in many parts of the country. It is the first plant that occurs wild in newly-opened chalk pits.

The composite or Dandelion family is generally so ragged in appearance, that I scarcely like to introduce it here. Some members of the family are so commonly seen wherever we walk abroad, that the greatest care must be made in selecting garden subjects from this order. The Hieraciaceae are in some cases showy and fine plants. Here I will merely mention *H. aurantiaca*, a neat border plant, and distinct in colour, and pass on to *Carduus marianus*, the milk thistle; *Carduus eriophorus*, a noble thistle, found chiefly in the limestone districts of the south of England—to the great woody, silvery cotton-thistle, or Scotch thistle, as it is often called. Though these come near the thistles, and are anything but a gardenesque family, no reader need be afraid of introducing them to his garden, to which they are sure to add distinction, especially now, when people are beginning to notice more plants of noble or distinct form and habit. Though frequently selected as the thistle of Scotland, it is not a native of that country; so the Scotch thistle is a more dubious vegetable than the Irish shamrock. But, Scotch or Scotch not, if you search the whole vegetable kingdom, you will not find among plants that are at home in our climate anything more distinct than this cotton-thistle, or *Onopordon acanthium*. A single specimen, standing in the midst or in front of green shrubs, produces a noble effect, and the plant should be in every garden. Easily raised from seed, and once established in a garden, it sows itself. Then the precaution should be taken of thinning down the young seedlings, or you may have far too many of them. One isolated plant or a group or two is quite sufficient for ordinary gardens; but where there is sufficient space, it, with many other fine wild plants, might be naturalized with great advantage by simply sowing a few of the seeds in any waste or half-wild spot, or in the shrubbery. The milk thistle, with its shining green leaves and white markings, is also very desirable among the British plants, though scarcely so much so as the great cotton or Scotch thistle.

Everywhere the common corn-flower, *Centaurea cyanus*, makes a beautiful garden plant, if sown in autumn and allowed to flower with all its accumulated vigour in spring. Sown in spring, it is far inferior. I know of nothing more beautiful than a large group or small bed of the various coloured forms of corn-flower in full bloom in spring and early summer; the bloom is so prolonged and vigorous, the flowers so pretty and so useful for cutting for the usual purposes of cut flowers. It is common, and easily had from any seedsman. One of the prettiest of all dwarf trailing silvery plants is the Tomentose *Diotis maritima*, which is found on the southern shores of England, coming up as far as Anglesea on the west and Suffolk on the east, but generally a rare plant in this country; it may, however, be had in nurseries, and is worthy of a place in every garden, and especially in every collection of variegated or silvery leaved plants. The common Tansy is too coarse a weed for any but the herb ground, but there is a variety with leaves cut into numerous segments, and crisped up as elegantly as the New-Zealand *Todca superba*, and this should be provided with a nook, its flowering stems requiring to be pinched off when they show. The name of this tansy is *Tanacetum vulgare crispum*. The double variety of *Pyrethrum*, now so frequent in our flower gardens, is a native plant—or, at least, the single or normal form of the species is. The sea wormwood (*Artemisia maritima*)—is a neat silvery bush, freely distributed on our shores, and worthy a place in our gardens. There is a deep rose-coloured variety of the common Yarrow

(*Achillea millefolium roseum*)—pity one cannot avoid those hard names—which should be in every garden, and there is a very pretty double white variety of the “Sneezerwort” (*Achillea ptarmica*), which will be found highly ornamental. At Paul’s Cheshunt nurseries I noticed them cutting it extensively for wedding bouquets, during the past summer—the flowers are so purely white and neat. Perhaps some of our readers may regret that I do not give the English names of all plants, and that I do not explain by the fact that they have no English names in a great many instances; and would it not be a foolish barbarism to invent them, or to give awkward translations of the Latin names? Many people have an idea that every plant has, or should have, a “common name,” whereas such only belongs to plants that have been much noticed by the people either for their beauty or “vertues.” Now, as hundreds of plants are so inconspicuous, or so rare that they were never noticed till the sharp-sighted botanist took them up, and gave them a Latin name, which is on the whole the best, because the language is fixed, and common to the learned of all countries, it will be readily seen why we have not English names for all our plants. However, the next member of this natural order *compositæ*, or the daisy order, which I shall notice, is endowed with several common names, respectively, “Mountain Cudweed,” “Cat’s Ear,” and “Mountain Everlasting”—the botanical one being *Gnaphalium dioicum*. It is a beautiful dwarf plant, admirable for rockwork or the front of a border, or in any way amongst alpine plants. Abundant on mountains in Scotland, Wales, and many parts of England. There is a variety called *rosea*, to be had in some nurseries, that has its dwarf flowers delicately tinted with rose; a most desirable thing. I have noticed a neat edging made of this plant in Dickson’s nursery at Edinburgh; so that Scotch readers will have no difficulty in procuring the plant, even if they cannot find it wild; but it is a popular plant wherever alpenes are grown, and therefore not difficult to obtain anywhere. The “pearl condensed,” or *Gnaphalium margaritaceum*, is a popular old plant in gardens, its flowers having been often dried for everlasting, and altogether it makes a respectable, though not first-rate, border plant, and should be in the “garden of British wild flowers.” So much for this great natural order *compositæ*. I might have selected a few more, did I not wish to avoid weeds as much as possible.

We will now turn to the extensive Harebell order, where we shall find much beauty with little or no raggedness—from the harebell, which swings its bonny blue flower above the blast-beaten turf on many an upland pasture, to the little prostrate ivy Campanula (*C. hederacea*), which is rather plentiful in most spots in Ireland and Western England. The giant Campanula (*C. latifolia*) is one of the handsomest, and is pretty frequent. The spreading Campanula (*C. pabula*), of the central and southern counties of England, is also very ornamental. *C. Trachelium* is also good, and indeed nearly all the members of the family are of a character superior to that of most of our wild plants; but none of them surpass in beauty the common harebell, which, although it may look struggling for existence, and comparatively poor as regards the plant, on exposed pastures and elevated spots, yet when transferred to a garden it makes a vigorous plant, and flowers profusely—a mass of pleasing colour. It is capital for the border or large rockwork. The little Ivy Campanula had better be grown in a pot of peat soil, or in some moist and slightly shaded spot where it may not be overrun by tall plants. If you grow it in a pot, stand that in a saucer of water, and then the tiny ivy-like shoots will fall down over the edge of the pot, and when dotted over with its pale blue flowers will look very interesting, especially to those acquainted with our native plants. Both this plant and the even more interesting *Linnaea borealis* may be grown well on the outside of the window, with a north or shady aspect during the seven warmest months of the year, by planting them in pots of peat earth, and standing in pans of water. In winter they would be better placed in a cold frame or pit. To be able to cultivate things so interesting to the botanist, and to all who know plants, as these are, would surely be more gratifying than any amount of such subjects as we see displayed in every window.

In my next paper the beautiful Heath family will be discussed; so now I will say good day for a week or so, and sign myself—and I am sure many readers will be glad to find there is as yet an individual of the species living in a wild state in England—

CYPRIPEDIUM CALCEOLUS.

PLANTS THAT SHOULD BE PROPAGATED FOR WINTER FLOWERING IN THE STOVE.

The gardener’s mind, in connexion with his occupation, may be said never to be at rest, as he must be constantly exercising his faculties in endeavouring to provide for the future. Long ere the flowers of summer have suffered eclipse of their lustre, the propagation of plants for winter decoration must have his immediate attention—that is, if he is anxious to have all prizes and no blanks, by seeking to maintain a succession of flowers throughout the

year. Perhaps there is not so much difficulty attending the labour as many imagine; perseverance must be the motto, and a host of hitherto conceived difficulties are swept away before you.

We will begin our list with the most useful and showy of all the species that adorn the stove during the late and early dreary months of the year, namely, *Poinsettia pulcherrima*. This plant will submit to very liberal treatment during its growing season; it is a mistake to continue to force its growth by the aid of artificial heat from the time it commences to grow till it flowers. The finest plants, and showing the finest bracts I ever witnessed, were in a house containing some fine specimens of other kinds, cultivated by my esteemed friend, Mr. W. Monk, then gardener to the late — Drewett, Esq., of The Cedars, Tottenham Green; and I wish he would kindly favour us with a paper on their treatment, as such would be a boon to the readers of the GARDENER’S MAGAZINE, who have an interest in their cultivation. His mode of culture was to pot them into very large sized pots as the season advanced, and train them into large specimens. When they became pot-bound, or, in other words, when the pot became filled with roots, he gave them a top dressing of sheep’s manure. This not only imparts strength to the shoots, but gives to the leaves a very dark healthy green hue. They were kept growing without the aid of fire-heat during the warm months of the year; of course, as soon as damp cold nights occur, they must be assisted with fire-heat, or the chances are a great number of the leaves will turn yellow; besides, a cold moist atmosphere would tend to injure the future flowers. This is about the most favourable time to propagate them. This can be done by cutting off the ripe shoots of any plants that have continued dormant from the time they have flowered up to the present, into lengths of two joints, and inserting them singly into thumb-pots. If you have abundance of cuttings, why, you may put three cuttings into large 60-size pots. Plunge them in bottom heat, and keep the soil from getting parched, but otherwise do not give them any water till they have begun to root in the soil. As they require more room, continue to shift; and should they be inclined to become lanky, stop them, and that will induce a bushy growth; but do not defer this operation late in the season, or your blooms may become small, as the future shoots will not have sufficient time before them to gain strength. Any of the points that you may pinch off can be treated as previously recommended, and they will become nice single-stem plants for decorating the hall or dinner-table. If you have room for them, you cannot cultivate too many of this beautiful flower, as they last a considerable time, especially if they do not suffer from damp. After they have done flowering, they can be stored away in any dry corner of the stove, or any other house where the minimum temperature is not below 50 degrees.

Euphorbia Jacquinæflora.—This plant is deserving of all the pains that can be bestowed on its culture. Its countless scarlet spangled-like flowers, clothing a tall but slender stem, produce a brilliant effect. It will submit with advantage to be trained to a trellis, and will not bear to be treated so roughly as the *Poinsettia*. The soil requires to be more porous, and to be afforded plenty of drainage, as it quickly suffers from an excess of water to its roots. It will strike freely under a bell-glass, having a joint of the old wood attached to the young shoots, the cuttings being inserted in a prepared pot of soil, with a surface of about an inch or more of silver-sand.

Eranthemum pulchellum.—The colour of the flowers of this plant, being a lively blue, makes it very acceptable as a change among other winter-flowering plants. It is best to provide a succession of young plants every year of this variety, it being a free grower. Plants may be struck now, and after they have rooted should be pushed on rapidly and stopped when required; thus treated they will form some pretty bushes by the period the flowering season commences. Old plants are very subject to be attacked with scale and other kinds of insects, and it is with difficulty they are cleansed of them, if ever thoroughly.

Justicia speciosa.—A very free-growing plant, the colour of the flowers being of a purplish blue. It is not so showy or so desirable a plant as others in this list. Plants now propagated will grow very fast.

Begonia Digswelliana.—This plant, for winter flowering, will become a universal favourite as soon as our gardening friends become acquainted with its merits. It produces clusters of beautiful light-pink flowers, excellent for cut flowers.

Begonia nitida.—A good old useful variety, though not equal to the last-named, its habit of growth being rather straggling.

In addition to the above short list, propagate some of each of the following for forcing and conservatory decoration, viz.:—*Salvia splendens*, *Salvia gesnerifolia*, and Pelargoniums *Alba multiflora*, *Snowflake*, *Gauntlet*, and *Brilliant*. I could extend this list, but my desire is to name only the most useful subjects, leaving lovers of mere curiosities to find out what may be added to the foregoing selection of subjects, that are everywhere indispensable.

JOHN F. M’ELROY.

HEATING A SMALL GREENHOUSE.

Allow me to make a few remarks upon heating small greenhouses, a subject occupying much attention just now. I have a small house, say 17ft. by 11ft., which contains nearly 400ft. of glass; I name this because I believe the quantity of glass ought to be taken into consideration with regard to the power of your heating apparatus. Until lately my house has been heated with hot water; but during the severe frost I found it quite inadequate to my wants—not that I could not get heat enough, but because of the great amount of attention required in stoking to get it. The boiler I used is a saddle boiler, with a small flue only, requiring one shovel full of slack for each feed, and requiring attention every hour or hour and a half; and during the late frost, being my own stoker, I sat up most nights until 12 o'clock, and then hap'd up the fire the best way I could; but the draught being strong and a small body of fire, I rarely succeeded in keeping it in many hours; and one of my bad practices, which I had better own to, is being a late riser, which gave the frost an opportunity of taking possession of the house for some hours in the morning, killing several of my plants and injuring many more. Finding my heating apparatus unsatisfactory, I resolved to make an experiment by uniting a gas-stove with hot water. The apparatus I got made of tin, costing me only a few shillings. This has quite answered my expectations, the stove being hot in a few seconds after lighting the gas, the water-pipes in about one hour after. My apparatus being made of tin, will not stand forcing. The stove is perfectly simple though effectual; a sketch of which I subjoin. Should any of your readers who are similarly situated to myself wish to try it, they would, I am sure, find it act satisfactorily; and there are hundreds of small houses near towns and villages now supplied with gas, which might avail themselves of it, and thoroughly abolish stoking. The stove I have now in use at so small a cost is not quite

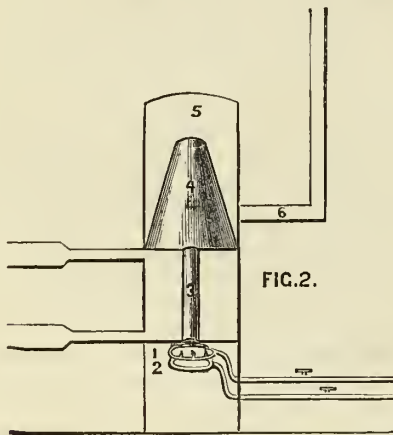


Fig. 2.—Section of stove and air chamber:—1, Gas-burner with wire-gauze. 2, Air-supply pipe. 3, Flue through the boiler for hot or burnt air. 4, Conductor of hot air to top of stove previous to its exit. 5, Hot-air chamber. 6, Escape-pipe for burnt air.

perfect; yet it does its work well with about 6 feet of gas per hour, and kept the house at between 40° and 50° when there has been several degrees of frost outside. This, I suppose, may be considered a good test. The average price of gas with us is 4s. 2d. per thousand, or say 5d per 100, so that twelve hours burning would consume 72 feet of gas, at a cost of 3½d. Good slack with us costs about 4d per cwt., and I find twelve hours stoking will nearly take one cwt., so the price of gas in small houses would not exceed that of coal. There is no unpleasant smell with the stove, as it supplies itself with air, and every crevice might be closed against the issue of burnt air into the houses, and the stove still perform its work effectually. I believe gas will come into general use for small houses, where parties are acquainted with the best way of using it; but I do not go so far as Mr. Clark, to think gas will be universally used in large establishments. First, because they do not suffer the inconvenience of a person with one small house, as where a number of men are kept one might safely leave the flues holding a great body of fire at 12 p.m. until another arrived at 6 a.m. Secondly, it must be borne in mind there is a great waste of heat in manufacturing gas, taking one ton of coal in the furnace to cook another ton for abstracting the gas, and which heat might be beneficially applied in large houses. To this add labour of making gas, management and interest upon capital, which must act against using gas in large quantities where the raw material can be beneficially applied. But to a person growing a few plants for amusement to be bored with the same or more trouble in stoking than if he had a couple of large houses heated with one flue, and particularly if occasionally called away from home on a frosty night, leaving the house to the mercy of the weather, acts as a drawback to many who would have great pleasure in growing plants. I think to such the combined stove would offer a fair inducement to cultivate plants.

I had almost forgotten to add that there is one thing necessary in lighting the stove, which is common to all gas-stoves, that is to light the gas as soon as turned on, or it will fill the stove and cause a small explosion.

I beg to say I have no interest in writing this, further than to offer to others what has been a great benefit to myself.

B. WILSON.

Ilkeston, near Nottingham.

Since the foregoing was in type, we have received from Mr. Wilson the following, dated May 16, 1867:—

I would also beg to observe, I have continued to test the stove until last week, when I removed it from the house, and it has more than warranted what I have previously stated. Being an experiment only, there was no aim at embellishment. The latter part of the time it was in use I removed the air-pipe, No. 2, and found the stove to act quite as well without it. In fact, in the first case I had some misgivings as to using

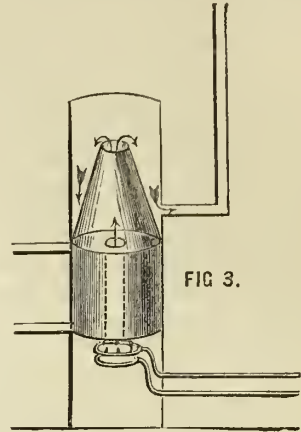
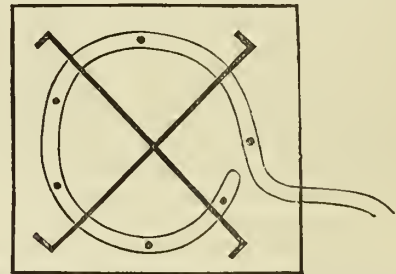


Fig. 3.—Bird's-eye section.

gas amongst plants, and felt inclined to seal up every crevice where burnt air might issue into the house. I now find by doing away with the pipe the stove draws a slight current of air from the house, which is easily perceived by holding anything very light near the opening; which current, I think, improves the air and keeps it from being stagnant, as my plants have been extremely healthy since I used the stove. There is not the slightest smell of gas or burnt air perceptible in the house; so I conclude the air-supply pipe is not necessary. Several other improvements might be made: I am not speaking of the appearance, but the principle. First, a very small portion of gas in a few seconds greatly heats the air chamber, which might be extended to double the size. This would give a greater heating area, by simply adding a flange to the top of the boiler, leaving the boiler the same size as at present, and cased with ornamental grating to range with the air chamber. The stove as at present is entirely made of tin, and requires attention to turn the gas on sparingly, or the tin melts.



Sketch of burner used. It is covered with gauze, the cross being of copper wire turned up at the ends and stuck through the gauze to hold it on, and which appears to want replacing about once a month, at the cost of 1d. and two minutes' trouble.

This does not alter the principle, but delays getting up the heat as quickly as might be. The hot-air chamber instantly throws off heat as soon as the gas is lit, but it takes one hour before the water-pipes get hot with my present stove, and from two to three hours for the pipes to reach 150 degrees. In reaching this heat it is inclined to throw the water out of the feed-pipe, No. 10, it being too small and of wrong construction for a permanent stove; but with a copper bottom to the boiler and iron air chamber, and the feed-supply enlarged, there is no fear for the result. A few gentlemen who have seen it in use can hardly believe the heat to arise from so small a plaything. Having a test-meter at command, which I have attached, I find I can burn six feet of gas per hour—one foot more interferes with the tin. Should the stove ever be manufactured in a permanent and ornamental manner, I shall certainly purchase one as a fixture, in preference to hot water, which I have previously heated with.

B. W.

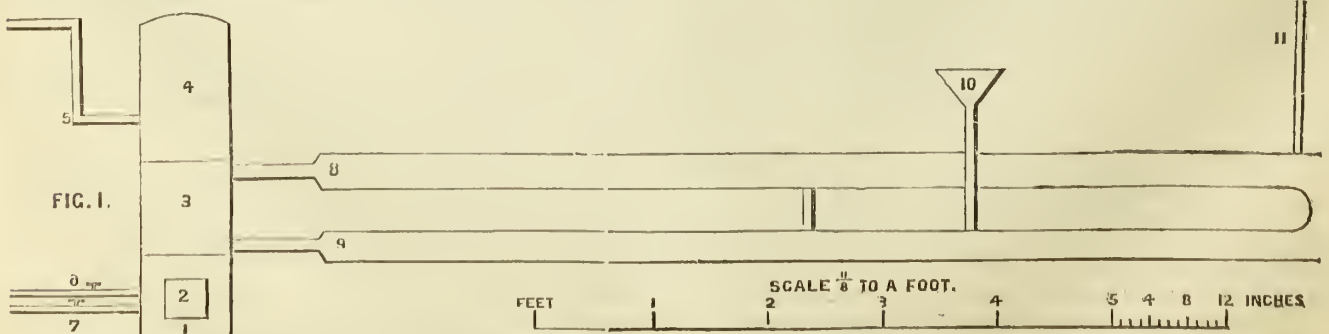


Fig. 1.—The stove, as at work, made in compartments, can be turned to suit convenience:—1, Stand. 2, Door to light the gas. 3, Boiler. 4, Heated-air chamber. 5, Heated-air escape pipe. 6, Gas-supply pipe.

7, Air-pipe. 8, Hot-water pipe. 9, Hot-water return-pipe. 10, Feed to supply water. 11, Air-pipe.

NOTES OF A TOUR THROUGH KENT.

A VISIT TO KNOWLE PARK, THE SEAT OF THE EARL DELEWARE.

I commenced my annual rambles for my customary visits to good gardens on Thursday, May 8th; and certainly I never remember starting with more favourable weather, or with a better prospect that I should be delighted with what I saw. The morning was serene and beautiful, and all nature was alive; and those members of the vegetable kingdom that had gone through the winter season, bereft of their usual leafage, were gay with charming tints of lively green, that added much to delight the eye and to make the mind feel grateful for the return of spring. As I left the populous suburbs of the great and busy city, the charming fields on the right hand and on the left were clothed with their first flecks of summer colouring; and as the powerful locomotive with its angry groans hurried us onwards, through open fields and extending breadths of a fertile country, we felt lifted, if I may so express myself, in an infinitely short space of time from the depths of a long and cruel winter to a state of exuberant delight, such as doubtless every lover of nature must feel when he finds himself surrounded with all that is beautiful and good—good, because exemplifying in the most instructive manner the presence in the midst of nature, to control, fashion, and bless, of an All-wise Creator. The mind that neither appreciates nor studies the various phases of the different seasons can never correctly value those beautiful works of nature that surround us on every side in the spring of the year, and indeed in all seasons. However, such were the agreeable conditions under which I arrived at the delightfully situated town of Sevenoaks, in the close vicinity of which is Knowle Park. Indeed, the principal entrance to Knowle is out of the main thoroughfare or street at the top of the town. But having

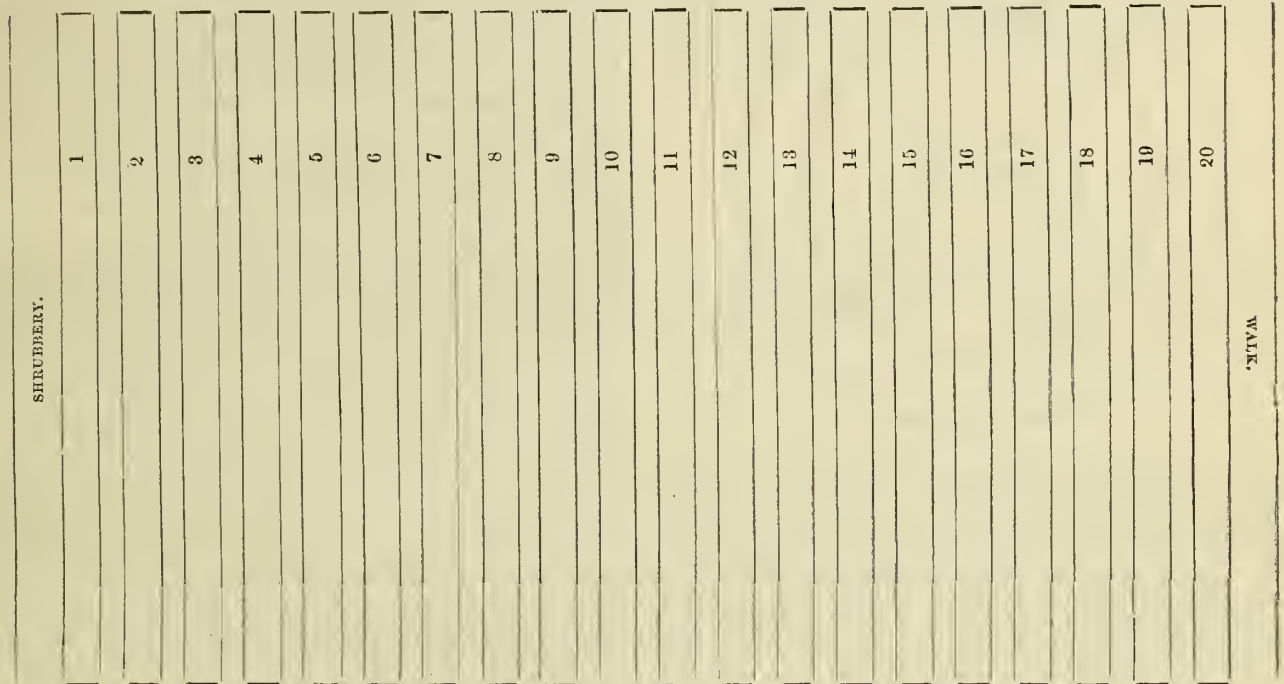
find the respected head-gardener, Mr. James Dodds, whom I had no sooner shaken by the hand than he evinced great pleasure in showing me the many beautiful sights of Knowle.

Crossing that portion of the park that divides the kitchen gardens from the pleasure grounds, our friend pointed out several noble oak trees, from which, in his opinion, the town of Sevenoaks originally derived its name. In this, of course, there is some amount of conjecture, as there appears to be no authentic information on record of the existence of any other at the time that the name of Sevenoaks was applied to the town. But the immense age of these trees, which are, strange to say, seven in number, and apparently about the same age, and at no great distance from each other, is quite sufficient to justify the opinion of our friend, more particularly when it is known that the existing seven trees in another part of the town bear so young an appearance. That the alleged etymology of its appellation is very questionable when applied to these younger trees there can be no doubt. We now enter the pleasure grounds, 35 acres in extent, the whole enclosed by a wall and that portion of the mansion that forms the boundary line of these 35 acres. The house covers five of them, and the park which surrounds it is 1000 acres in extent, well stocked with deer; but the absence of water in sufficient breadth is the only defect that can be noticed in the many otherwise magnificent features of Knowle. It is impossible for me, in the compass of these notes, to do full justice to one of the finest baronial residences of England; but it will, I hope, suffice if what I say stimulates the admirers of the venerable and the grand to go and judge for themselves of the gratification to be derived from a visit to one of the gems of the county of Kent. Having entered the pleasure grounds by what was formerly called the Tunbridge Wells entrance, the scene is at once unique and grand. On the right hand and the left are huge

ROSE GARDEN AT KNOWLE PARK.

HALF-STANDARD ROSES.

WALK.



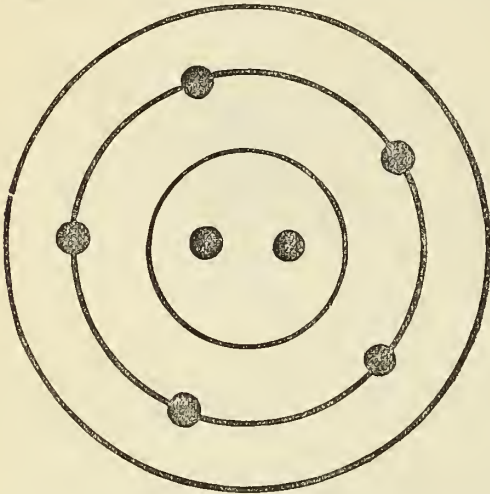
WALK.

HALF-STANDARD ROSES.

arrived opposite the church, I was unable to decide which of the two entrances that were before me was the one I wanted, as, having no guide or proper directions, the one that had the most pretensions certainly seemed to be the proper one. But in this I was mistaken; for Knowle Park is entered only by a very commonplace carriage drive and gates, without a lodge, or indeed anything that would lead a stranger to suppose it was the entrance to so noble a place. But having entered, the traveller soon forgets what he has left behind, for he at once plunges as it were into a beautiful forest of trees, which not only affords shelter and shade, but gives a character and a sort of foretaste of what is to come. Such, however, was the impression it made on my mind; for, when coming out of this noble bower, there lay to the right and left such a charming valley, with noble belts of trees gracefully dipping their branches down to a verdure of unusual richness, that instinctively I felt arrested in my progress, and stopped to gaze at the majestic scenery before me. The characters here are so bold, so full of harmony, and above all so judiciously placed, where the art of man has been brought into exercise, that I say without any fear of contradiction they are not to be excelled, if equalled, in any part of England. Those who may feel disposed to question the propriety of this remark, must remember that the beauties of Knowle belong to itself alone; for it is not dependent in all these immediate effects upon the surroundings of other properties. I now start to ascend the hill on the opposite side, full of delight and gratitude that I am allowed by the noble proprietor to share with him for the time being the enjoyment of such classic grounds. Taking one of the three paths that present themselves at the foot of the hill, I make the ascent, and here again enjoy the shade of another avenue of trees, upon reaching the skirts of which the noble mansion stands out in all its grandeur before me. Thus far I had enjoyed the walk towards the gardens alone, because it was on my way to

banks of rhododendrons, some eight to nine feet high, well set with bloom-buds, and evidently in a most luxuriant condition in the natural soil of the place. These banks run on either side of a straight moss-covered walk the whole width of the grounds, extending, I should judge, fully a quarter of a mile in length, and when in flower, which, from their shady position is somewhat late, must make a striking effect. But there is still a grander feature presents itself at this spot. Immediately on entering, the eye is carried down a charming green drive of ample width, and towering up on each side are well selected varieties of stately trees, and beneath them a cheerful undergrowth, that gives to the whole place a character of repose united with grandeur; for below in the distance, as the eye is carried through this mighty bower of stately trees clothed with the fresh hues of summer, one of the private entrances of the mansion is seen in its quaint and unpretending character. The effect of this view is such that one feels the imposing characters of the place are in strict keeping with all that surrounds it. My conductor now took me for a charming ramble beneath towering trees and through groves of unusual richness, until, by the abrupt turning of a walk, we came unexpectedly upon a large body of rockwork. This, although not showing any of the bold characters that would be considered in the present day essential in such a conspicuous feature, was nevertheless quite in keeping with the surroundings of the spot, and as it is not the work of yesterday or to day, we may conclude that it is a fair representation of the prevailing taste in such matters at a period long since past. But although formal in outline, and deficient of those rugged and irregular characters that are looked for in rockwork, the hand of Nature had done her work in an admirable manner, as every crevice and projecting nook was beautifully clothed with a rich and varied surface of living specimens of such members of the vegetable world as delight to ramble on such spots, besides those that

had spontaneously made it their stronghold. The hand of the gardener had not been idle, as a hountiful show of ferns and other rock plants had been added. Going more in the direction of the mansion, we came upon some extensive plantations of the more choice varieties of rhododendrons. Some of these were brilliant in colour, and very effective—in fact, the beds are so well distributed amongst other masses of luxuriant foliage, that their massive flower-heads contrast conspicuously against the refreshing green of the adjoining trees. A short distance from this spot, but still near the mansion, is the herbageous garden, in which there are many rare and good old favourites. The contrast between this spot and that of another, which has just been laid out in a very ornamental style for the reception of the more choice kinds of bedding plants, would surely be sufficient to convince every advocate of the bedding system that, when so vigorously standing up for their own favourite hobby, they are ignoring the existence of many truly valuable plants, which, in their anxiety to be fashionable, they lose sight of and despise because they are less gaudy than a Mrs. Pollock geranium or Foxhunter verbena. Near the above spot we saw many fine examples of Conifera in different varieties, and the unusual luxuriance of many trees and shrubs of like character speaks much for the fertility of the land. Indeed, in whatever quarter we look, the same luxuriant growth meets the eye. While enjoying the quiet of this spot, and desiring to linger and enjoy it, my worthy pioneer, pointing southward, arrests my attention, and with all speed I follow him, wondering when these delightful surprises are going to end; for, indeed, there seems to be no end of them in this beautiful place. But this time my friend did not reckon upon the character of his visitor, for he did not seem to think I should care to inspect a clump of trees of ancient date; so he was hurrying me onward to the south-west corner of the grounds. But, in passing, my eye caught a perfect circle of lime-trees, feathered and drooping gracefully down to the ground. This sight I could not pass unnoticed. This is called the Lime Circle. The arrangement of the trees is shown in the following sketch, the black dots denoting where the trees



stand. The outer line is intended to show the extreme ends of the branches, which droop down to the ground. I cannot venture to guess the age of these trees, but they have evidently stood there many centuries. There is only one way to get to the centre, unless the branches are lifted on one side. Once inside, you are free from the prying eyes of any one outside; and when I say that the outside circle is 120 feet across, the reader will judge that the space beneath is equal to supply room sufficient for a good round number of a picnic party. I do not so particularise this clump of trees with any wish to overrate their value in a decorative sense; it is simply to show the good taste, the superior foresight of the designer of these grounds. Nor do I refer to this particular instance to show the excellent judgment displayed, because in every part of these noble grounds the same degree of care, the same amount of foresight has been exercised, and some of the most beautiful combinations have been effected that only a long course of years could bring about. We are often led to express a favourable opinion (not undeserved, perhaps), when we gaze upon some well-arranged flower garden, or some exquisite blending of colours; but these are as nothing when compared to the majestic features that time and judicious planting have secured in so many instances in Knowlton Park, and which not only enhance our pleasure in viewing the place, but teach the interested observer to set a just value upon the services of those who were engaged in creating so many objects of beauty for our special use and learning. True, it may be said that the landscape gardener, when arranging the various scenes of planting, was greatly favoured in his work by the undulating surface of the grounds, which, so far as I have yet seen, are unequalled in this country.

But while admitting this, I am bound to acknowledge the superior skill of the designer, and the discriminating use made of the subjects brought into requisition. On every hand were evidences of the good judgment that had governed the selection of trees, for their various characters of boldness, grace, or massiveness of outline; so that at last the impression grew upon me that in the midst of these splendid effects the master-mind of the planter stands boldly forth as a beacon that ought to guide us in this present day, when engaged in planting. In proof that I am not overstating the case, I will refer to the north-east corner of the pleasure-grounds, where there is a break in the wall of about thirty feet wide, which also occurs in portions of the grounds. I remember we reached this spot by a circuitous path, and standing on a slightly elevated position, we have at first before us a fine stretch of undulating pasturage reaching down into a valley below; and beyond, rising in the distance, standing out in bold and broken outlines, is a well-wooded portion of the park. The innumerable tints of the foliage of these trees, supported as they are by a background of forest plantation, chiefly of spruce and Scotch fir, give to the whole view before us an aspect of majestic splendour; and all this is secured within the limits of the grounds, without help from beyond. This must be sufficient to convince every interested reader that I have not drawn upon my imagination to give to this place a character it does not possess. Indeed, it

would be impossible for me to do so, for as I write I feel that my efforts to do it justice, although sincere, are by no means equal to the task. Mr. Dodds now shows me, from the south-west corner, another delightful view of the park. The surface here is quite as undulating as any we have seen; but it is from this spot especially that the absence of water to any extent is somewhat felt, as the eye would feel a relief by its presence. But there are sufficient attractions, and sufficient to please the eye and instruct the mind, without the presence of this useful element.

We now direct our steps towards the house, and in a quiet corner of one portion of the grounds adjacent to the conservatory we find the rose-garden; a plan of which I give, with a view to show the rapid advances made from straight lines to friezes and scrolls in the present day. The plan, as shown, consists of twenty-two long beds, three feet wide, with narrow walks between. On each side, and extending the whole length of the garden, is a long bed the same width as the others. These two beds are filled with half-standard roses, and all the cross beds are filled with dwarfs upon their own roots; the whole of the garden is laid down in box edging, and the walks with gravel. Although the reader may think the plan stiff and formal, it must be granted that, for convenience of attending to the beds, it is superior to many laid out in the present day; and as to what other objections may be raised against it, we should not forget that, even at this date, its straight lines and formal bearing is in great part quite in keeping with the character of the whole place. A short distance from here, in what was formerly an old fruit garden, Mr. Dodds has designed, and laid out in a most tasteful manner, a new flower garden, and which, when well established, is destined to prove a grand feature in the place. I certainly feel it my duty to publicly thank Mr. Dodds for the spirit he has shown in stepping on one side of the laws which are said now to guide the designer in these matters. For while we too generally see an elaborate design with innumerable flower-beds crowded into a small space totally unfit for it, and where, owing to the beds being in close conjunction with each other, the colours cannot be detected when looked upon at a few yards' distance, Mr. Dodds has had the spirit and the good taste to secure sufficient space between his beds, that, whether looked upon from far or near, they must remain sufficiently distinct to enable the observer to detect each separate colour; and this is secured without showing more of the groundwork or body of the plan than is required to create a distinction.

Upon a southern wall that extends 140 feet along this flower garden, the *Wistaria sinensis* covered the whole length, in fine condition, just coming into bloom. As we stand on one side of the private entrance of the mansion, we observe the conservatory and camellia house, 100 feet long, filled with noble subjects, and on the other side is the orangery, of the same length. This noble structure, we were informed, was suggested by the late Mr. Loudon. At one period, I believe, this structure was nothing but a sort of workshop; but, thanks to Loudon's wise suggestion, it is now a noble ornament to the other parts of the building: it is filled with suitable subjects, all in the finest condition; indeed, many of the trees were literally covered with fruit of no mean size.

Tracing our steps back to the gardener's cottage, we now enter the kitchen garden and forcing department; and first we find a range of five houses, the centre being a plant house, with vinery and peach house on either side. In the plant house we find a well-grown useful selection of plants, and in the vineries the vines, although old, are in a very good bearing condition. In one of these houses my friend had carried out the extending system very successfully under the circumstances. The peach houses were both newly planted last year, and looked very promising for a crop for future years, as they were making a vigorous growth. In a separate structure, used principally for stove plants, we saw a various selection, and amongst them a *Passiflora Buonaparti*, with stout leathery green leaves three inches long, the petals dark maroon colour, and the inner segments of the centre are like whorls of white and purple; it is in the way of *Passiflora alata superba*, only rather darker both in foliage and flower, and more vigorous. In several ranges of pits and other structures, large quantities of bedding plants in good condition. The number of bedding plants required here is about 12,000. The extent of the kitchen garden is about four acres, of a fine mellow loam, well stocked with all the subjects essential for the supply of a family, and scrupulously clean. Upon the wall I noticed more than an average crop of apricots, which our friend told us has been every year better since he left off covering up the trees while they are in flower. Our readers should take note of this remark, because this is not the first instance where a like result has been attained by the omission of coverings while the trees are in flower. Neither peaches nor nectarines are grown here upon the open walls, as they are found not to do well; but both pears and cherries are remarkable for their luxuriance, and this year there is every prospect of a heavy crop, more especially of cherries, for the Morellos and May Dukes are literally covered with the fruit in its first stage of growth. I had pointed out to me a remnant of an old May Duke cherry-tree that had been planted 70 years; it is now in excellent bearing condition. I saw also excellent crops of the Bigarreau cherry. Of strawberries there is generally speaking a fine prospect of a crop this season. In this place the most useful sorts are found to be Goliath, Elton Pine, and Keen's Seedling.

This must conclude my notes of this delightful place; and although they have extended to some length, I cannot say that they convey to the reader a correct idea of every thing that may be seen at this enchanting spot; but, as a sort of set-off against this, I may state that the mansion is open to the public three days in each week, so that those who may desire to learn more of the beauties of this place than this brief description conveys may see for themselves. In closing, I can only say my visit to Knowlton will ever remain a bright spot in my remembrances of good gardens.

J. C. CLARKE.

ON AMARYALLIS, AND HOW TO GROW THEM.

I have often been asked the question by a lady or gentleman, on going in their greenhouse or conservatory, "How is it I can never manage to flower an Amaryallis? They are such beautiful things when in flower, and I try all I know to get them to bloom, but I can never succeed. In doing so, pray what is the reason? I always water them regularly with the other plants, but they don't seem to grow even." "Just so." And as I am sure there are many readers of the Magazine who could say the same of their Amaryallis, I will endeavour to set them all right in respect of growing them and blooming them as well. As my remarks on their cultivation are

founded on practical experience, all may safely go and do as I advise, and not err. It is only within the last two years that my attention has been drawn to this beautiful class of plants, and I felt very certain that something more might be done with them to bring out their beauty than had hitherto been done by possessors of them. So I got a small collection together, and tried my hand at them; and the result has been most successful, even far beyond my expectations. I first began with a few bulbs that were found neglected in various places, because their owners could do nothing with them; and before I took them in hand, I question much if they had been repotted for some years; and yet, in the face of that, they were expected to grow, and even bloom! But, however, I got them together in the beginning of February, and turned them out of the pots they were in, and shook away all the old soil, and mixed up in equal parts hazel loam, turfy peat, leaf mould, and sand. I then added a small quantity of thoroughly rotten manure, and well mixed the whole together, but leaving it quite rough and lumpy—in fact, the peat and loam were in lumps about the size of walnuts. I then got some clean pots; and, I will here add, it does not matter in the least how old the pots are, so long as they are sound and quite clean, and the crocks for drainage equally clean. It is surprising how much better a plant thrives in a clean pot than it does in a dirty one. After placing the drainage in the pot, and putting a thin layer of moss on them to keep them from being choked up, I placed over it next some of the roughest of the soil, and filled up the pot to within a few inches of the top. I then placed a bulb in the centre, and pressed it down moderately firm in the soil, and filled up the pot so as to leave the soil about a half inch below the rim, and the job was done. I would advise all who follow my practice to be sure, before potting the bulb, to remove all decayed leaves from the crown, and all dried bark or skin from the bulb itself; for if this is not attended to, it will be sure to rot when you begin to apply water, and injury to the bulb will be the result. Now I think that is all I need say about the potting part of the business, and I have been rather plain in giving the details, for much depends on trifling things being attended to, as many little things put together make up the grand whole. The next operation is where to start them in growth. But one thing is certain, they must have some heat to begin with. They do not care about bottom heat much, as the leaves do not come so fine with it. Ainery that is just started is a capital place for them; or, wanting that, let them have the coolest place in a stove, or an intermediate house will do, but not an ordinary greenhouse. No; by no means at first will a quite cool place do, although they will come to that after. Well, after placing them in their quarters, moderately water them, and give them a sprinkle every morning, but by no means sodden the soil. As they increase in growth, then increase the water as well, and you will soon find that they will push up flower-stems, and plenty of leaves. Talking about leaves, or, more strictly speaking, foliage, reminds me that I tried an experiment on one or two pots with liquid manure, just to see if I could increase the size of leaf and flower, and there was no mistake but that it agreed with them: for instance, on one named *Cœur de Léon* (there were two bulbs in a large pot) the result was a flower-stalk (one could call it nothing else) 26 inches in height, and 5½ inches around at the bottom! There were four flowers on each stalk, and the least of them was 7 inches across! And when the first was done, up came another stalk which also had four flowers on, of course not so high, but the flowers themselves were equally large. Then the foliage! It was like that of a leek, and about 2 feet long and 1½ inches across. And this I lay entirely to the liquid manure, because the bulbs that had none were by no means so fine either in flower or foliage. When they begin to show flower they may be then removed to a conservatory or greenhouse, and if kept in the shade they will last in beauty for near a month, or even longer. After they have done blooming, they should be removed back to their warm quarters again, to ripen and mature themselves. The flower-stalks will now gradually die off, and in time the foliage also; and when this takes place, gradually withhold water, so as to properly ripen them. But mind, even at their season of rest, *do not withhold water altogether from them*, for this is wrong; but just give them a little to keep the soil from cracking and quite drying up. They may now remain until you start them again in February, when shake them out and pot afresh, as before recommended; and by so doing, and following all directions as here set down, I am sure we shall never hear more of *Amaryllis* not flowering, and we ought not to hear of their doing bad in any way.

Speaking about *Amaryllis* reminds me of a little incident that took place here last summer, at the time that their allies the *Lilies* and *Vallota purpurea* were in bloom; in fact, I had a nice group of them, with a few *Amaryllis* mixed with them, all nicely in bloom and arranged together, and sweet and gay they looked too. Amongst their many admirers was a lady who is passionately fond of flowers, and the lily tribe in particular, as the sequel will prove. She was having a look around the nursery, and had it all to herself

to go where she pleased, as she was no stranger here; and by and by she came across this said batch of lilies and other bulbs, and after taking her own time in admiring them and enjoying their perfume she came down the greenhouse where I was employed making cuttings, and said, "Oh, Mr. Burley, I have had such a treat amongst your lilies! they are so sweet! I have had such a smell at them!" "Have you, ma'am?" says I; "that's right:" and as I said this I lifted my head up, or rather my eyes, when lo! such a sight! She had been smelling the lilies indeed, and the farina being ripe on the blooms, it had got all over and around her mouth and nose; in fact, the effect produced by the different tints of the farina on her face, and especially on her upper lip and the tip of her nose, was grotesque to see, and more especially as she smiled to tell me how she had enjoyed the treat, for the grimace produced by the moving colours had anything but the pleasant look she intended to have given me. "Why, madam," says I, when I could speak respectfully without at all smiling, "you have indeed been smelling the flowers, and they in turn have left the marks of it on your face." "Why," says she, "what do you mean?" as she took a white handkerchief from her pocket, and began to wipe her face and mouth, which operation, by the way, only made matters worse. "Why simply," I said, "the farina of the flowers has got about your face; but we have a little water here, which will soon set that right; but first look in this piece of looking-glass." She did so, and exclaimed immediately, "Oh what a fright! how odd I look!" and then she immediately began to laugh at the oddity of the affair. Well, the upshot was, the same handkerchief and some water soon set all right again, and it all passed off as a pleasant joke. So I must warn the fair readers of this article not to fall in a similar catastrophe when they are enjoying the perfume of their *lilies*, but to enjoy their delightful fragrance at a moderate distance.

JOHN BURLEY, F.R.H.S., &c., &c.

Albert Nursery, Pembridge Place, Bayswater, W.

Calendar.

WORK FOR WEEK COMMENCING MAY 25.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—The ground will be now for the most part covered, and everything in full growth. The hoe must never be idle; weeds grow faster than the crops, and exhaust the soil rapidly, and if allowed to seed make the mischief worse. Next to keeping down weeds, the most important operation is that of watering. Plants lately put out should not be drenched to excess, or the chill will check them more than a drought would, and it is better to trust to moderate watering and shade combined than to keep the soil soddened about plants that have barely taken root. Cucumbers, gourds, tomatoes, and capsicums may be put out; the soil should be rich, and for tomatoes a sunny aspect must be chosen. Sow beet, early horn carrots, scarlet runners and French beans, turnips, lettuces, radishes, cabbages, spinach, endive, cauliflower, and peas and beans. All salad plants should have a shady position, or they may run to seed. In sowing peas and beans it is best to depend on the earliest sorts at this time of year, as they are soon off the ground, but Knight's Marrow and Ne Plus Ultra are good peas to sow now for late supply.

CROPPING.—Sow succession beans, marrow peas, lettuce, Portugal cabbage, cauliflowers, Walcheren broccoli, Stone turnip, and turnip radishes.

CELERY to be got into trenches as fast as the ground can be made ready by the removal of other crops. Take up each with a ball, and do not injure a single leaf. Hoe over those that are established in trenches, to break the surface that has been hardened by watering.

HOEING AND WATERING.—Hoeing is one of the much-neglected operations of which few have considered the value, and to keep down weeds is generally the sole object of using the hoe. Certainly that is a good object, and if these observations quicken the vigilance of gardeners who are a wee' hit careless upon the growth of groundsel, couch, and bind-weed, and other rampant weeds among their crops, it will serve one good purpose. But it must have frequently come under the notice of practical men that a piece of cabbage or cauliflower frequently hoed between, even to the extent of working the instrument very near their roots, always grow to finer proportions than similar breadths left to take care of themselves, with the ground trodden between to the hardness of a Babylonian brick, "to keep the moisture in and the heat out." In such a case it is made evident that there is a virtue in the hoe beyond the killing of weeds that rob away the nourishment required by the crop; and if the problem of their well-doing is to be solved by observation, it must be at daybreak, when every leaf is loaded with dew. Then it will be seen that ground recently hoed or pointed over with a small fork is uniformly moist, while hard ground adjoining the same plot is almost as dry as during the heat of a sunny day. The solution is simple enough. The rough open surface absorbs a vast amount of dew, not simply because it is broken, but because it presents a greater extent of radiating surfaces, for the deposition of dew depends on the radiation of heat at the immediate surface, and the subsoil need not and will not be colder than the subsoil of hard ground, although it has a greater power of surface radiation. In fact, ground frequently hoed becomes warmer from its more ready absorption and conduction downwards of solar heat, so that the roots of the plants are kept warmer and moister in broken ground than in close hard ground, and therefore the vigorous growth of vegetation is promoted. M. Duchartre has made systematic inquiries on the deposition and effect of dew upon plants, and his conclusions are reported in the "Annales des Sciences Naturelles." In the conclusions there is nothing new. We have ourselves frequently indicated to gardeners that the chief benefit of dew to plants arose through its absorption by the soil for the nourishment of their roots.

M. Duchartre's experiments show that if the dew is allowed to settle on the leaves of plants, and not on the soil in which their roots are, they gain

nothing in weight, whereas, when the dew is allowed to condense on the soil, they gain considerably. A plant weighing 966.50 grammes was so placed that the soil in the pot had the full influence of the dew, and it had gained in weight, when the dew was removed from the leaves, 13 grammes. Another weighing 1034.25 grammes, gained 6.90 grammes. In other experiments, where the soil in the pots was hermetically sealed, there was not only no gain of weight by the dew, but a positive loss, which goes very far to prove that plants do not absorb much moisture by their leaf surfaces, and may perhaps give a new turn to our ideas on syringing. But let that pass, we will not throw away the syringe yet awhile. Plants with hard waxy leaves, such as *Veronica Lindleyana*, certainly do not absorb much, but they need to be kept clean; and plants with porous leaves, like the vine, do absorb largely, and may be kept alive for some time with the roots dried up, if the leaves are frequently wetted. But the hoeing is the matter we wish our readers to think about and act upon. The hoe is an irrigator of as much value to the English gardener as the shadoof is to the wretched cultivator of millet on the banks of the Zab or Tigris; and where people are wasting their strength in conveying hogsheads of water which are often more harm than good, the labour might in most cases be saved, the ground kept clean at the same time, and the plants encouraged to push their roots about in search for nourishment by the use of the hoe, and the hoe alone. Take notice of a rhubarb leaf; the mid-rib forms a depressed groove, and the leaf slopes up on each side of it, somewhat in the fashion of the two sides of a wooden water-shoot. The upper surface of the leaf-stalk is channelled too, and all night long the leaf distils dew from the atmosphere, the water trickles to the midrib, and thence finds its way by the channel of the stalk direct to the heart of the plant, for the benefit of its roots and rising leaves. This is the way nature makes almost every plant its own irrigator; we must co-operate with nature, and by the use of the hoe assist the soil also to drink freely of the dew of heaven, that we may enjoy thereby the fatness of the earth.

Flower Garden.

FLOWER GARDEN.—Newly-made lawns require a little special care at this season. If the grass is thin it must not be mown and swept in the usual way, for the roots of young grass suffer from the effects of a hot sun when there is not a close bottom to preserve moisture. It is a good plan to mow early, and leave the mowings till the evening, then sweep and clear up, and the grass will have twenty-four hours from the morning before the sun comes on it again, or, reckoning from the day before the mowing, thirty-six hours, which will materially assist in promoting a thickening of the bottom. Where walks look dingy, a turning with a fork and a good rolling is often as effectual a reviver as a supply of new gravel; but if the old gravel is of trifling depth or a had colour, a new coating will complete the beauty of the garden, and give it a necessary finish. Carnations, picotees, and pinks may now be propagated by pipings on the north side of a fence, or in pots half filled with sandy loam. The old plan of striking them in heat and in exciting composts is quite exploded as a fallacy. Ranunculuses will want water frequently; they cannot endure drought. Pansies strike readily from short side-shoots; the old hollow stems will strike also, but never make good plants; the new growth is that to be depended on. Dabbies not staked should be attended to forthwith; indeed, the stakes should be put in at the time of planting, so as to avoid damage to the roots when they have begun to grow. Perennials should be sown for next season's blooming, so as to get strong plants. Sow thin in nursery beds, and prick out the plants in rows as soon as they make rough leaves. If left crowded together they grow spindled, and never make strong plants.

GARDEN FLOWERS.—*Viola calcarata*, *montana*, and *cornuta*, *Bahia lanata*, *Salvia rugosa*, *Achillea montana*, *eupatorium*, *ptarmica*, *tomentosa*, *millefolia rosea*; *Silene maritima*, *Geranium endresii*, *sanguineum*; *Coronilla squamata*, *Spirea filipendula*, *Dictamnus fraxinella*, *Oenonis rotundifolia*, *Crucianella stylosa*, *Lotus corniculatus*, *Prunella Pennsylvanica*, *Verhascum phœnicum*, *Polygonum viviparum*, *Symphitum caucasicum*, *Lysimachia thursiflora*, *Lychnis viscaria splendens*, *Stenactis speciosa*, *Genista sagittalis*, *Armeria cephalotes*, *Vittadina lobata*, *Dianthus atrorubens*, *Lychnis Haageana*, *Dianthus cæsius*.

ROSES need abundant supplies of water now, and green-fly must be kept down, or the bloom will be impoverished. As the hurry of the hedging-out is now over, a little time may be found to look over briars intended for budding soon, to cut away weak ill-placed shoots, and shorten in the strong rambling shoots on which buds are to be entered. Generally the knife is used amongst the stocks at the time of budding, which gives them a check, and retards the taking of the buds. If cut in now as may be needful, both to strengthen the shoots to be worked, and make room between rows for the operation, they will break before budding time, and the sap will flow freely when it is wanted.

AMERICANS newly planted must have abundance of water overhead, as well as at the root. Remove by carefully snapping out with finger and thumb the dead blooms of rhododendrons and azaleas, to prevent seeding.

ATRICULAS will want occasional fumigating; keep them in a cool place, on a hard bottom, and pour water amongst them on the ground surface to cause a moist air. An old light may be rested on pots over them during storms; otherwise let them have the benefit of all showers.

ASTERS may now be turned out in the places where they are to bloom; make the ground rich, and choose showery weather. If the place is infested with snails, plant a few small lettuces behind the back row, which may be pulled up as soon as the asters are well rooted. Those to flower in pots to have a good shift and cold frame.

ANNUALS of quick growth, sown now, will bloom late for succession. *Nemophilas* never make a better effect than from sowings in June, in moist, shady places. Asters and balsams to be planted out during moist, dull weather.

CINERARIAS may now be earthed-up, to promote the rooting of the suckers. Throw away all seedlings of inferior quality, and propagate only the best. They require a cool shady place while making suckers, which are to be removed as soon as rooted. Sow seed for next year, and pot off rooted cuttings.

CAMELLIAS may be got out in a shady place, on a bed of tiles or coal-ashes, and kept frequently watered. If kept in the house, there must be air on night and day.

DAHLIAS planted out to be staked before the roots extend. Plant out all that are in pots at once; they will do better in the ground now than with any more nursing. The shoots of dahlias may be bent down so as to render very short stakes sufficient.

HERBACEOUS PLANTS may now be propagated from cuttings as they go out of bloom. Alyssums, wallflowers, perennial iteris, &c., are easily

propagated, and the borders may be richly furnished with them by a little timely trouble.

PANSIES.—Take cuttings of the best, look over seedlings, and root out and destroy all inferior ones. Sow again for autumn bloom.

TULIPS.—Remove the shading, and let them have the benefit of rains and dews.

HOLLYHOCKS.—Stake at once, and tie in as soon as the stems are tall enough, and frequently look at the ties to see they do not cut their swelling stems. Heavy manuring in the first instance is preferable to watering with liquid manure, but in poor soils liquid manure may be used abundantly.

Fruit Garden and Orchard House.

FRUITS IN SEASON.—*Apples*: French Crab, K D; Golden Harvey, D; Norfolk Beefing, K; Sturmer Pippin, D.—*Pears*: none.—*Grapes*: same varieties as last month; also Muscat of Alexandria, Bowood Muscat, Canon Hall Muscat, and Black Damascus.—*Various*: So many kinds of fruit are now in season from the forcing houses, that it is scarcely needful to enumerate varieties. In addition to grapes, which are abundant, good supplies may be expected of peaches, nectarines, apricots, plums, cherries, figs, pine-apples, gooseberries, currants, raspberries, apples, pears, and melons.

FRUIT.—Search among raspberries every morning for snails, which take shelter on the stakes and among the side-shoots. If large fruit are required, thin the blooms at once, and give liquid manure. Stone-fruits look well this season, and no blight yet, but it may come suddenly, and must be prepared for. Disbud and nail in. Pot-trees to have plenty of water, and if weakly in their new growth, pretty strong doses of liquid manure at intervals of at least a week each. Pinch, regulate, and where fruit shows thick, thin it out.

APRICOTS to be thinned, young shoots nailed in, caterpillars destroyed, and water-engine used smartly, if any sign of fly, which rarely troubles them.

WALL TREES to be nailed in, and the shoots thinned as they grow, that there may be no crowding of unnecessary wood. Shoots that run away with undue vigour to be cut clean out to the base, unless in positions where much needed, in which case shorten them back.

Greenhouse and Conservatory.

GREENHOUSE.—To prolong the beauty of the plants in flower, put up a shading of tiffany or Haythorn's hexagon net; the latter will also be useful to exclude bees and wasps, for flowers on which bees have settled perish sooner than those they have no access to, owing to their disturbing the pollen, and causing a formation of seed-pods. A method of prolonging the bloom of flowers, and in the opinion of some increasing their beauty, is to get some dissolved gum arabic and a camel's-hair brush. The brush is dipped in, and the centre of every flower touched with the gum, where it forms a bright head, and prevents the distribution of the pollen. Of course the flowers should be touched soon after they open, or Nature may have accomplished her end before the preventive is brought into operation. It is important to keep the first blooms on specimen azaleas, pelargoniums, &c., in this way, so as to get the whole plant covered by the time the latter blossoms open. Pelargoniums done blooming should be cut in and allowed to break before repotting. They should be kept rather dry, so as to break slowly, and when potted into small pots, put into a cold frame, and kept close till they begin to make fresh root, when they must have plenty of light and air. Cinerarias done blooming may be propagated by side-shoots and suckers; if the plants are turned out on a border, and heaped round the collar with sandy loam, they will throw out suckers, which may afterwards be slipped off with a portion of root attached. The time is now arriving for clearing out the house, and give it any necessary clearing and repairs, and cold frames should be provided in good time to receive those plants that are not to be turned out of their pots for the summer.

GREENHOUSE PLANTS NOW IN BLOOM.—Pelargoniums, both of the exhibition and zonale classes, are now brilliant, and fully take the places lately occupied by azaleas and cinerarias. Among the plants that are especially interesting, but not so well known as a certain few showy subjects, the following are worth enumerating as likely to be in bloom now: *Gastrolobium obovatum*, *Anthyllis tragacanthoides*, *Banksia speciosa* and *ericifolia*; *Diosma tetragona*, *longifolia*, and *tenuissima*; *Hardenbergia comptoniana*, *Aphelaxis humilis*, *macrantha purpurea*; *Kennedyia prostrata*, *Hovea elliptica*, *Jacksonia grandiflora*, *Marrayata nigricans*, *Abelia floribunda*, *Adenandra fragrans*, *uniflora*, *amœna*; *Cæsia vittata*, *Clematis odorata*, *Beaufortia latifolia*, *Calothamnus olavata*.—*Ericas*: *Rollisonii*, *odorata*, *pumila*, *rubella*, *Savileana Shannoniana*, *Sprengellii*, *spuria*, *Thunbergii*, *togata*, *tomentosa*, *transluens*, *tricolor*, *canescens*, *cinerea* (hardy), *staminea* (hardy), *parmenteriana*, *lachnæfolia*, *halicababa*, *acuminata pallida*, *imperialis*, *cubeia major*, *aristata*, *Beaumontiana*, *Bergiana*, *comptoniana*, *densa*, *Dicksonia*, *lævis alba*.

PELARGONIUMS now require much attention. See that stakes and ties are in order to keep the plants in the required form as they come into bloom, and remember that the fewer ties the more credit is due to the cultivator. This is such an important matter that varieties with a sturdy habit should always be preferred, unless there are some very strong inducements to select weak growers. Judicious stopping, plenty of light and air, and a sound compost, are points of great importance towards growing plants that will not need scaffolding. Give shade as the plants show flower, and keep the whole stock as cool and airy as possible, avoiding damp and cold draughts.

PETUNIAS left over from the bedding, and double varieties struck in spring, will now want shifting, to make specimen plants for autumn bloom in the conservatory. The same with all other soft-wooded summer-flowering plants. A little timely care will now put value into every scrap that has a leaf and a root.

FUCHSIAS.—Keep well shaded, well watered, well ventilated, and with a cool, moist bottom. Plants from spring cuttings will be useful in five and six inch pots, to keep the houses gay in company with balsams and other summer flowers.

AZALEAS not yet done growing, keep moist and shaded, but beware not to push the growth too far, as unless they are well ripened and rested there will be few flower-buds formed. There is not much danger of that, however, just yet, except with those fixed early. Plants that are leggy are likely to throw out shoots along the stems if laid on their sides.

HELIOtropes make rapid growth on hot walls, and are very useful to fill up blanks. Petunias may be used in the same way, to run up to five or six feet. Rich soil and plenty of water are requisite if such a free growth is required.

GERANIUMS propagated now will flower in the autumn; sorts of which a large stock is required for next year should be cut at as soon as established in the reserve ground. In bedding out use a trowel, and close in neatly, as the plants will not thrive with hard cakes of soil about them. Where the soil is very rich, and geraniums are found to grow too rank for flowering freely, merely raising the beds to render them dry will do much to ensure a gay bloom. Road-sand from gravel roads is the best of all soil for Tom Thumbs and other ordinary scarlets. Geraniums in beds, avoid watering if possible, after the first dose to settle the earth about them. They will root deeper and do better in the end. Pot plants want plenty of water, and if leggy pinch out the tops and give a shift, and plenty of side-shoots and blooms will follow to the end of the season.

Stove and Orchid House.

STOVE.—Liberal waterings must now be given, and abundance of air, especially among hard-wooded plants. Pines, same treatment as last month. New Holland plants should be encouraged to grow, and liberal shifts given as required.

ORCHID HOUSE.—All orchids from the eastern parts of the world will now require abundance of water. Advantage may be taken of sun-heat to lessen the expenditure of fuel, but there must be some ventilation. Orchids on blocks and in baskets require to be well soaked occasionally, and for this work the new "Orchid Bath," manufactured by Warner and Sons, is a most useful apparatus. *Cymbidium eburneum* and *C. giganteum* will probably require repotting now, and in so doing strong plants may be increased by dividing the bulbs. They require plenty of pot room, good drainage, and fibry peat in lumps. Many of the *Vandas* are now in their full beauty, and must be kept cool to prolong the bloom. As soon as they have done blooming repot them. *Stanhopeas* pushing their flower-buds through their baskets now, are occasionally injured by contact with the material of which the baskets are made, and an occasional examination will be necessary to prevent this. These will grow in either the Indian or Mexican house if managed with care. They require shallow baskets, with plenty of openings, so that the flowers may find their way through, plenty of water while growing, and after the growth is completed a long period of rest, during which they should be kept only moderately moist. Prepare flowering plants for the conservatory by taking them first to a vinery, or any structure of a temperature intermediate between the orchid house and the conservatory. Temperature of Indian house 70° to 75° by night, and 75° to 85° by day. Mexican house 65° by 70° by night, 70° to 80° by day.

CLIMBERS in free growth look best when left a little, to themselves, so as to display

The negligence of nature wide and wild;

but some tying and training must be done, and the cultivator must have an eye that the rods intended for future flowering are not unduly shaded by disorderly growths. There is a happy medium between training climbers in a severely artificial manner, and leaving them to sprawl about and choke themselves, which medium course it should be the aim of the gardener to discover and encourage.

ORCHIDS THAT MAY BE IN BLOOM IN MAY AND JUNE.—*Acinetia Humboldtii*; *Arides crispum*, *crispum Lindleyanum*, *crispum pallidum*, *crispum Warneri*, *Fieldingii*, *Larpenæ*, *maculosum*, *maculosum Schraderi*, *M'Morlandii*, *nobile*, *odoratum*, *odoratum cornutum*, *roseum*, *Veitchii*, *virens*, *virens superbum*; *Angræcum caudatum*; *Anguloa Clowesii uniflora*, *virginalis*; *Arpophyllum cardinale*; *Barkeria melanocaulon*, *spectabilis*; *Bolbophyllum Henshallii*; *Brassia Lanceana*, *Lawrenceana*, *maculata major*, *verrucosa*, *verrucosa superba*, *Wrayæ*; *Broughtonia sanguinea*; *Calanthe furcata*, *Dominii*, *masuca*, *veratrifolia*; *Cattleya Aclandiae*, *amabilis*, *citrina*, *Edithiana*, *intermedia violacea*, *labiata picta*, *Lemoniana*, *M'Morlandii*, *Mossie*, *quadricolor*, *Schilleriana*, *superba*, *Wagneri*, *Walkeriana*; *Chysis Limminghii*; *Cælogyne Lowii*; *Coryanthes macrantha*, *maculata*; *Cycnoches barbatum*, *chlorochilum*, *venticosum*; *Cypripedium Lowii*; *Dendrobium calceolare*, *cretaceum*, *Devonianum*, *Falconerii*, *longicornum*, *majus*, *transparens*, *tortille*; *Dendrochilum filiforme*, *Epidendrum alatum major*, *cinnabarinum*, *crassifolium*, *verrucosum*, *maculatum grandiflorum*; *Galeandra Bauerii*; *Huntleya meleagris*; *Lælia Brysiana*, *elegans Dayii*, *elegans Warneri*, *flava*, *grandis*, *purpurata*, *Williamsii*; *Odontoglossum citrosimum*, *hastilabium*, *nævium*; *Oncidium ampliatum* *majus*, *hifolium*, *divaricatum*, *longipes*, *luridum guttatum*, *phymatochilum*, *pulchellum*, *pulvinatum*, *pulvinatum majus*; *Peristeria cerina*; *Phalænopsis grandiflora*, *amabilis*; *Saccolabium ampullaceum*, *curvifolium*, *guttatum*, *guttatum giganteum*, *præmorsum*, *retusum*, *Wightianum*; *Schomburgkia tibicinia*; *Sobralia macrantha splendens*; *Trichopilia coccinea*, *crispa*; *Vanda cristata*, *Rexburghii*, *terres*; *Warræa cyanea*, *tricolor*.

BEGONIAS planted out in open ground not to have a drop of water on their leaves, and to be handled with great care. Shelter from wind is greatly needed.

Forcing Pft.

FORCED FRUITS.—As the crops are gathered give liquid manure to swell up the spurs for next year's crop; syringe with force to clear the foliage. Crops ripening to have less water, less syringe, more air, and full sunshine.

VINES to be frequently syringed, and every appearance of vermin to be dealt with promptly. Train in as soon as the shoots can be handled, that there may be no after-twisting and injuring. A dry air and dry border will promote the spread of red-spider, but moisture is death to this pest. Give Muscats plenty of heat.

THE FERTILITY OF NATAL.

The *Natal Mercury* publishes an interesting article on the prospects of Natal agriculture compiled from a report of the Maritzburgh Agricultural Society. It says, "A high standard of fertility has not been assigned to the soil of Natal, but there are tracts of exceptional fertility, equal to the rich prairies of western America, and yet not cursed by marsh or malaria. Note in proof of this opinion the enormous size to which the beet has been grown, specimens of from 80 lbs. to 100 lbs, being common, and in one case

the enormous size of 200 lbs, having been attained. Soil that can do this must be good—good enough the committee believe under proper conditions to grow wheat. They tell us they hope in a few years to see the northern districts not only the granary of Natal, but the source of a large wealth-creating export. This is an admission that naught but the conclusive experience of practical men on the committee can have caused or justified. We confess that the growth of wheat in the colony has not latterly been viewed by us as a certain resource, and we are but too glad to be set right. If Natal can grow her own wheat, an import of twenty or thirty thousand pounds' value per annum is saved. As an export we don't anticipate great things from wheat culture until railways are established. Australia and Chili, with their superior facilities of transport, will compete with us at too great an advantage for some time to come.

"The midlands are the more proper sphere of this society, and it is here that they are most sanguine. 'Varying as it does from misty heights to the almost tropical heat of the river bottoms, with its hill-sides covered with forest, and its valleys sprinkled with thorny mimosa, so various are its capabilities that it is impossible as yet to name the article which will become its staple.' At present, oats, maize, wheat, potatoes, and barley are chiefly grown, and cattle, horses, sheep, and pigs are reared. In 1865, 20,851 lbs. of butter, and 46,990 lbs. of bacon were produced, indicating the prevalence of European farming in the principal county. The committee, however, contemplate a much wider range of production. Coffee and tobacco, they think, may be grown largely to pay. The successful cultivation of the former in the inland districts will be entirely governed by the effects of frost. In Ceylon, it is said that many plantations thrive in high lands where a low temperature prevails; but the comparison between a country so strictly inter-tropical, and one that is decidedly extra-tropical, although near the coast, exceptionally warmed by special influences, can hardly be made with reason. However, it is known that coffee will grow near Maritzburg, and we have seen beans borne by a shrub growing on the city lands; but this question we must still regard as an unsettled problem. Coffee-shrubs may grow and may flower, and may even bear berries, with every luxuriant appearance, but it remains to be seen whether these berries will contain beans which, as to size and number, shall pay the grower. The committee calls attention to the kidney-bean as a desirable product. This plant grows with singular ease and rapidity all over the colony, and 'flourishes well in the lightest soils, and can be harvested in the dry season.' Such useful qualifications commend their possessor to notice. We observe that beans by the last quotation fetch an average price of 40s. per 484 lbs. in the home markets."

CATALOGUES.

JAMES VEITCH AND SONS, ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA.—*Catalogue of New and Beautiful Plants*: This contains sixteen figures of new plants, most of them rendered with spirit and fidelity; in fact, in many instances the mere black and white of a spirited woodcut produces an effect scarcely inferior to the richest colouring. This is particularly the case in the figures of *Acalypha tricolor*, *Coleus Veitchii*, and *Gymnostachys Pearcei*. On the other hand, the representations of *Davallia alpina* and *Retinospora phænosa* are less happy; the lines are too hard and black. All things considered, these cuts are remarkable examples of what may be accomplished without colour, and the catalogue has an interest far above and beyond what ordinarily belongs to a trade circular.—*List of Select Soft-wooded and Bedding Plants, &c.*: A good list of plants now in demand, and of hardy herbaceous plants, and plants adapted for spring decoration.—*Plant Catalogue*: A complete summary of Messrs. Veitch's stock of stove, greenhouse, and hardy plants. It is, of course, rich in orchids, ferns, camellias, azaleas, and ericas, but there are also plenty of miscellanies. It contains for a frontispiece a figure of *Maranta Veitchii*. It is not often, in these days of elaborate catalogues, that we meet with the equals of these, either in beauty of getting up, intrinsic merit in respect of the subjects announced, or richness of illustration.

E. ABRAHAM, FORT PROSPECT NURSERIES, LIMERICK.—*Catalogue of Bedding Plants and Florists' Flowers*. Contains all the new dahlias and verbenas, and a good assortment of bedding plants of all kinds.

Correspondence.

PLAGUE OF NETTLES.—Will you direct me as to the best method of destroying the common nettle, in a situation where they are too numerous to eradicate singly, and where a large tool could not be used without doing mischief? My churchyard is so infested with nettles as to predominate over the graves and among the tombstones, and all around the church. Can you recommend me any chemical preparation, like sulphuric acid, which effectually destroys the plantain? If there is any tool that could conveniently be used in such a situation as I describe, I should be thankful to know of it. I shall feel obliged if you would give me your opinion and advice at your earliest opportunity, as I shall do nothing until I have it.

T. T., near Gloucester.

[In a case where it is impossible to grub up nettles, we should imagine the surest way of destroying them would be to cut them down to the ground on a hot day, and then strew over them a thick coating of common salt. This is a cheap remedy, and it would favour the growth of grass after the nettles were destroyed.]

Replies to Queries.

Mushroom Beds.—J. S.—There are many ways of growing mushrooms; some of the most careless ways are sometimes very successful, some of the most careful ways are sometimes failures. In the end the careful man will be the winner; and therefore, though the best ways fail sometimes, we recommend the following, which we consider the best:—Collect short manure from the stable daily, and lay it in a heap in a dry shed. So long as it rises to only a gentle heat leave it alone, and keep adding to it; but if there is any tendency to a strong heat, spread it out; leave it spread a day or two, and make it up again in smaller heaps. If it gets thoroughly hot, it will be in great part spoiled. When you have enough for the bed, mix with it a fourth part of good turfy loam; if the loam is stiff, use only a sixth part to the whole bulk. Lay it all up in a heap to ferment, and

when the heat rises to 80° or 90°, take it to the mushroom house, and make up the bed 18 to 24 inches deep. It will soon heat again, but not fiercely. When the temperature of the bed is declining from its first heating, and is at about 90° (80° to 100° will do as well), bore holes with a rammer about a foot apart, and put into each a piece of spawn the size of a walnut. Fill up the holes with some of the same stuff the bed is made of, then spread two or three inches of good strong loam all over the bed, and at once beat the whole firm. It is one of the most important of all the points in mushroom growing to make the bed as firm as a rock at the right moment—that is, when the heat is going down from the first rush, and is not more than 100°. Spread over the bed some clean dry straw, not hay, for that is apt to go mouldy; and thereafter keep the bed moderately moist, but never wet, and as far as possible let the atmosphere be close, damp, and averaging 55° to 70°. Generally speaking, water never need be given until after the first gathering of mushrooms has been made; but this will depend on the degree of moisture of the stuff when the bed is made: the experienced cultivator will take care to have it moist enough in the first instance to last five weeks, and will then expect to find the bed smothered with young mushrooms. In gathering, take them clean out of the soil; the practice of leaving the root in, with a view to disseminate fresh spawn, is had, for it attracts several kinds of flies, and these soon fill the bed with maggots, and it encourages snails and woodlice, which are as fond of mushrooms as we are.

Vines for Long-rod system.—T. H. D.—You may plant two or any number of vines in a house for the long-rod system, which requires the least amount of room. It is not by any means advisable to follow this system under glass, because of its uncertainty. You cannot make sure of good canes to take the place of the old ones that are to be cut out, and must occasionally fruit a cane a second time. Moreover, the system is somewhat exhaustive; so that vines thus treated are not likely to last so long as those that are allowed to extend somewhat from year to year. In ordinary cases it is not advisable to practise the long-rod system under glass, though there may be exceptional cases where it would be suitable.

Wireworm.—W. T. Gates.—Yours is a bad case, but not at all uncommon where a grass-field has been lately converted into a garden. Cultivation will eradicate the pest in time, as every time the land is dug the birds will make a feast of the vermin, and the use of lime and salt on the land when newly dug up will contribute to thin them. For the present, we can recommend a good plan to save the crops that are coming forward. Sow carrots in short rows in all the beds occupied with lettuces, onions, and other things that they usually destroy. As long as they can find their way to a feed of carrots, they will desert everything else, just as slugs and snails will quit everything else for lettuces. Sow the carrots now rather thick at intervals of about two yards across every four-foot bed, and as soon as they acquire the thickness of a quill begin to draw them where thickest, and you will catch many of the vermin. But you must allow a fair share of roots to remain, and you will have a crop of carrots in the end in spite of the worms. Next year sow onions and carrots, lettuces and carrots, &c., in alternate rows in the same beds; it is too late, we presume, to advise this course now.

Vines lately planted.—Vinery.—We do not think the small quantity of gas-lime mixed with the compost three months before the border was made has in any way contributed to check the growth of the vines. This has been a very bad season for newly planted vines, and we should not be troubled if we had planted, and had to wait till quite June to see them grow freely, unless we had command of bottom-heat to assist them. We have observed that many subjects that were exposed to severe frost last January have been very late in starting, and perhaps these vines were so exposed, and want extra time to recover. On this 22nd of May we have trees of common Sumach that stand in a cold draughty place that have not yet made a leaf, yet are alive, and slowly swelling their buds as if they meant to grow some day.

Books.—Constant Reader.—We really do not know of a book such as you want that we can recommend with confidence, except Lindley's "Theory of Horticulture," and that is expensive. There are many cheap hooks of the kind you inquire about, but they are bad.—T. Hardy.—Grindon's "British and Garden Botany," published by Routledge (price about 12s.), is a capital book for ready reference, and good popular histories of the principal British and garden plants. That it is not complete as a guide to garden botany is rather in its favour than otherwise as a work of general usefulness. The larger work you inquire about is Don's "Dichlamydeous Plants," in four volumes quarto. It is not to be obtained through the booksellers in the ordinary way, but may sometimes be met with second-hand. It is a work of great value, though in many respects out of date.—S. W. S.—You had best consult the "Rose Book," for it is impossible for us to make room now for papers on the whole routine of propagating, nor perhaps would it be desirable.—R. W. B.—"Recreative Science" was completed in three volumes. You can obtain them through any bookseller. The price is about 30s. or less.—C. B.—Get Moore's "Mannual of British Ferns," and put the Fleet-Street book behind the fire. Moore's volume will cost 5s. The cheaper hooks by Mr. Moore are neither nice nor original, but the "Mannual" is a masterpiece.

W. R., Northwick.—There does not appear to be any peculiar merit in your pansy.

J. M., Dover.—The best way will be to make the house in the form of a lean-to, with narrow path at the back, and a bed two feet deep over the flue. You can have any degree of humidity you like by wetting the floor, and keeping the bed reasonably moist.

E. L.—Impossible to name your plants. One a piece of shrivelled leaf two inches long, probably *Verstrum album*; the other may be an aloe, but it is a mere scrap, shrivelled up.

Gas-water and Gas-lime.—Subscriber, Canada West.—The ammoniacal liquor is chiefly useful to promote the growth of plants that are required for their leaves, such as spinach, lettuce, endive, &c. It is generally used as a liquid manure when the plants are growing vigorously, and the proportion of water to be added must be at least twenty times the bulk of the liquor of the average strength. But the liquor may be used undiluted to soak plots of ground after they are prepared for sowing and planting, one good soaking only being given, and then some little time must elapse before sowing or planting. In ground infested with wireworm or the grub of Daddy long-legs, it is a good preparation for carrots, onions, and indeed for any crop; but it is advisable always to apply the stuff some time before sowing or planting. Gas-lime is of comparatively small value; therefore but a small price should be paid for it, for the ammonia it contains is but trifling in amount. As lime it is of course useful, and makes an excellent top-dressing, if sown at the rate of twenty to thirty bushels per acre. The best

way to apply this is immediately after the crop is sown or planted, as it protects the young plants from insects, and will not harm any it falls upon unless used in excess.

Ivy on a Wall.—Sunderland.—No; it was never known that ivy on a wall caused dampness, unless the ivy hung out from the wall and caught the rain in some peculiar aspect, or under the drip of a leaking gutter. Ivy properly kept to a wall is preservative. There was an elaborate inquiry once into this question at the instance of some churchwardens, who wanted to remove the ivy from a church, and the churchwardens got a wholesome rap upon the knuckles. You will find the story in the first volume of the "Floral World." Churchwardens, as a rule (and district boards, &c., &c.), have a peculiar penchant for mutilating trees and shrubs. Some wise men of this sort have lately been chopping up fine trees on the road to Highgate, and have thereby spoiled one of the prettiest walks out of London. In this they make common cause with some of the jobbing gardeners about London, who think all trees should be cut down, and all herbaceous plants dug up.

Cupressus torulosa.—J. C. C.—The tree you inquire about is not a Thuja, but a Cupressus. It is the "King pine" of the "Nynee Tal," and the "weeping cypress" of travellers. The leaves are very small, closely imbricated, very glaucous, the whole of the growth pendent, the branchlets closely covered by imbricated scale-like leaves, arranged in four green rows resembling small green cord. It forms a fine pyramid tree, where it will live, but is, generally speaking, too tender for this climate. The specific name is supposed to be derived, says Gordon ("Pinetum," page 70), from the bark peeling off in long twisted stripes.

Bedders to follow Herbaceous Plants.—S. W. S.—It will not kill your tuft of Iberis, Alyssum, Polyanthus, and Arabis, to move them now, if you do it with care. We transplanted a lot of such things a fortnight ago, just as they began to decline in beauty, and they are now as fresh as Dan Martin when he had slept seven days on the mountain, and had a draught from the witch's hoiling kettle to put him in mettle for dancing a jig. The earth is now moist, and the atmosphere cold. Lift and transplant at once, taking care not to knock all the earth off their roots. Do the work quickly and neatly, and by next October your plants will be fit to transfer to the borders again.

Intermediate Stocks.—J. Kirkland, Albion Nursery, Stoke Newington.—The plants are in the form of neat dwarf bushes with 9 to 12 solid spikes of large deep red flowers, thoroughly double and every way handsome. If they are sent for an opinion, we have but to say they are excellent.

Polyanthuses.—R. Webb, Calcot Gardens, Reading.—Yours are the finest for border and shrubbery decoration we have seen, but no florists' flowers amongst them. When put in a vase they quickly freshened up, and were admired for their fine colours, and the great size of flowers and trusses, they are, in fact, gigantic. Amongst them we observed a breed of cowslips, remarkably robust with orange-red and vermilion coloured flowers, splendid subjects for spring display. We have a batch of common cowslips, which year by year are changing to this style. Some of the flowers this season were of the intensest orange-red, quite distinct from everything else in flower at the same time. You ought to sell tens of thousands of your giant polyanthuses, for very few people who love spring flowers have anything like them.

Clematises.—J. H. W. T.—*Clematis azurea grandiflora* will suit you admirably, and Jackson's new varieties ought to; they are not, in our opinion, at all deficient of good foliage, and the flowers are grand. Try also (if you can get them) *campaniflora*, *cylindrica*, and *integrifolia*.

Geraniums.—Beginner.—If you put your plants in the shade till August they will be drawn and pale in colour. Better to keep on stopping and shifting till the middle of July, and then let them go ahead. They will then flower finely. Keep them in a sunny house with plenty of air. Nip out the points now, and remove all flower-stems. A week afterwards shift them to the next size. Train out the growth to make nice round heads. Stop again at the end of June, and a week after stopping give another shift. In the middle of July stop again, and a week after shift. After that leave them alone, and by the middle of August they will be in bloom superbly. The best in the list you name are St. Fiacre, Excellent, Rosamond, Lucius, Wiltshire Lass, Duchess, Beauty, Culford Rose. You want a white, such as White Perfection or Snowball. You cannot keep back the Glorinias; let them flower.

ROSE CROP.—Mr. Blunt, the British Vice-Consul at Adrianople, in his report to the Foreign-office this year, gives an account of the rose fields of the vilayet of Adrianople, extending over 12,000 or 14,000 acres, and supplying by far the most important source of wealth in the district. This is the season for picking the roses—from the latter part of April to the early part of June; and at sunrise the plains look like a vast garden full of life and fragrance, with hundreds of Bulgarian boys and girls gathering the flowers into baskets and sacks, the air impregnated with the delicious scent, and the scene enlivened by songs, dancing, and music. It is estimated that the rose districts of Adrianople produced in the season of 1866 about 700,000 miscals of attar of roses (the miscal being 1½ drachms), the price averaging rather more than 3s. per miscal. If the weather is cool in spring, and there are copious falls of dew and occasional showers, the crops prosper, and an abundant yield of oil is secured. The season of 1866 was so favourable that eight okes of petals (less than 23lb.), and in some cases seven okes, yielded a miscal of oil. If the weather is very hot and dry it takes double that quantity of petals. The culture of the rose does not entail much trouble or expense. Land is cheap and moderately taxed. In a favourable season a donum (40 paces square) well cultivated will produce 1,000 okes of petals, or 100 miscals of oil, valued at 1,500 piastres; the expenses would be about 540 piastres—management of the land, 55; tithes, 150; picking, 75; extraction, 260—leaving a net profit of 960 piastres, or about £8 11s. An average crop generally gives about £5 per donum clear of all expenses. The oil is extracted from the petals by the ordinary process of distillation. The attar is bought up for foreign markets, to which it passes through Constantinople and Smyrna, where it is generally despatched to undergo the process of adulteration with sandal-wood and other oils. It is said that in London the Adrianople attar finds a readier sale when it is adulterated than when it is genuine.

* * * Subscribers requiring back Numbers or Parts of the GARDENER'S MAGAZINE to complete sets, are requested to order them through their bookseller, who can always procure them from the London publisher. At the same time, instructions should be given that in case some of the numbers required are out of print, as many as can be had should be sent, it being a rule with the book collectors, if they cannot obtain ALL the numbers wanted not to take any, saying they are "out of print."

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. Imp. avg. of 43 yrs. Growth	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D	
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.		Rain	Winds					
1867			h. m.	h. m.	b. m.	h. m.												
2	S	Sunday after Ascension	3 51	8 5	4 9 a.m.	7 22 p.m.												
3	M	Length of day, 14h. 14m.	3 50	8 4	5 1	8 50												
4	T	R. H. S. First Great Fête, 4th to 8th	3 50	8 7	6 2	9 49												
5	W	Length of night, 7h. 40m.	3 49	8 8	7 9	10 37												
6	Th	Count Cavour died, 1861	3 48	8 9	8 23	11 17												
7	F	Manchester National Exhibition, 7th to 15th	3 47	8 10	9 37	11 51												
8	S	Sir Joseph Paxton died, 1865	3 47	8 11	10 30	a.m.												

The Gardener's Magazine.

SATURDAY, JUNE 1, 1867.

MAY FLOWERS are not by any means so scarce as might be supposed from a casual inspection of gardens that are furnished according to the dictates of fashion. In the process of developing the summer display by means of geraniums, verbenas, and the rest of the popular bedding plants, the May flowers have been well nigh extinguished locally; and throughout the month of May, when for the first time in this climate we can really enjoy the open air, the principal display made consists of empty beds where flowers are to be, if we will wait till July. The bedding system has secured for us during May an exhibition of box edgings enclosing compartments of bare mould, for of necessity the beds must all be cleared in time for their summer occupants, the planting of which must depend upon the state of the weather. Nevertheless, we repeat that May flowers are not by any means so scarce as might be supposed from a casual inspection of gardens that are furnished according to the dictates of fashion; and we shall follow the dictates of nature in looking for them where fashion has not yet become dominant. We may have seen lately several species of perennial *Iberis*, like sheets of snow, and quantities of *Alyssum saxatile*, brighter than gold, and several of the *Aubrietias* may still be flowering freely, and affording refreshing knolls of rosy lilac or purple, and the elegant *Dielytra spectabilis*, in places well sheltered, may yet be gay with emerald green leaves and lovely pink flowers. But all these belong more or less to April, and are generally past their best before May is out; and when the weather begins to be like summer, as it has been since Sunday last, we see only the dull remainders of such things, and have the same retrospective comfort in them as the summer bedders afford us in prospect. The four subjects named are doubtless the four most valuable of all known hardy plants of the herbaceous kind for the embellishment of the garden during the latter end of April and the early part of May, but when they are gone there is in most places an aching void, which is somewhat ameliorated by the fact that the bedders are ready to put out, and will be planted shortly. Now we trust we can find a few subjects worthy to carry on the colouring until summer subjects are quite presentable, and we will name *Iris pumila* as one of them. Persons who know the plant only as it occasionally appears as an isolated tuft in a neglected border can have no idea of the beautiful effect that may be produced by planting the several varieties of this pretty iris in continuous lines, or by their association systematically in beds. There are at least five varieties, the colours of which are respectively white, dark blue, bright blue, pale blue, and buff yellow. No peculiarities of soil or situation are required to ensure a free growth and abundant flowering of this pretty dwarf iris, and the varieties are all to be found in good trade collections of hardy plants. Another subject worth especial mention is the *Pyrethrum*, the varieties of which are now numerous and distinct enough to furnish materials for exhibitions of not less interest or attractiveness than many other special subjects that have long enjoyed popularity. Comparatively few amongst observant and enterprising gardeners are as yet fully acquainted with the merits of the *Pyrethrum*, but the best may all be seen now in full splendour in Mr. Salter's nursery at Hammersmith; and to see is to believe that the flower, in its present highly improved condition, is admirably adapted for purposes far more important than any to which it has been hitherto applied in gardens. It is just one of those well-doing subjects that we should like to see introduced into the parks and public gardens about London, for, like its near relative, the *Chrysanthemum*, it is a good town flower, and is sure to interest persons who have any taste for florists' flowers, besides being eminently showy in respect of colour long before any ordinary bedding plant has a single flower out—before, indeed, such things as geraniums are usually planted. Mr. Salter's catalogue enumerates about 150 varieties; from these a dozen or two may be easily selected for any special purpose, for great masses, in which case colour and habit of growth would be the most important features; or for an amateur's collection of subjects, enjoyable at a time when flowers are scarce, in which case the form of the flower would be a matter of the highest importance. The following have been selected

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lately as likely to give satisfaction in almost every case that can be imagined, but we are strongly inclined to the belief that all are good:—*White and Blush*: *Album plenum*, Annie Holborn, Boule de Neige, Bridesmaid, Candida plena, Madame Fourcade, Madame Thibaud, Princess Alexandra. *Rose and Red*: Ariadne, Boule Rose, Brilliant, Eximium, Floribunda plena, Herman Stenger, Irocyana, Marguerite d'Anjou, Michel Buckner, Nemesis, Pink Pet, Rev. J. Dix, Rose Perfection. *Crimson and Dark*: Fulgens plenissima, Lysius, Prince of Wales, Purple Prince, Purpurea plena, Wilhelm Kramper. Our list of flowers is by no means exhausted, but it may be well, perhaps, to give the few subjects to which attention has now been directed the best possible chance of meeting with attention by withholding the names of any others for the present.

THE MOUTAN OR TREE PÆONY was the subject of some interesting and highly practical observations by our esteemed contributor Mr. Prosper, in the autumn of last year (*vide* GARDENER'S MAGAZINE, Sept. 22, 1866), and some interesting correspondence ensued thereupon. In the contribution of our friend it was confidently asserted that the failures that had attended the many attempts to cultivate this magnificent plant in the open air in this country were to be attributed to the common but mistaken practice of selecting for it the warmest exposure possible, and giving preference to a low position rather than one elevated and exposed to all the winds of heaven. Many of our readers will remember the statement made by Mr. Bateman, at one of the scientific meetings of the Royal Horticultural Society (*vide* GARDENER'S MAGAZINE, July 11, 1863), to the effect that the "most sheltered spot in the garden at Biddulph Grange" was selected for a plantation of Moutans, but "after ten years' cultivation only one season could he pointed to in which they flowered at all satisfactorily." Mr. Bateman concluded that the climate of North Staffordshire was unsuitable for the out-door cultivation of the plant, and thenceforth the attempt was made to cultivate them in the border of an orchard house, "where they have flourished marvellously." On Friday week last (May 24th) we saw, in the beautiful garden of Richard Headly, Esq., of Stapleford, near Cambridge, many fine Moutans covered with noble flowers, and were assured by the veteran florist that in the comparatively bleak climate of Cambridge they flower every year profusely, and occasion no more trouble than the hardiest shrubs and border flowers in cultivation. Some of the plants measure four or five feet through, and produce hundreds of flowers of the most gorgeous character. There has never been a difficulty as to their growth and flowering, and Mr. Headly, with his accustomed enterprise and accomplished skill, has sought to improve their character and increase the varieties by cross breeding, and has succeeded, just as he succeeds with everything of the kind he takes in hand. There is one fine bush, the result of a successful cross, which at the present time presents a beautiful and novel appearance, the leaves being all margined with a reddish buff-coloured variegation—a display of colour which renders flowers unnecessary, or rather the variegation is so bright that the removal of the flowers might be as advantageous as in the case of many of the variegated-leaved pelargoniums. So much for Moutans at Cambridge, seen on the day after a terrible May frost, which made potato-haulm in the same district as black as ink, and quite killed kidney-beans and many other subjects just pushing through the soil. The tree pæonies were unhurt, and in wealth of leaves and flowers were without parallel.

The Moutans at the Crystal Palace were referred to in Mr. Prosper's paper. On the occasion of the recent flower show there (May 25th) we saw them covered with flowers, not a leaf injured either by the gales or frost that have marred the present spring, though they are exposed to winds that are literally killing the araucarias only a few yards distant from them. As compared with Mr. Headly's plants, the Crystal Palace Moutans are poor; but if we can forget the Stapleford beauties, we may pronounce those at Sydenham to be rich and glorious, worthy companions of the rhododendron, the kalmias, and the hardy azaleas, all of which flower at the same season, and are the chief glory of our gardens at this time of year. A sound loam, well-drained, and full exposure seem to be conditions far more suitable to the Moutan than over-rich or damp positions, or any kind of shelter. Their requirements, therefore, are all in favour of their more general cultivation in English gardens, and they are amongst the grandest of all the hardy plants at present known to cultivation.

THE ANNIVERSARY DINNER OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION will take place on the 27th of this month, under the presidency of Sir Robert Peel, Bart.

DELIRIUM TREMENS cannot be restricted to human subjects if what Professor Lecocq says of plant tremors be true. He has observed in the leaves of *Caladium esculentum* tremors continued for fifteen to twenty hours at a stretch, and by attaching bells to the plants and using a stop-watch, he has ascertained that the tremors average one hundred per minute. On one occasion the plant shook so violently that the hand of a man [strong man we presume] was not sufficient to steady it. A *Strelitzia*, a *Philodendron*, and a *Begonia* placed near the jumping *Caladium* were infected, and began to tremble with it. While engaged in shaking the leaves the *Caladium* emitted jets of water! Exhibitions of natural extravagancies always pay well, and here is a hint for showmen, who, when spotted boys and six-legged calves no longer attract, may find a travelling conservatory containing plants that throb, jump, tremble, ring bells, and spout water, a very profitable speculation. It is a pity the leaves spouted water only; if they could but spout a little eloquent persuasion, we might be induced to believe what, for the present, we look upon as the invention of a brain in which originate the tremors attributed to plants.

A FLOWER OF MARECHAL NIEL ROSE was lately exhibited at Nottingham market; it measured five inches in diameter, and was of a rich golden colour. The exhibitor was Mr. J. Gibbons, jun., of Bramcote.

THE ROYAL BOTANIC SOCIETY'S FIRST GREAT SHOW on Wednesday last was a brilliant success, and an appropriate inauguration of the present season. The weather was not all that could be desired.

AT THE MEETING OF THE ROYAL GEOGRAPHICAL SOCIETY on Monday last, it was announced that the expedition in search of Dr. Livingstone will leave England on Whit Sunday, the 9th of this month.

ROYAL PARKS AND PLEASURE GROUNDS.—There are fourteen Royal parks and pleasure grounds in or about London, the parks being those of Battersea, Bushy, Greenwich, Hampton Court, Kennington, Kensington, Regent's, Richmond, St. James's, Green, Hyde, and Victoria, and the pleasure grounds of Hampton Court and Kew. The grounds of the Hospital and Military Asylum at Chelsea, with Holyrood Park and Longford River, are also included under the above heading, the total estimate of charges connected with which amounts, for the financial year 1867-8, to £125,326. Of this sum £5,095 are paid to the Ranger's departments of Greenwich, Richmond, St. James's, Green, and Hyde Parks, the grounds of the Hospital and Military Asylum at Chelsea costing £1,704. Under particulars of extraordinary expenditure appear sums of £1,075 for continuation of the river embankment and other works in and around Battersea Park; of £5,392 for lighting Primrose Hill, laying out ground opposite the Coliseum, and rebuilding a suspension-bridge over the Regent's Canal; of £16,347 towards the erection of new iron railings and foot-gates round Hyde Park (which item alone amounts to £10,050), setting back the carriage and footways at Stanhope Gate, putting down gas-mains and erecting lamp-posts on four principal roads in Hyde Park, and alterations of the Lodge at Stanhope Gate. The estimate is limited to such expenses in the several Royal parks and gardens as are requisite to maintain them for public use, and the income derived from them (which amounted last year to £4,807) is paid into the Consolidated Fund.

ROYAL BOTANIC SOCIETY.

FIRST GREAT SHOW, WEDNESDAY, MAY 29.

This was considered the second best show ever held in the gardens; it was certainly as rich in interest as in beauty, and from any part of the tent the spectacle was at once complete and gorgeous. The groups of azaleas, roses, orchids, mixed stove and greenhouse plants, the long bank of pelargoniums, the isolated banks of herbaceous calceolarias and miscellanies, were judiciously divided by masses of green ferns, palms, and other relieving agents; and the general effect fully justified the exclamations of surprise and wonder that were uttered again and again as the visitors entered the tent. There is no other floral fête proper to the London season that can compare with one at the Royal Botanic Gardens, for the ground, the tent, the management, the grouping of the subjects, are all perfect in their way. Unfortunately, the weather voted against success. From about one o'clock there was an occasional deluge, scarce a drop of which came through that well planned tent; but it ruined the promenading, and cast a gloom over the whole day's proceeding. For horticulturalists, and especially for those who were in the professional crowd in the forenoon, the treat was of the very best; there were many superb examples of skill in the treatment of old subjects, and many interesting and valuable novelties, not the least important of the last named being the *Tricolor-leaved Geraniums*. I shall report this show rather fully, in order to bring before our readers some lists of good things. Future shows of this season need not be so fully dealt with, as we do not seek for mere repetitions.

AZALEAS.—In the trade class for eight there was a nice point for the judges to choose between Mr. Turner's gigantic and glowing pyramids and Messrs. Glendinning's smaller plants but better flowers. Any one of Mr. Turner's plants would have made four of Glendinning's, and as plants they were superb in freshness and finish. Comparing the flowers of the two collections, there could be no doubt Messrs. Glendinning's were the best, and we may safely allow a few points on that account in their favour. But against these few points Mr. Turner must have many for the size, perfect training, and perfect uniformity of his plants; and Messrs. Glendinning and Sons must lose a few for bad training, for some of their plants were just the counterparts of the milkmaids' crinolines that *Punch* has caricatured so humorously and so happily; in fact, as a rule they had no shape, but the flowers were abundant, evenly mixed with leaves, and first-rate in quality. Now who shall be first, and who second? I say, first Mr. Turner, second Messrs. Glendinning, for we are judging plants; the judges say, Messrs. Glendinning first, Mr. Turner second; there is nothing more to add except the inevitable conclusion that the judges were wrong. In Messrs. Glendinning's lot were *Extranei*, *Iveryana*, *Eulalie Van Goert* (finely done, the flowers immense, and with leaves peeping through all over; the plant a perfect pyramid), *Perryana*, *Madame Meilhez*, *Variegata*, *Alba lutescens*, *Gera*. Second, Mr. Turner, with gigantic and uniform pyramids (the same, in fact, as were shown at the International last year, but the flowers reduced in size through over work), comprising *Gigantea*, *Conqueror* (quite right every way, full of fresh flowers), *Etoile de Gand*, *Gera*, *Coronata*,

Gledstanesi formosa (a grand white with occasional red stripes), *Perryana*, *Illustris nova*. In the class for six, first Mr. Turner, and this by an almost equally incomprehensible judgment as the last named decision. The plants were immense, but far from perfect as plants; some of them were thin on one side, though well faced up for grouping. Nevertheless, they were fine examples, immensely attractive; but if the judgment of the eight were right, these six ought to have been second, for Messrs. Lee's plants that were placed second were just on a par with Messrs. Glendinning's as to want of uniformity and finish and perfection of flowers. First, Mr. Turner, with a mixed lot in size and style, comprising a splendid *Petunæflora*, a huge *Juliana*, a neat Flower of the Day, a *Holfordii* (with large gaps on one side), a huge and beautiful *Sir Charles Napier*, and a very good *Iveryana*. Second, Messrs. Lee, with a pretty group, no two plants alike in size and shape; the varieties were *Iveryana*, *Marie Louise*, *Juliana*, *Duchesse Adelaide de Nassau* (a gaunt specimen, in great need of knife and bast), *Murryana*, and a union plant of *Gledstanesi* and *Variegata*. Third, Messrs. Lane and Son, with *Obelsoni*, *Magnificenti*, *Eulalie Van Goert*, *Sir Charles Napier*, and another. In the amateurs' class for eight, Mr. Carson, gardener to W. R. G. Farmer, Esq., Cheam, first, with *Barclayana*, *Criterion*, *Formosa*, *Murrayana*, *Holfordii*, *Exquisita*, *Apollo*, *Iveryana*. Second, Mr. G. Wheeler, gardener to Baron Goldsmid, Regent's Park, with *Duc de Nassau*, *Prince of Wales*, *Obelsoni*, *Magnificenti*, *Reine des Belges*, a glorious *Apollo*, a perfect *Albagrandiflora*, and a good Mrs. Fry. Another nice point here: Mr. Wheeler's plants are the most uniform and the richest in colour of the two, yet he gets a second. I give it up; the azalea judging on this occasion was such as no fellow can understand. Third, Mr. Penny, with beautiful examples of *Baron de Pret*, *Magnet* (a grand and perfectly finished pyramid), *Holfordii*, *Magnificenti*, *Extranei* (fine), *Iveryana*, a model *Duchesse Adelaide de Nassau*. Fourth, Mr. Wilkie, gardener at Oak Lodge, Kensington. Very nice groups of six each were shown by Mr. Peed, Mr. J. Wheeler, gardener to J. Phillpot, Stamford Hill, and Mr. Smith, gardener to A. Anderson, Esq., Norwood.

PELARGONIUMS.—These were displayed on the long bank at the upper end of the tent, where in former times the orchids were located. They made a marvellous display of colour. In the show section: First, Mr. Turner, with huge and finely-finished specimens of *Royal Albert*, *Pericles*, *Belle of the Ball* (a pretty salmon pink, with dark top), *Desdemona*, *Spotted Gem*, *Patroness*, *Lord Clyde*, *Lilacina*, *Fair Rosamond*. Second, Mr. Fraser, Lea Bridge Road, with *Leander*, *Desdemona*, *Etna*, *Empress Eugénie*, *Rose Celestial*, *Lilacina*, *Pizarro*, *Ariel*, *James Lodge*. In the amateur class: First, Mr. Nye, gardener to E. B. Foster, Esq., Clewer Manor, Windsor, with *Garibaldi*, *Patroness*, *Belle of the Ball*, *Etna*, *Rose Celestial*, *Fair Rosamond*, *Sir Colin Campbell*, *Madlle. Patti*, *Desdemona*; a fine lot, in the best style of training and everywhere in perfect finish. Second, Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, with *Beacon*, *Pericles*, *Rose Celestial*, *Empress Eugénie*, *Sir Colin Campbell*, *Desdemona*, *Madlle. Patti*, *Lilacina*, *Garibaldi*. Third, Mr. Wiggins, with *Alba formosa*, *Flambeau* (fiery, but scarcely a show variety), *Maid of Honour*, *Cynosure*, *Pericles*, *Regina formosa*, *Princess of Denmark*, *Royalty*, *Aimée*. Fourth, Mr. Weir, gardener to Mrs. Hodgson, Hampstead, with *Argo*, *Belle of the Ball* (lively flame carmine), *Etna*, *International*, *Queen of Beauties*, *Pericles*, *Attraction*, *Sir Colin Campbell*, *Virginia*. In the fancy section, first, for six in the trade class, Mr. John Fraser, with specimens that I venture to characterize as the best ever shown; they were as uniform as if they had all been cast in one mould of a shallow concave form, the plants having low convex heads of nearly the same size throughout, say five feet over, swelling enough to be far from flatness, yet showing every flower even to the edge; the varieties were *Clara Novello*, *Celestial*, *Maroon*, *Lucy*, *Roi des Fantaisies*, *Arabella Goddard*. Second, Mr. Turner, with grand examples of *Roi des Fantaisies*, a superb *Delicatum*, a one-sided *Lady Craven*, *Lucy*, a grand *Godfrey Turner*, *Ellen Beck*. In the amateur class, first, Mr. Donald, gardener to J. G. Barclay, Esq., Leyton, with splendid specimens of *Bridesmaid*, *Queen of the Valley*, *Lady Craven*, *Miss in Her Teens* (showing too many ties), *Rosabelle* (superb), *Clara Novello*. Mr. Weir showed *Lady Craven*, *Mrs. Stewart Hodgson*, *Evening Star*, *Bridesmaid*, *Celestial*, *Delicatum*. Mr. James, of Isleworth, showed *Silver Mantle*, *Princess Helena*, *Cloth-of-Silver*, *Godfrey Turner*, *Mrs. Marnock* (in the style of *Godfrey Turner*, but lighter and brighter), *Mrs. Ford*.

(To be completed next week.)

CRYSTAL PALACE FLOWER SHOW, MAY 25TH.

The first show of the new season was one of the best ever held at the Crystal Palace, and was favoured by pleasant weather, a few degrees warmer than the temperature that prevailed during several days previously. But exhibitors had not much to say in favour of the weather, for the frost during the night and early morning had found its way into several of the vans, and the consequence was the complete destruction for all exhibition purposes of several fine plants. Some of the frosted plants drooped as if they had not tasted water for weeks past, others were curled and shrivelled as if operated on with curling irons by a hairdresser, and a few were blackened and nearly dead. Only in one instance, however, did this interfere with the general splendour of the exhibition, and that was a case which interested all. Not only was it a grand show, it was extensive also, occupying the whole length of the nave right and left of the great orchestra, extending in fact from the cool tank at the ethnological end to the screen which is now the rear wall at that end. The arrangement consisted of a central table and stages on either side, with walks up and down for the company. At the orchestra opening, and running back into the concert room transept, were special groups of plants of peculiar attractiveness, and at the corners in this conspicuous position were the great collections of Azaleas. We must again complain of one great fault in the method of the show, and that is the placing of the plants on ill-looking, dirty, dark green wooden stages. Green baize is no doubt costly, and is quickly destroyed by the placing of pots on it, but grass-mowings might be tried, and they could be obtained from the garden fresh, and in any quantity. Certainly there is a reform needed in respect of the staging of the plants, and we shall hope for something better yet than the ugly ground-work that has been adopted for several years past.

AZALEAS were important features of this show. The principal competitors in the trade class for eight were Messrs. Glendinning first, and Mr. C. Turner second. The award was no doubt simply and solely the conse-

quence of the frost, for Mr. Turner's plants both in respect of size and finish were many points in advance of Messrs. Glendinning's; but one of them, Conqueror, was completely conquered by frost on the journey, and all its leaves and flowers hung about it like rags. What it ought to have been was sufficiently set forth by the magnificent pyramid plants, vast in dimensions, faultless in training, and gorgeous in colour, that constituted the remainder of the group; *Purpurea* and *Petunæflora* especially were matchless in splendour. Messrs. Glendinning's plants were not so large nor so regularly trained, though as to bloom and freshness the best in the show, and most properly placed first under the circumstances. Very nice groups were shown by Messrs. Lee, of Hammersmith; and in the amateur classes by Mr. Penny, Mr. Carson, and Mr. G. Wheeler. In these collections were examples of *Triumphans*, *Chelsoni*, *Perryana*, *Extrani*, *Criterion*, *Iveryana*, *Petunæflora*, *Purpurea*, *Admiration*, *Madamo A. Verschaffelt*, *Murrayana*, *Fascination*, *Duchesse de Nassau*.

Roses constituted another most important feature, the banks of pot plants having a grand appearance, Messrs. Paul and Son and Mr. William Paul being each first in the classes in which they competed. In these groups were beautiful examples of *Alfred de Rougemont*, *Prince Camille de Rohan*, *Charles Lefebvre*, *François Lacharme*, *Madame Victor Verdier*, *Oliver Delhomme*, *Beauty of Waltham*, *John Hopper*, *Victor Verdier*, *Centifolia Rosea*, *Marguerite de St. Amand*, *Madame Souper*, *Souvenir d'un Ami*, *Gloire de Dijon*, *Devoniensis*, *Madame Falcot*, and *Maréchal Niel*, the last being in excellent condition in Messrs. Paul and Son's lot, the colour clear canary yellow. There was a beautiful bank of ORCHIDS in continuation of the bank of roses; and here Mr. Penny took first place with a glorious group in the class for twenty, while Mr. B. S. Williams stood first in the trade class. Mr. Young, of Leigh Park, had the best group of twelve. There were several smaller collections of great merit.

PELARGONIUMS made an extensive and magnificent bank facing the roses, and were besieged the whole day through. Mr. Turner stood first in the show and fancy classes for nurserymen with beautiful examples, and Mr. Nye and Mr. Donald took the lead in the classes for amateurs. In the show classes there were examples of *Beacon*, *Beadsman*, *Candidate*, *Garihaldi*, *John Hoyle*, *Lilacina*, *Peacock*, *Rose Celestial*, *Sir Colin Campbell*, *Osiris*, *Spotted Gem*, and *Pericles*. In the fancy classes, *Arahella*, *Goddard*, *Cloth-of-Silver*, *Crystal Beauty*, *Delicatum*, *Evening Star*, *Lady Boston*, *Modestum*, *Undine*.

HEATHS were shown in great quantities, but there was nothing new or peculiar amongst them. The best collections came from Mr. Rhodes and Mr. Peed.

STOVE AND GREENHOUSE PLANTS were also abundant, various, and fine, the subjects mostly such as we are frequently reporting on. Mr. Baines, of Bowden, Manchester, presented a grand sixteen in the principal class for amateurs, Mr. Peed the best ten, Mr. Ward the best six. In the trade classes Messrs. Lee were first for ten, and in the open class the same exhibitors took first place for six. Many notes might of course be made upon meritorious subjects, but we shall be content to name a superb *Medenilla*, one of the best ever shown, from Mr. Wilkie; a very fine *Hæmanthus punicus* from Mr. Baxendine, and some extraordinary examples of *Sarracenia*s from Mr. Baines. A sight of one pan, consisting of tall green pitchers of a variety of *S. flava*, was worth, to any genuine lover of plants, the half-guinea charged for admission to the exhibition.

NOVELTIES were not abundant, but there were some highly meritorious subjects. Messrs. Veitch presented the charming *Retinospora plumosa*, and a fine *Dracæa* called *Regina*, and a new and nice palm, *Areca crinita*. Mr. Carr, gardener to P. L. Hinds, Esq., of Byfleet, put up a fine example of *Adiantum Farlayense*. Mr. W. Bull presented a pretty group, amongst them *Tillandsia argentea*, one of the most curious of newly introduced plants, resembling a cluster of rats'-tails, all clothed with a flannelly sort of wool. This comparison is not an elegant one, yet the plant is elegant as well as curious. *Anæctochilus petala marmorea* is an elegant kind, with rather large ovate delicately marbled leaves. *Agave macrocantha* looks as if it would make a grand specimen with a few years' patience. *Maranta rosea-picta* is a pretty and apparently small growing kind, with superb crescents of rose colour on handsome dark green leaves. Mr. B. S. Williams exhibited the noble variegated variety of *Phormium tenax*, which assuredly is equal in beauty to any *Cordylina*, with other novelties; and all three of the foregoing exhibitors presented examples of *Sanchezia nobilis*. The last named plant deserves the attention of plant-growers generally, on account of its splendid character and usefulness. It is an acanthaceous plant, obtained in the first instance by Mr. Pearce in Ecuador, for Messrs. Veitch and Son. It is of robust habit, quite herbaceous, with large oblong lanceolate leaves, and an inflorescence consisting of erect terminal fascicles of flowers, with bright red bracts and yellow corollas; the bracts are an inch long, and the tubular corollas are two inches long. As each fascicle consists of nine to a dozen flowers, the appearance of the plant when in bloom is exceedingly brilliant, and in every sense distinct.

The gardens were rather dull on Saturday last, not a single bedding plant having been put out, and there are many evidences in the shrubberies of the severity of the past winter, especially amongst bays and Portugal laurels. Probably by this time the scene is changed, for a few days' work in bedding, when the season has advanced so far, produces an effect which is pleasing, if not equal to what follows when the plants have made some progress. There were 14,386 persons present at the show, and nearly all of them kept within the Palace the whole of the day.

THE NATIONAL HORTICULTURAL EXHIBITION.

The arrangements for the National Horticultural Exhibition, which is to be held in the Manchester Botanical Gardens on the 7th and 8th of June, and to continue open during the whole of Whit-week, until the 15th of that month, have so far progressed that some description may now be given with accuracy and completeness. The larger portion of the show will be held under canvas, in large marquees constructed for the occasion. The present exhibition building will be devoted to the show of orchids and stove-plants. Connected with this, by covered ways, will be two large marquees. One on the north side of the exhibition-house will be about the size of that building, and is to be devoted principally to the show of fruit. At the western end of the gardens a large plot of land has been set apart for the large marquee which will contain the greatest proportion of the flowers. This plot of land is being set out, under the superintendence of Mr. B. Findlay, in a fashion somewhat similar to the style of the International Horticultural exhibition last year, a style which proved very effective for the artistic disposition of the plants. In the centre of the plot,

which is 300 ft. long and 60 ft. wide, six circular mounds of earth have been built; each mound has three tiers, and is covered with turf. The whole show in this marquee, where the azaleas, rhododendrons, pelargoniums, and such plants will be exhibited, may be viewed in detail by the visitor taking a winding walk around these mounds from one end of the building to the other. The sides of the marquee are banked up with earth to about the height of the mounds; they are also covered with turf, but only consist of two tiers. The entire floor is level, but at the northern end of the marquee a high bank has been raised, from which a full view of the show, as a whole, may be obtained; and, to render this the more effective, the framework supporting the canvas covering gradually rises as it approaches the higher end. The exhibition will occupy altogether just one acre of ground, and the contract for the fitting up of the necessary buildings has been taken by Mr. H. Barton, of Winsford. The schedule of prizes is a very liberal one. In the amateur division there are 33 classes, in each of which three prizes varying in value from £20 to 10s. are offered. In the nurserymen's division there are 30 classes, in each of which three prizes varying from £16 to £1 are offered. There are also 17 open classes for fruits, in which prizes from 10s. up to £5 are offered. Very nearly £1,000 is to be given in prizes, of which close upon half will go to nurserymen, over £400 to amateurs, and the rest to the open classes. The liberal scale on which the prize list has been constructed may be judged from the fact that nine of the prizes are of values from £10 to £20, while 75 others are worth £5 and upwards. The publication of this list has already attracted a considerable number of entries from many of the nurserymen who so largely contribute to the metropolitan and some of the provincial flower shows. Amongst those who have already promised their support to this exhibition are Messrs. Lane and Sons, Berkhamstead; Messrs. Paul and Son, Cheshunt; Messrs. Ivery and Son, Dorking; Mr. A. Turner, Leicester; Mr. C. Turner, Slough; and Mr. Williams, Holloway. The horticulturists of Manchester, who always so well support the shows at the Botanical Gardens, will largely compete on this special occasion. Mrs. Cole and Sons, Mr. J. Shaw, Bowdon, and Messrs. G. and W. Yates, Manchester, have promised to exhibit; while from Dalkeith the Duke of Buccleuch will send a large quantity of fruit; and the Duke of Hamilton will contribute a collection of plants from his palace near Glasgow. A correspondent of the GARDENER'S MAGAZINE thus expresses his anticipations of the show:—"No doubt the plants there will be equal to those exhibited in London last year; but when we remember that some of the best collections came from Manchester, we cannot doubt the effect. It quite surprised me to see that Manchester had sent so much up, and that she had taken the laurels from the great London growers, who evidently thought no one could surpass them; but Manchester did, and great honour is due. Imagine them looking so fresh as they did after travelling 200 miles. Indeed, one would have thought they had just been taken from the hothouses. I hope the London growers will benefit by the example set them, and endeavour to help them in their great undertaking."

The gardens are now looking in very excellent condition, and during the last few days, when the temperature has been so much milder, the progress of vegetation has been almost incredible. However, by the time of the exhibition a much gayer appearance will be presented, as nearly 50,000 bedding plants will have been placed in their summer quarters. The first day of the show may almost be termed the private view, as admission will be confined to the annual subscribers to the gardens and to visitors on payment of half a guinea each. On the Saturday the price of admission will be half a crown, but during the whole of Whit-week the charge will be only a shilling. We cannot doubt that if the weather should be favourable the show will be crowded each day of that week; and we hope that the result may do much towards accomplishing the object of the promoters of the exhibition—viz., the liquidation of the debt which for so many years has hampered the efforts of the Society. Owing to the special circumstances of the case, the gardens will not be open this year to Sunday-school children.—*Manchester Guardian*.

AURICULAS IN 1867.

I had not finished my holiday in the West in time to attend the Royal Botanic Show on the 27th of April, so I lost my customary view of the new Auriculas and of the competition in old varieties. But, in order not to be quite the loser of a treat, I made a visit to my excellent friend, Mr. James Butcher, of Camberwell, on the 2nd of May, and to Mr. Charles Turner, of Slough, on the 4th. In each case I was so fortunate as to see a very large proportion of the flowers in their very best condition; some, of course, were past their best, but the loss in this respect was trifling as compared with the gain of seeing many, and those the most typical varieties, new and old, in prime perfection. This has not been a kind season for the Auricula; the winter killed many; the cold, damp spring was unfavourable to the rising of the trusses, and the burst of hot weather with which May commenced quickly finished the bloom of such as were latest in coming into flower. All highly bred florists' flowers are subject to vary much from their proper characters when the weather does not quite suit them for some time before flowering, and in many cases this season flowers that should have been smooth were rough, some that should have been large were small, some that should have been white were gray or green; yet, altogether, remembering what a trial every kind of vegetation has been subjected to, including even stove and greenhouse plants, auriculas have done so well that the experiences of the present season furnish no solid argument for the abandonment of their cultivation, even by those who have been most sorely tried. In Mr. Butcher's plants I have been interested for several years past, and have never failed till this season to attend the exhibition which takes place annually about the 25th of April at South-street, Camberwell. Mr. Butcher is a florist of the old school, and, after wearing the blue apron honourably during the term of an ordinary lifetime, keeps a few special subjects in hand for his private entertainment, and in the patriotic hope of aiding thereby to revive the taste for floriculture in the metropolis. He has, at least, done his part well, and at the annual exhibitions of the South London Society the flower is ably vindicated, and actually finds every year a few new advocates and followers. It is not a very rural spot, it is in the thick of houses and London smoke; yet the collection is a good one and is in admirable keeping, and as the plants are nearly always covered with frame-lights they are in great measure preserved from the contaminations that would otherwise result from the constant deposition of soot on their delicate foliage, and still more delicate flowers. The frames employed are ordinary garden frames, but the lights rest on cross-bars at each end, which keep them up above the bearers, and allow two or three inches of air back and front. In some cases wooden shelves are

placed stage fashion in the frames for the pots to stand upon; in other cases there is merely a bed of coal-ashes. Mr. Butcher has raised a goodly number of excellent seedlings, the result of careful crossing, and he has now a considerable number of seed-pans with little plants bristling all over them, and giving promise of work to be done, at least, if there is as yet no promise of flowers. As an old professional practitioner in horticulture, our friend knows the value of patience in dealing with seedlings. He sows in shallow pans, sets the pans on a wall, and pretends to forget them for at least a year. Then, when the soil has been soddened with rain, and baked with heat, and made mellow again by frost, he suddenly remembers them, and puts them in a frame, and hopes that spring will start the seed into activity. And it does so. I saw at least a dozen pans quite covered with little plants a week or two old, but the seed was sown a year or more previously, and the soil had become covered with a coat of moss, through which the seedlings had to push their way. After these are picked out, the soil will not be thrown away, but will be kept another year in the same pans, and then there will be another crop, the result of the germination of seeds that at present are dormant.

In looking over the blooms I noticed that selfs and green-edges were generally the best. Those that had varied most from their true characters were the whites and the grays, and the whites especially had been most punished. Worse than this, a few valuable kinds had disappeared, and not the smallest less was the original John Penn, a superb purplish blue self that was certificated in 1865. In looking over the stock, the following notes were made:—

Selfs.—Garibaldi: Good, the colour plentiful, a fine bold truss of seven. Lightbody's Meteor Flag: This opens thin, and looks queer at first, but improves, and becomes at last one of the grandest of the selfs, the colour a rich violet blue, the pip flat, the paste solid and pure; the foliage is mealy; plant a good grower. Spalding's Blackbird: Fine form, colour heavy maroon, the paste perfect; has a weak stem, but is indispensable. Martin's Mrs. Sturrock: A charming flower in form and colour, dull maroon crimson; pure solid paste; not robust, and rarely makes a big truss. *Seedling*: Blacker than Blackbird, and otherwise good. Traill's Blue Prince: Large, good violet colour, narrow but sharp paste; huge thrum; don't like it.

Green-edged.—Howard's Lord Nelson: Good every way. Lightbody's Star of Bethlehem, a fine green edge, clear violet colour, narrow paste; good. Goldham's Blucher: Not much known; large, good form; fine green edge, abundance of colour; superb. Chapman's Sophia: Sometimes classed as *gray*, but this time decidedly green; in size medium, edge broken in upon by the body colour, which is a rich purple, like that of Matilda; the thrum greenish; a grand flower; leaves serrated and slightly mealy. Lowe's Free Trade: Middling good edge, fine velvety body colour, pure paste, fine bold thrum of clear sulphur. Duchess of Oldenburgh: Rather cupped, narrow but bright edge, violet ground; good. Traill's General Neill: Large thrum, fine paste; first-rate. Mrs. Butcher: A good seedling; edge Venetian green, lively maroon colour, pure paste, large yellow eye. Campbell's Admiral Napier: A good edge, the ground jet-black, fine paste; splendid. Olliver's Lovely Ann: Still a first-rate variety, and well done in this lot. Smith's Waterloo: Pointed petals, good shape, bright pure green edge, colour dark chestnut, paste rather thin, and showing a pale lemon ground through it; not perfect, yet better finished than Page's Waterloo. Traill's Mayflower: Raised from Olliver's Lovely Ann, and differs from it only in the leaf.

Gray-edged.—Turner's Ensign: Large, stout, sharp gray edge, bold colour, bright clear paste; fine. Hedge's Britannia: Sharp narrow edge, lively violet ground; first-rate. Traill's Beauty: Sometimes a white, this time the edge greenish gray, narrow dark colour, round greenish thrum; superb. Cheetham's Lancashire Hero: Large, perfect in form, the edge greenish gray, ground black, paste circular and pure, thrum bright orange; a good grower, a brilliant flower, not surpassed even by Page's Champion. Ashley's Newton Hero: Broad edge, narrow colour, large paste; good. Headly's Charles Edward Brown: Thin edge, clear, sharp, narrow black ring, paste circular, thrum dull; a most beautiful and distinct flower. Headly's George Lightbody: Large superb edge, good colour, clear paste, bright yellow thrum; a splendid variety, no disgrace to its noble namesake.

White-edged.—Lowe's Maggie Lauder: Edge greenish white, colour regular and dark, paste peerless; a truss of sixteen flowers; quite a grand sight; to reduce them to competition 5 murder. Lightbody's Robert Traill: Thin edge, heavy narrow colour, paste extra large, gold thrum; fine. Lee's Bright Venus: The colour forms a clear ring; beautiful. Smith's Lady of the Lake: Sharp white edge, clear broad black ring of colour, pure white paste; first-rate. Lightbody's Candidate: In the style of the last; superb maroon colour, narrow edge; splendid. Traill's Rival: Large pip, broad white edge, narrow colour, fine paste; good. Taylor's Favourite: Edge narrow, scarcely white but good, broad velvety maroon ground, paste snow white, thrum clear orange; a good grower; good trusser; far better than commonly reputed, and fit for a place in the most select lot. Campbell's Robert Burns: Fine white edge, intense black colour, large thrum; a glorious flower, worthy of its honourable name. Wild's Bright Phœbus: Fit for a six, a twelve, a twenty-four, a hundred, any number, anywhere; the paste intense, almost glittering white, and a bold ring of colour. I cannot say anything about John Penn No. 2, for it was past at the time of my look over. And so now for Mr. Turner's.

The Auricula frames at Slough are placed on the north side of a big plant-house, and so are shaded from midday sun. They are of convenient size and taller than ordinary. There is an open slit front and back in the ends for the constant admission of air. The day of our visit ("our" being made out of "my" by the company of Confidante) was fine, and we were not allowed to see them till quite 4 p.m. Quite right; for the sun was blazing hot, the lights were all tilted up by means of flower pots to give extra air, and covered with a thick pattern of hexagon netting to keep the sweet things cool and quiet. But about four o'clock Mr. Ball, the genius of this department in the Slough nurseries, withdrew the nets, tipped the lights over, and presto! such a sight! I don't believe there is in the Arabian Nights a more wondrous conception of jewelry or inlaying than these Auriculas might have furnished, even to a pleading prosaist: this word is an adaptation from the French of my own, mind. However, let it suffice that the frames were crammed with specimens in perfection of bloom, the stock being elsewhere, and the seedlings elsewhere; it was like a peep into Fairyland. The show flowers were the more enjoyable because beside them were some frames filled with alpinas of superb character; in fact, Mr. Turner has worked up the alpinas to a state of as great perfection as we can imagine them capable of, though, as to perfection in flowers, we may adopt a Scripture phrase, and say we know not what a day or an hour may bring forth. I shall not attempt to describe all I saw, or all I paid special

attention to in the Auricula way. But here are a few notes that may interest the few remaining lovers of this flower, who are as priests that hold fast to a good faith that the people have deserted in a search after idols.

Selfs.—Smith's Formosa: Well calculated to attract attention, and worth more praise than growers usually bestow upon it; the fact is, auricularians are too much afraid of colour; it is a flower of good form, and the many tone of it is peculiar and refreshing. Turner's Negro is very fine for a dark flower. Sim's Eliza had gone by, but had been good; it is an advance every way on Martin's Eclipse. Sims's Vulcan has a darker colour than Blackbird, but paste not so good; it comes best when allowed to carry a large truss, so the five or seven rule is ruin to it. Spalding's Blackbird is always good; the colour firm; the paste well put on, especially in the boundary line; the form excellent. Chapman's Squire Smith: Lighter than Blackbird, and scarcely as good in the paste; nevertheless the form is good, the pip flat, the eye clear, the foliage bright; the variety altogether good and beautiful. Spalding's Metropolitan has been magnificent at Slough generally; it is not considered equal to Richmond's North Star, a well shaped blue, but it appears this season to have stolen a march upon itself; at all events, while it has been at its very best in form and paste, it has been beyond its average best in colour. Lightbody's Meteor Flag: The best of all the blues, and a great trusser; when at its best, the pip is flat and the colour rich, and it keeps a great time.

Green-edged.—Smith's Lycurgus: A bold flower; the edge a fine green, but unfortunately beaded on the margin; the colour is dense, paste good; a liberal trusser. Heap's Smiling Beauty: Bold, brilliant, and with many more virtues than vices; one of the very best in this class. Lightbody's Star of Bethlehem: Defective, but eminently showy; the edge is the worst part of it; the colour is a fine violet; the paste sharp, but narrow; the thrum very large and pale. Nice blooms, and in most cases nice trusses also, of Traill's General Neill, Litton's Imperator (a pretty small green-edged flower, rather starchy in form, the ground black, the paste round, the thrum bright orange), Olliver's Lady Ann Wilbraham, Headly's Conductor, Campbell's Admiral Napier, Howard's Lord Nelson, Dickson's Duke of Wellington, Moore's Violet, and Clegg's Lady Blucher.

Gray-edged.—Chapman's Sophia: Fine for size and quality; sometimes starchy, but not so here and now; the edge good, but a little broken in upon by the splendid purple colour; the eye pale yellow; it is one that terrifies the senior judges by its pomposity of colour, but the rising generation take to it; Mr. Ball says he never saw it so good as in 1867. Turner's Ensign: Neat gray edge, broad purple colour, good paste. Read's Miss Giddings: A sensation flower; rough, but flat; plenty of colour; well proportioned; small thrum. I measured a pip of this, and found it exactly an inch and a quarter in diameter. Lightbody's Richard Headly: Beautiful in form, broad gray edge, colour black, well defined, paste somewhat angular, eye orange; a fine thing. Good examples also of Lightbody's Alma, Waterhouse's Conqueror of Europe, Dickson's Duke of Cambridge (is this a gray or a green edged?), Cheetham's Lancashire Hero, Fletcher's Ne Plus Ultra, Grimes's Privateer, Lightbody's Sir Charles Napier (large, comes near to Conqueror; inconstant, this year fine), Headly's Superb, Headly's Stapleford Hero.

White-edged.—Ashton's Bonny Lass: An immense amount of white about this flower; the size medium, edge far from perfect, but bright; colour nicely laid on in a narrow black ring, broad white paste; very attractive. Lee's Earl Grosvenor: Large, round, smooth, huge truss, pure white edge, pure black colour, broad paste, greenish thrum, leaves large, gray, and drooping; this is a neglected flower, of better quality than commonly reputed; I see it priced in the catalogue at 3s. 6d., yet there are people who will pay ten pounds for a bit of paltry jewelry, which never changes except to lose its lustre, and become unfashionable; and pass by such a bit of everlasting jewelry as this, wrought by the hand of God, and capable of a hundred changes as the year goes round, but incapable of parting with its primal lustre. Taylor's Glory: This is called Glory because it is Glorious, and the man who is not proud of such a flower, whether raiser or cultivator, ought to be—but never mind, we will consider what should be done with such an ineptus. The edge is exquisite, and is really white; the colour is delicate and delightful violet; paste as it should be; mealy foliage. Hepworth's True Britain: Large, rarely opens flat, edge white and faultless, ground dark purple, paste circular, thrum clear orange, bold handsome foliage; one of the best whites. Fine examples also of Taylor's Favourite, Campbell's Robert Burns, Ashworth's Regular (one of the best), Summerseale's Catherine, Lightbody's Fair Maid (lovely, but too fond of flitting), Smith's Ne Plus Ultra, Traill's White Rival, Smith's Lady Sale (fine), Clegg's Crucifix (coarse, bold, and showy), Lowe's Maggie Lauder, Popplewell's Conqueror.

Amongst the new varieties I made special notes on the following:—

Unexpected (Turner).—Broad dull green edge, moderate black colour, good paste, large thrum, green leaves; good.

Colonel Champeys (Turner).—Narrow clean gray edge, colour purplish blue, broad and good, paste clear white, thrum too pale. Flowers finely formed, stout, and in a handsome truss.

Charles Turner (Turner).—Finely formed, stout and flat, edge narrow, clear gray, bold violet crimson colour sharply defined, paste pure and circular, thrum yellow; first-rate.

Cheerfulness (Turner).—Large, well shaped, scarcely smooth, rosy purple self, with beautiful white paste; good.

Crown Prince (Turner).—First-rate form and substance, combined with size and smoothness, self coloured deep crimson, with shifting shades of indigo, and excellent paste; a very fine flower, the exact colour of which cannot be determined, as it varies with age, but is always good.

The Alpines presented a lovely appearance, and it may be concluded, by the large number grown, that they are rising in favour, which they well deserve to do. No raiser in modern times has dealt with these so boldly and successfully as Mr. Turner, and the Slough collection is remarkable for variety and quality; nowhere else is there anything like it. The question necessarily arises whether we are doing justice to this race in the framing of schedules, and in our public criticisms on matters of floral taste. I am afraid we are shamefully neglectful of them, while wasting strength and means on subjects far less worthy.

Defiance.—Richest crimson shading to maroon, gold yellow paste; the best formed of all the alpinas with the exception of John Leech.

Selina.—Large and smooth, soft rosy purple, white paste; fine.

Brilliant.—Richest maroon, and clear yellow paste.

Helen.—Rather pin-eyed, but grand for size and form, colour rosy purple shading to crimson, large sulphur paste.

Starlight.—Maroon and purple, paste clear jonquo yellow.

Constance.—Indigo purple and straw paste; very beautiful.

Christine.—Rather cupped, bluish purple, pale straw colour; second-rate, yet very pleasing.

Vivid.—Crimson purple and gold yellow; a splendid flower.

Minnie.—Purple shading to lavender, pale yellow paste; fine.

Beatrice.—Superb form, shaded purple, fine solid pale straw paste.

Eclipse.—Purple shading to blue and crimson, the paste clear sulphur.

Field Marshal.—Maroon shading to black, bright gold paste; splendid.

Satan.—Broad rich maroon colour, clear sulphur paste; a fine flower with a bad name.

Novelty.—Purple shading to rosy purple, the paste primrose; very pretty.

Bertha.—Rich purple shading to blue edge, paste primrose.

Venus.—Large, fine form, broad purplish maroon colour, gold yellow paste.

Lustre.—Large, stout, and smooth, colour crimson deepening to black, bright yellow paste; extra fine.

Constellation.—Larger than Lustre, and in the same style of colouring, yet distinct, especially in the colour, which is darker within and brighter without; extra fine.

Echo.—Large, finely formed, quite smooth, colour rich crimson shading to violet, paste primrose, and not enough of it.

Fascination.—Beautifully formed and finished, colour very dark shading to pale violet, paste pale sulphur; first-rate.

President.—Dark crimson shading to fiery crimson, paste gold yellow; a rich, lively, finely finished flower.

Princess.—Fine dark colour shading to violet, with white paste; novel and pretty.

Trumpeter.—Large and handsome, but wanting finish, colour in three shades, that within being deep red, next rosy crimson, margin reddish orange or buff, paste yellow; a showy and novel style of colouring, and likely to lead to the establishment of a new class.

Jessie.—Crimson shading to violet, paste yellow; pleasing, but second-rate.

At the time of our visit the tulips were in full bloom, being many days in advance of their ordinary season at Slough. It was a good bloom, though the flowers were in most cases wanting in size, as might be expected, as the result of the forcing weather by which they were hurried. Carnations and picotees looked well, and there was an immense number of them. As for other departments, they were all in the smart trim proper to the place. Many proofs that the last was a bad winter were to be seen amongst coniferous trees and roses. The houses and pits devoted to pelargoniums, comprising all known classes, were full to repletion, and the specimens intended for exhibition were on shelves high up near the glass, with air and light all round them, making themselves finely for the day of triumph. S. H.

NOTES ON THE EXHIBITION OF TRICOLORS.

Having entered the garden by way of the Queen's Road entrance, my first glimpse of the exhibition was a miscellaneous collection of plants by Mr. B. S. Williams, of the Victoria Nursery, Holloway, in the western arcade. As but few persons were attracted to this portion of the exhibition, I had a capital opportunity of observing, according to my judgment, their respective merits. We have been accustomed as each season revolves to behold at our leading metropolitan exhibitions the same varieties more or less in every collection, so that wherever there is a freshness of subjects introduced (apart from novelty) we feel our interest revived. One of the most noticeable features in Mr. Williams's lot was a variegated pine named *Ananas sativus variegatus*, producing a fine fruit; this had a very pleasing effect set in the midst of flowering plants. There was also a fine plant of *Imantophyllum miniatum*, having splendid trusses of bright orange coloured flowers. The remainder consisted of azaleas, aphelexis, and other showy stove and greenhouse plants. As a kind of bordering to this collection were two rows of variegated Geraniums in pots, among the most remarkable of which was *Annie Williams*, having a very distinct appearance to the generality of the above section; also by the same exhibitor was a variety named *Brilliantissima*, a great improvement on that very old favourite "Brilliant." A collection of varieties of British ferns, consisting of upwards of forty varieties, were uncommonly clean and healthy. There is great beauty and interest attached to this class of plants on account of their curious structure. They may vie in graceful appearance with many of the more rare and expensive exotic ferns, and are far more useful for general purposes, especially for the very many conservatories that are affixed to most of our villa residences, and which are, as a rule, deficient of good heating apparatus, so that the hardier the constitution of the plants the better are they adapted for furnishing these houses.

We have now before us a collection of Standard Zonale Geraniums, exhibited by Mr. William Paul. They consist of the most popular varieties that have been sent out by that gentleman, with specimens of Mrs. Pollock and one or two other Tricolor varieties added. We are led to ask to what use can we turn this style of growth. They may, like our tall plants of chrysanthemum, that are cultivated for the purpose of large or monstrous blooms, be well adapted to be intermixed with azaleas and other large plants that are past bloom, as the heads of the zonales when in flower can be so arranged as to be visible just above the foliage of the others, thus producing a very glowing effect when otherwise the house would have a sombre appearance. In front of the zonales was an immense bush covered with huge clusters of flowers of that lovely variegated plant *Hydrangea hotensis variegata*. Also from the same exhibitor a most interesting and beautiful collection of variegated Ives and Aucubas. Surely the time has arrived when we can have such a choice of refined, and I may say without exaggeration very chaste foliage plants presented to us, and that at moderate prices, that important improvements may be made in the planting of parks and gardens. In this advancing age, the time ought to have arrived in gardening when the barbarous sameness produced by the crowding in a given spot of a quantity of some free growing evergreens or trees, with the view of realizing immediate effect without any regard to refined taste, should be abolished. As we shall have the new Hall of Arts and Sciences so closely connected with our national Horticultural Society, it is to be hoped that the science of gardening will there find a refuge for its future development.

Passing a collection of some well-flowered Ericas, and other greenhouse plants, exhibited by Messrs. F. and A. Smith, of Dulwich, we have now arrived at an exhibition of the principal features of this day's show, that is, a vast number of Tricolor Geraniums by that great vendor of new plants, Mr. Bull, of Chelsea. They were apparently seedlings, being very small

plants, in groups of threes, plunged in large pots, the surface being mossed over so as to give them a clean and neat appearance. Although there may be some extra superior sorts amongst this collection, yet to my fancy the most distinguishable was a very neat and highly attractive silver-leaved Ivy Geranium, with a profusion of light pinkish flowers. It will, no doubt, make a first-class bedding or edging plant for a ribbon border.

We come now to a further lot of larger plants of the Tricolors. Beside them was a fine collection of foliaged plants; both being exhibited by Messrs. E. G. Henderson and Son, of the Wellington Nursery, St. John's Wood. Among them were two very attractive varieties—viz., *White Lady*, of the silver-leaf type, a very free bloomer; also *Queen of Nosegays* and *Rosetta*. The last named was a very desirable variety, and evidently a very free bloomer, as it exhibited a quantity of delicate rosy pink flowers. But more noticeable for splendour, in the contributions from the Wellington Nursery, were those superb Tricolors *Lucey Grieve*, *Sophia Cusack*, *Sophia Dumaresque*, *Sunshine*, and *Lady Cullum*. The first and last named of these five are perhaps the most magnificent Tricolors in existence. From the same firm came a collection of miniatures, adapted, no doubt, for edgings, as they are of very compact habit, and have brilliant colours. The best of these were *The Bride*, *Golden Pet*, *The Fairy*, *Queen's Favourite*, and *Minnie*.

We have now come to the last collection of Tricolor Geraniums in this portion of the exhibition. They were from Messrs. F. and A. Smith, of Dulwich, consisting of upwards of forty varieties, many of them being seedlings, as yet not advertised for sale. There was a peculiarity about these plants which I cannot refrain from noticing, and that was the remarkable freshness which pervaded them, thus assisting very much to bring out their true characters and colours. Messrs. F. and A. Smith are, in their perseverance to obtain new varieties, endeavouring to associate with them leaves of a convex form, so that they may be more readily cleansed of any dust, or other foul matter that may be deposited on them, thus enabling them to be bedded out with a great certainty of preserving their freshness of colour, in and near large towns. In this collection were some most striking varieties, such as *Mrs. Dombain*, *Vivid*, *Impératrice Eugénie*, *Champion*, and many others. Amongst other kinds I made note of as good, the following I think deserve particular mention. From Messrs. Garraway, of Bristol, *Mrs. Allen*, with gold yellow margin, and bright crimson zone. From Messrs. Carter and Co., *Prince of Wales*, which has very large leaves, and a stately habit; the leaves quite flat, and most richly coloured gamboge yellow, with bright red zone. From Mr. Grieve, *Victoria Regina*, of the most vigorous habit of growth, and the one which Mr. Grieve, the father of the family, considers the best Tricolor he has yet raised. Messrs. Saltmarsh sent a Tricolor called *Sunshine*, very neat, very bright, and a good grower. Mr. Groom, of Ipswich, sent *Lord Stanley*, a first-class sort; and Mr. Chater, of Cambridge, had his famous *Senior Wrangler*, the fame of which is well established.

As we arrived rather late, we hasten on to catch a glimpse of the principal portion of the exhibition, which was held in the Council Chamber, passing on our way through the conservatory, in which there were various collections of greenhouse plants, exhibited by our principal growers; but as these will be duly reported at our forthcoming exhibition, I did not stop to notice them. However, my attention was arrested by a quantity of a new variety of Pyrethrum called *Golden Feather*, the leaves being of a yellow or gold colour. Beside these, were samples of the graceful but delicate grass *Poa trivialis variegata*; both these plants are well adapted for edgings. They were exhibited by Messrs. E. G. Henderson and Son, St. John's Wood. JOHN F. M'ELROY.

GELDING OF CITROUILLES.

Few will believe at the first blush that "caponage" is practicable upon gourds; but nevertheless the fact is announced as true. The Maréchal Vaillant gives an account of this proceeding, which was communicated to him by the captain of a vessel returning from Senegal, where the negroes have been in use to practise it from time immemorial. The operation consists in making an opening at the top of the fruit while it is still young, and adroitly removing the ovules or undeveloped seeds. The wounded part is closed, and the cellular tissue of the fruit then takes a prodigious increase, and a greater fineness of flesh.

M. André, who communicates the above fact to the *Revue Horticole du Monteur*, says truly that it appears quite rational, although received from the Yolofs and the Bambaras, and is in perfect conformity with the laws of physiology; and the *Belgique Horticole*, in commenting upon it, suggests that the experiment should be extended to melons and other gourds.

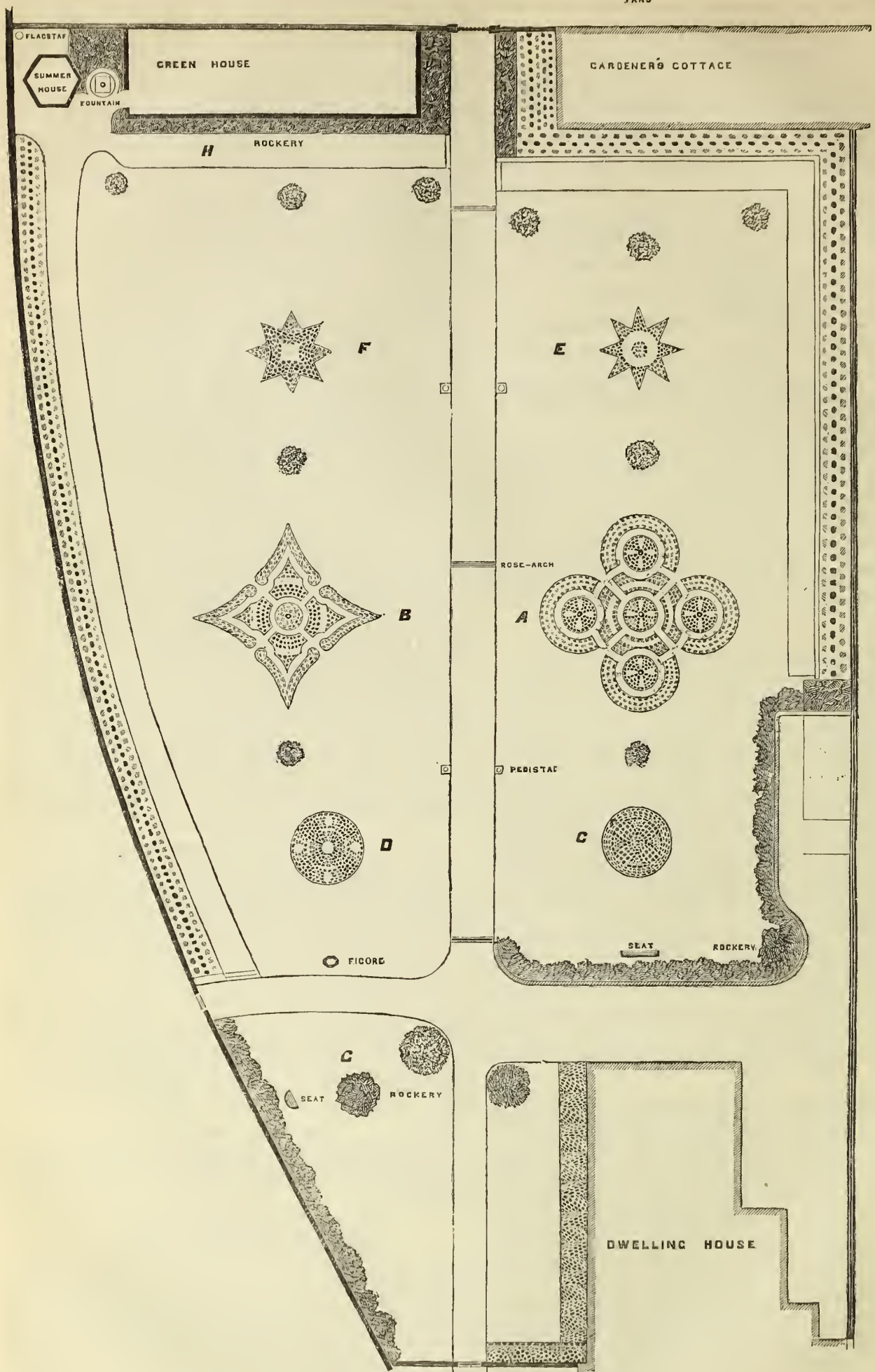
One thing is clear, that it is very easily tried, and the notice comes quite in good time to allow every one to try their hand upon vegetable marrows, citrouilles, and melons, during the coming season.—M., in the "Farmer."

GOUGH THE BLIND BOTANIST.—The perceptive power which resided in that accomplished man's touch was amazing and almost incredible. It is exquisitely expressed by his friend Wordsworth in a few lines of the "Excursion":—

"No floweret blooms
Throughout the lofty range of these rough hills,
Or in the woods, that could from him conceal
Its birthplace; none whose figure did not live
Upon his touch."

Wordsworth once brought to Mr. Gough a cushion of moss-like leaves angled with bright purple flowers from near Griesdale Tarn. When Gough touched it he said at once, "I have never examined this plant before, but it is *Silene acaulis*." We feel this to be one of the most charming of Westmoreland anecdotes, whether we consider the beauty of the flower itself, or of the scene from which it was brought. But it should be added that Gough's science was not by any means limited to natural history. He was eminent also in physics and in mathematics. Dalton and Whewell were among his pupils.—*Quarterly Review*.

DESTRUCTION OF SEA-BIRDS.—Will you allow me space to make the remark that the secret of the bird-slaying on our sea-coasts, so ably denounced by the Rev. F. O. Morris in your columns a short time since, lies chiefly in the fashion, now so prevalent among young ladies, of wearing the plumage of sea-birds in their hats? Many words surely cannot be needed to induce at least the more thoughtful among them to discourage a practice which is often attended with cruelty, and which must result, if persisted in, in the almost total disappearance of one of the most interesting classes of objects which our shores present.—B. P. P., in "The Times."



Scale, 1-18th of an inch to 1 foot.

PLEASURE GARDEN AT "THE LAURELS," TAUNTON.

A HOLIDAY IN THE WEST.

PART II.—THE LAURELS, TAUNTON.

Plans and descriptions of small gardens are probably of much more value to the general public than plans and descriptions of gardens of great dimensions. For one who intends or desires to embellish a thousand acres, there are at least a thousand interested in the embellishment of two or three. Therefore, in presenting a plan and some few particulars of the pretty garden of my friend J. B. Saunders, Esq., "The Laurels," Taunton, I suppose I am contributing directly to the end for which the Magazine is purchased and perused by its thousands of supporters. This garden comprises in the whole

about three acres of land, only part of which—the pleasure garden—is shown in the accompanying diagram. The dwelling-house abuts on the high road, which here takes a bend to the right, and decides the boundary line, which is shown as a curve on the left hand of the diagram. This boundary line is defined by a low wall. On the right hand the garden is separated from the next property by a fruit-wall, which is seen as a straight boundary line on the right hand of the diagram. The boundaries of a small property greatly influence the plan of laying out and the style of embellishment adopted. In the case of a large property, the boundaries may be treated with indifference; we scarcely need know of their existence in designing the more important of the decorative features. In the case before us, elegance and

richness without harshness are combined with strict formality, and the result is as pretty a pleasure garden of its size as I have ever seen, though not deficient in experiences in these matters. The main walk down the centre is spanned by three wire arches, over which are trained clematises and roses. The two grass-plots on the right and left of the walk are on a higher level than the walk itself, the grass rising from the gravel by an easy slope, which contributes greatly to the improvement of the perspective, as looking along the walk we see the gravel bounded on either side by a soft swell of turf in place of the customary hard line. There are six groups of beds on the grass, all different, yet nearly corresponding in style, the groups being in pairs right and left, matching without repetition, thus affording variety without the usual doubling over, yet without violating the formality essential in a garden of this kind. A few beautiful coniferous trees, planted in pairs near the walk, assist greatly in adding to the richness and variety of the scene, and in relieving the flatness of mere grass and flowers. During the summer some fine variegated aloes are placed on the pedestals which are shown on the plan, and these add finish and stateliness to the general effect. Under the boundary walls are borders, which have hitherto been planted ribbon fashion; but the right-hand border is now to be devoted to a mixture, in which choice hardy herbaceous plants will predominate, this being a rather shady border, in which hitherto bedding plants have not done well. At the lower end of the garden, the gardener's residence occurs on the right hand, and a conservatory on the left. The frontage of the gardener's cottage is towards the kitchen garden; and on the high wall which separates it from the pleasure garden is a grand apricot-tree in admirable condition, and the short border in front is occupied with anemones, ranunculuses, and mixtures.

I propose now that we take a walk together, and of course we start from the dwelling-house. On the slip of grass with which we begin—that is to say, the grass-plot next the house itself, and which is divided by the main walk—there are some standard roses, with grass close to their stems, in a very poor condition, and just illustrating one of the major canons of the "Rose Book" to a T, or to any other letter that may stand for exactitude. But ample amends is made for this unwelcome feature. There is a clump on the plan marked "rockery," letter G. That clump consists solely of one huge plant of Pampas grass, planted on a mound, which is faced with blocks of stone. At any time from the middle of May till severe frost has occurred in the following winter, that pampas is a glorious object to behold. It is of gigantic size; it is mounted high enough above the level to show its elegant arching outlines to perfection; and its long leaves just touch the grass turf below them in a great circular sweep of sublime proportions. This plant flowers profusely every year, and I am afraid to make a guess at the average number of its flower-spikes. At the angles of the walks there are two Portugal laurels of gigantic dimensions and faultless beauty—miniature mountains of glossy dark green leafage. Now we enter upon the principal length of the walk down. We see nice examples of *Abies Douglasii*, a remarkably dwarf close-branching and robust *Araucaria imbricata*, *Cedrus deodora* of course, *Picea pinsapo* in beautiful condition now, but the marks of injury by the past severe winter just traceable at the junction of the new and the old wood, very many of the terminal buds having been destroyed.

The geometric schemes look better on paper than on the ground. The garden measures 184 feet in length, by 116 feet in greatest breadth, dimensions insufficient to bring out so complicated a scheme as the principal one on the right-hand plot, lettered A. That, however, is a good design in itself; and if it could be drawn out so as to occupy nearly the whole area of the garden (which, of course, is impossible), it would be grand; but as I view the scene, the design appears contracted and wanting in dignity. The scheme B is open to the same objection; C and D are much better adapted to the space; but E and F are still better adapted, and, in my opinion, E is at once the most effective and satisfactory of them all, and quite a model design for a bedding display in a small garden. I may be able hereafter to give the colouring of these beds for the present season and for some years past; for the present I shall take occasion to say that my friend Mr. Saunders is an able colourist, and throughout the summer these beds are gloriously brilliant with skilfully harmonized colours. In the autumn of 1866 I saw the garden at its best; and in the ribbon on the left hand border *Iresene Herbstii* was then superbly rich, and had made a robust growth, unhurt by weather or vermin. The planting of the two principal schemes this season consists of mixtures, and I am strongly inclined to believe that these mixtures are at once original and effective, and suitable to afford suggestions to all who are concerned in garden colouring. But for proper judgment of the case we must wait; and I hope to see this pretty garden again before the summer is over and gone.

The plant-house, 40 feet in length, which embellishes one side of the garden at the lower end, is furnished with valuable and interesting subjects. Here are not only good examples of the flowers of the season, whatever the season may be, brought forward from the pits and greenhouses lower down, but a few fine permanent occupants in the shape of palms, tree-ferns, a few good climbers, and miscellaneous hard-wooded plants. On the other side is a high wall which screens off the gardener's cottage from view, and affords accommodation for a fine apricot tree, which, on the 20th of April last, was sprinkled all over with fruit of the size of hazel-nuts. The gardener, Foulger, called my attention to the difference between this and another fine old tree in equally good health. This had no fruit at all, or so few that it would need a diligent search to find them. These trees came into flower during the horrid weather that followed the 20th of February last: one was either dripping wet or frozen during the whole time the flowers were open; the one that bears so good a crop was wholly unprotected, the other and barren tree was taken great care of and had abundant protection, but was not buried in blankets, in fact, was protected judiciously. This is a parallel case to that related by Mr. Clarke in his report on Knowle Park in last week's Magazine.

The kitchen garden, which is entered by the gate between the greenhouse and the gardener's cottage is admirably arranged and kept. The main walk is made interesting by a line on each side of bush pears five to seven feet high, which during the three days on which I saw them, April 18, 19, and 20, were in perfection of bloom, and some of them almost as fragrant as thorns. These trees are mostly on pear stocks, have never been pinched, but are pruned in winter moderately, and the quantity of bloom upon them was enough to satisfy the most exigent of the practitioners of pinching. They put me in mind to say that the trees in our fruit garden at Stoke Newington were sadly neglected; last year not one was pinched, and the only winter pruning consisted of a moderate shortening of the longest rods, and the bloom on the trees was so dense that they were like pyramids of snow; more than this, our trees are abundantly covered with fruit, which is not generally the case with pear-trees this year, a fact which we attribute to the kindly shelter afforded them by St. Mary's church. So far in illustration of the pinching system. I wish to be understood as saying nothing at all about it now *per se*; I am simply recording a fact. Now, as to climate, on the

19th we had for dinner most excellent asparagus from the open ground, cut short and green, with not an inch of white upon it, and all edible, delicious. The asparagus beds at Stoke Newington did not present a visible shoot till the 30th of April. Another agreeable evidence of the better climate here than in the neighbourhood of London was the generally forward and thriving state of peas, beans, onions, and other early sown cuculents, which with us were at that time perishing of cold. Raspberries were already showing flower-buds, and lettuces and cauliflowers were growing with vigour. There is a pretty and useful range of plant houses at the lower end of the kitchen garden, in great part (then) occupied with bedding plants; but there are also collections of ferns, begonias, gloxinias, achimenes, and other interesting subjects, from amongst which Mr. Saunders will make selections for the Taunton flower show when the proper time shall come. Indeed, the people of Taunton were largely indebted to this garden for the splendour of the exhibition held last year, but still more to its proprietor for the spirit with which he led the way, and did the hard, rough work of honorary secretary, and secured for the enterprise the most complete and brilliant success. To enumerate the various subjects to be found in the houses would not be prudent while we have so many and such pressing demands on our space as now; but I am bound to place on record that there is here a silver tricolor geranium which far surpasses *Italia Unità* as a bedder, but the proprietor will not part with it for love or money. S. H.

A CALL AT MR. B. W. KNIGHT'S NURSERY, BATTLE, SUSSEX.

I had a particular desire to call upon Mr. Knight, because I wished to collect further information respecting that useful early strawberry *The Princess of Wales*, raised by him, and I had the satisfaction of seeing good breadths of it in a promising condition. I saw not only the parent plants, but the first progeny of them maintaining its character in every particular. As this variety is steadily working its way into public favour, some information as to its origin may be interesting. In the first place, I learnt from Mr. Knight that he never fertilizes anything, and that all his novelties are selections, the *Princess of Wales* strawberry being no exception to the general rule, and in this instance it was the result of a choice of one amongst only four fruit that were brought to him while confined to his room by a severe illness, now eight years ago. Not knowing from which of the many varieties which he cultivates (sixty in number) the fruit brought to him was gathered, he selected the most distinct and promising, and sowed the seed, and the result was the production of the variety now under notice, and of which he speaks in his catalogue in the following terms:—"This superb variety is now proved to be the best early kind hitherto produced, being fit to pick twelve days before any other kind. The fruit is large, many of the berries weighing over an ounce each. The flesh is of a pale red colour, solid at the core, flavour rich and sugary, partaking largely of the pine flavour, and the plant an abundant and sure cropper." The above description I believe to be a faithful one, from the fact that its truthfulness is borne out by the evidence of several good gardeners, and amongst them we had last year that of Mr. J. Rust, of Eridge Castle, who was not only growing it largely for forcing, but was actually rooting out all other early varieties in favour of this one. I am interested in this strawberry only from the fact that I have been asked several times to decide upon its merits as an early strawberry, when, in fact, it was not to be found on the spot, but a substitution of Ingram's *Prince of Wales* sent in its stead, to the manifest disappointment of the cultivator. This, I was also assured by Mr. Knight, had been so often the case that the sale of plants had been somewhat impeded by it. Another remark Mr. Knight made verbally to me, as to its character, I think ought to be in the reach of cultivators. He says that it requires to be renewed by fresh plantations made every third year. But what has influenced him in arriving at such a conclusion I have no means of judging, nor have I yet seen or cultivated it long enough to feel justified in giving a confident opinion upon that matter of detail. But, judging from the condition of the parent plants, and the first runners from them, which are still luxuriant and healthy, although they are in a rough state, owing to the ground on which they are standing being required for building, I feel disposed to differ from him in that matter, as I believe that, if they are as carefully cultivated as the rest, they will continue to fruit abundantly for more than three years. But still the opinion of the raiser is to be accepted with every confidence as the result of a longer experience than any one else has yet had with this particular variety. It is also most creditable to the raiser, as it is a pleasure to me to report such a conscientious assertion from one who, above all others, is most interested in its distribution, and the reader may accept it as strictly conveying the character of the individual from whom it was made, as he is not one of those men who gets his finger in the button-hole of your coat, and compels you to stay until he has dinged into your ears a glowing description of all his novelties. But, on the other hand, he appears only interested in showing them to you, and letting you judge for yourself of their particular merits.

For the second time since it was sent out, I met here that dwarf bedding *Ageratum Prince Alfred*. I noticed the same variety last year, in my report of Eridge Castle, by the name of the "Prince of Wales;" nor did I know but what I was correct, as it was the name given me, until Mr. Knight corrected me, and at the same time informed me he was the raiser. Many inquiries have been made as to where this variety could be got, and I hope this notice of it here will put the inquirers in possession of the information, as Mr. Knight has generally a good stock on hand.

There is still a greater novelty than *Prince Alfred* amongst *Ageratums*, by the acquisition of a variety, almost miniature in size, called *Little Pet*, never exceeding eight inches in height, more generally six inches, completely covered with bloom. I saw a lot of young plants in thumb-pots; at the tip of every bit of growth was a bunch of flowers showing.

Mr. Knight's *Lobelia White Lady*, with the habit of *Paxtoniana*, is evidently an improvement on any of the same habit; and should the report be true that "Miss Murphy" is not a continuous flowering subject, or that its flowers are confined to the first part of the season, *White Lady* is destined to occupy a prominent position in the flower garden.

I took note also of two new *Helichrysms* treated as perennials; they were improved varieties of *H. macranthum compactum*. The variety called *Alexandra* is a deep rich crimson; *Albert Edward* is a rich scarlet, and blooms freely. The treatment of these plants as perennials will be new to most of the lovers of everlasting flowers. Amongst seedling geraniums I saw a few good things. The most remarkable was a bright silver-edged variety that must take first rank amongst the bedders at no distant date.

As a remarkable instance of the capability of some plants to endure frost

that we least expect, is the fact that *Alyssum dentatum* has stood out here in the open border without any protection, and the past terrible winter has done it no harm.

As Mr. Knight is an extensive grower of strawberries, I am induced to return to them again, to give the reader his opinion upon the advisability of manuring them in autumn. He says autumn dressings cause the buds to rise prematurely, and owing to their being in a growing, succulent condition, the frost has more effect on them; consequently the flower-buds perish, and thus barren plants are created. All those who are interested in strawberries will do well to pay Mr. Knight's establishment a visit from the latter half of June to the middle of July.

J. C. CLARKE.

"A WORD IN SEASON" ON BEHALF OF SMALL BIRDS.

By the Rev. P. DE PUTRON, M.A., Rector of Rodmell.

The mischief done by birds on a fine summer's morning is, alas, so visible and so irritating to farmers, gardeners, and cottagers, and the good they do early and late so invisible to the untutored eye, that their death-warrant is sealed at once, without the hope of a reprieve or recommendation to the majesty of mercy. Yet experience proves that the presence of birds in our corn-fields and gardens is highly to be desired. We have only to cross from Newhaven to France to lament, as all travellers do, the marked absence of small birds from the landscape, and to learn from our companions how keen is the regret, which too late invokes the protection of the law for the feathered guardians of the fields. The following testimony to their value is taken from a public report which was laid before the French senate, and will doubtless be read in Sussex with such interest as the case deserves:—

"It is solely in the interests of agriculture being very seriously endangered, that they affirm that men ought not to be allowed to continue to destroy the only auxiliaries which can effectually stop the increase of insects, the bane of all cultivation. Against such enemies man is powerless, and if God, in His wisdom, had not provided a remedy, vegetation would have disappeared from the face of the earth.

"This providential mission of birds was, for a long time, considered an exaggeration; now it ranks as one of the best proved truths of science. Yet man, by a strange blindness, shows himself the most terrible enemy of these gentle and useful creatures.

"More cruel than the kite or hawk, who kill to feed, he destroys them for the simple love of destruction. The gun is not murderous enough, it is by all sorts of contrivances—such as nets, bird-lime, traps, &c.—that these charming and indispensable little friends are persecuted by man, to whom they were given by a wise Providence. The amount of mischief done is incalculable. Let us look the matter in the face; the evil is great, and if we do not take care it will be beyond a remedy."

So speak our French neighbours, and add, that in one of the Eastern departments the value of grain destroyed by insects in one year was estimated at four millions of francs, or £160,000!

With this warning before our eyes, we shall do well to pause in that wholesale destruction of birds in which the members of sparrow-clubs so largely indulge. Still, it is only fair to say that these relics of a barbarous age are gradually dwindling away before the warm-hearted and growing intelligence of yeomen, and respectable newspapers are becoming ashamed to chronicle these periodical massacres.

A Country Clergyman, who has written some very good words for poor birds, states "that the sparrow probably bears the worst character of all our common feathered friends, and is consequently the most persecuted; and yet a pair of sparrows have been known, during the time they were feeding their young ones, to destroy every week 3,300 caterpillars! If this result could be achieved by two birds, let our young readers estimate, if they can, the weekly work of the feathered tribe. The goldfinch also stands in need of friends to protect it from the treacherous bird-catcher. The seeds of dandelion, groundsel, thistles, and other noxious weeds, are its usual food, and yet we hear of the enormous number of 13,818 goldfinches being sent from Worthing in a single year.

Who has not seen the startling perched on the back of a sheep, devouring the insects which, to use a local word, *terrify* the poor animals, and then finishing its meal on wireworms turned up by the plough? The services of rooks are now more civilly recognised, and instead of shooting them, as of old, a small boy with a loud voice may be both seen and heard discharging volleys of *shouts*, not *shots*, with marvellous effect, in defence of the sprouting corn. Yet that atrocious and cowardly modern invention of poisoned wheat bids fair to lessen these useful birds. Some years ago in Hampshire a war of extermination was waged against them, and rookeries were destroyed; the natural consequences soon showed itself in such an increase of various hurtful insects, and especially of the cock-chafer (which is three years in the grub state, and all that time does an immense amount of injury to the roots of grass and corn), that women and children were obliged to follow the plough to pick up these grubs, which the rooks would have devoured had they not been murdered. This practical proof of the utility of rooks opened the eyes of the Hampshire farmers, and rookeries were again established, and rooks protected. The same thing happened in America, where at one time the State offered rewards for their destruction, and in consequence they so much decreased, and noxious insects so greatly increased, as to induce the State to offer a counter-reward for their protection.

Not one word only, but many earnest words of appeal and remonstrance, might be written, too, on behalf of the thrush and blackbird, in spite of their persevering onslaught on our tempting cherries and currants in summer. Are they to be murdered for this, when an old net suffices to guard our garden treasures? And shall we plead in vain for the insect-eating birds, such as swallows, martens, swifts, wrens, robins, and black-caps? The list is by no means complete, but I bold a brief on behalf of at least fifty families of feathered clients, who either periodically visit or permanently make England their home.

"Live and let live" should be our motto, and the lesson of mercy and loving-kindness should be inscribed on the walls of country schools, and engraved on the hearts of town and country children among their earliest recollections. So different, alas, was the feeling not a century ago, that the cruelty of taking nests and destroying the eggs and young was encouraged by many churchwardens, and head-money for sparrows not unfrequently figured as an item in their accounts.

Well may it be asked, How long will it take to unlearn this cruelty, which has hardened the hearts of generations of children, and to propagate

the seeds of compassion and tender-hearted kindness towards all God's creatures?

Old traditions are not easily uprooted, as this single fact will show, that during the late frost a party of three *sportsmen*! from Brighton boasted that in one day they had killed 1,700 larks. My informant cries shame! and thousands cry shame! nevertheless I have faith in the manliness of Englishmen, and trust to the brighter intelligence of the 19th century to impose an eternal veto on such unfair and unmanly dealing with harmless birds.

"Can we wonder," says Mr. Roach Smith, with undisguised alarm, "at the increase of the insects which destroy our fruits, and at the great loss sustained by those who have extensive orchards and gardens? The birds are the only possible agents to counteract the deadly unseen insects which are, every hour, being bred almost everywhere. Nature has formed the bird's eye for detecting insects where the eye of man is useless. Wholly destroy the birds, and the fruit is wholly destroyed. At Hartlip, some years ago, in the face of truths and facts, the sparrows were exterminated entirely as being injurious. The orchards were immediately covered with the webs and nests of innumerable caterpillars and other insects; and in two years it was calculated that over £1,000 was lost in consequence of this insane slaughtering. But far more startling instances could be adduced; and yet we see no steps taken to stay the evil! I, sir, look more to youth than to the hardened man, who has steeled himself into erroneous convictions, and will never part with them but with life. It is not so with boys; they are to be reasoned with; and if the clergy and schoolmasters would make friends of them, and explain the nature and use of birds and their importance in the great scheme of Providence, I am assured they would soon be induced to be protectors instead of destroyers of the birds; and they would thus find doing good much more grateful and profitable than working evil."

If our cause were as weak as it is strong, it could be propped up triumphantly by recent intelligence from New Zealand, that the colonists are ready to pay one pound sterling for every insectivorous bird that is landed alive in the colony. And why is this? Why their anxiety to purchase for gold the little birds whose value is so little understood in England? The reason is, that Australia and New Zealand are becoming corn-growing countries, and absolutely require the services of birds to destroy the worms and insects which invariably appear wherever wheat is grown. The eggs and grubs of these destructive creatures are introduced into the colony with the seed, and thus it is a wise provision of a merciful Providence that birds should find a home, and justly claim protection in all places where they can benefit man, by obeying, for his good, their natural instincts.

I commend this subject to the consideration of all parents, teachers, and inspectors of schools, and am not without hope that these remarks may tend directly or indirectly to encourage the growth of the best feelings of the human heart whilst they enlist the sympathy of all, in holding sacred even the life of a little bird.

How can I teach your children gentleness,
And mercy to the weak, and reverence
For life, which, in its weakness or excess,
Is still a gleam of God's omnipotence,
Or death, which, seeming darkness, is no less
The self-same light although averted hence,
When by your laws, your actions, and your speech,
You contradict the very things I teach?

LONGFELLOW.

NOTE.—A severe penalty has been made necessary to prevent the destruction of these useful creatures in France and Germany. [The foregoing tract forms No. 45 of the collection of the Royal Society for the Prevention of Cruelty to Animals.]

ABOUT PLANTING.

Not the entire theory of flower garden decoration, nor any part of the same, nor the theory of planting the whole or any part of a kitchen garden, or any theory at all; but a few words on the process, pure and simple, which generally goes by the phrase "sticking them in." To be candid, I must confess that I am very vexed in that we shall have few enough of cauliflowers this summer, and those quite late enough and bad enough. Ever since they were "stuck in" I have threatened I would do what I now am doing, and I hope it will be to the benefit of others, as I shall try to make it to my own benefit. I know the *experience* will be.

You shall see what all this is about. I do not know whether it is a common practice, but I know it is in many celebrated old gardening books, and perhaps it travels, with very few clerical or other errors, through all the new ones, to "dah" the roots of plants and trees intended for planting out; it is done to forest trees by making a painful of mud and dipping the roots into it. I believe also, if my memory does not deceive me, that it is recommended for small plants,—cauliflowers, broccoli, &c., to be treated so. But there is another way, perhaps no less injurious, *perhaps* a great deal more so; this is it: dibble the holes where the plants are to go, and then fill them with water; as soon as possible after this, plant your plants;—bury them it ought to be, or throw them on the rubbish heap, I do not know which is best; but this I know, that they are both better than planting them and then seeing them get bluer and bluer for weeks, while the man looks at them and mysteriously observes, that "they plants don't seem to take very quick." Or, as a friend once related, that he wanted a good holly hedge, he bought 300 plants, sent a tilted waggon for them, and forthwith planted them; they all died, and "I was very careful to have the roots well puddled too," but the dry weather came, and off went the plants.

Now let us see in what the process of making puddle and making *bricks* differs. The stuff is, generally speaking, much alike in each. I know that stiffish land, a little softened with dressings of lime and ashes, resembles Notting Hill and Westbourne brick-stuff to a nicety. Now, to make bricks, this is ground up in tubs with a little water, then moulded and dried; to kill plants, it is ground up in tubs with a little more water, well squeezed about the plants with treading or by the dibber, as it happens, and, if dry weather follows, it is dried. The plants are thus securely encased about their roots in a matrix of hard dry mud, and the only remaining process is for it to be there for about forty thousand years, when it may be taken up again, cut in two, polished, and placed in a glass case in some future museum, as a rare and curious fossil.

The process of embedding the roots of plants in mud is alike beneficial to the nurseryman, as it is disappointing to the amateur as long as he continues it. The mode is not particular. You want your geraniums to grow strong; you have some good rich stuff, but just before you do the

potting it happens to get well soaked in a heavy rain; you proceed to work, it don't go kindly, it is dirty, but you console yourself by washing them down well with the rose on the water-can, and then they look clean; yes, they are all right now. By and by, the ball will shrink and separate from the sides of the pot, and all the water will go through them as fast as you have a mind to pour it in, but none will get to them; they will soon turn a dark green, and finally, the roots being dead, the top will die also. Give a season ticket of admission to a few worms, and they will produce the same result by the same mode. By the way, I wonder, Mr. Editor, that you did not give this puddling process amongst the most successful modes of killing plants, in an article which you had on this subject some time ago. So likewise are those "thorough soakings" which some are so fond of administering equally injurious, every part excessively well wetted soon turning hard, if dry weather comes on. So, then, in stiff lands mind and keep the roots as free from wetness as possible—that is, from the liability to get boggy; and, above all things, never plant in that sort of stuff; rather plant in dust-dry ground, and water afterwards, than plant in that and leave them so.

I am going to have a row of cabbage planted in the puddle fashion, and another in the proper way, watering a little after planting, and then keeping the land well stirred to avoid any crusting. I know this will be the only mode of curing the propensity in the erring soul.

There is a practice also of docking plants. I have seen celery and leeks served so, and the result was the same. Instead of putting jolly celery plants nine inches or a foot high, with balls as big as your two fists, white with roots, they were cut down to about six inches, and the roots cut back to a little earthless bunch of fibres, not bigger than a smallish painting tool; then soaked with water, and the job was done. The leeks are served the same, only often they are dropped into deep dibbled holes, and then the water is washed in with the pot. Of course, what with the disablement of the plant, and the suffocation which it gets by the puddling process, it can scarcely recover, much less grow.

There, now, I think that will do. I do not feel as if I had been writing a mere theory or fancy, which we can do as well to believe as not, and which cannot affect the practice; but I think and feel that whoever gives the subject due attention will see it as I do.

A. DAWSON.

Calendar.

WORK FOR WEEK COMMENCING JUNE 1.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Stake runner beans on the north side of the rows, unless they run north and south, which is the best, in which case stake them on the west side, and boe up. Sow lettuce; tie a few at a time for immediate use. Sow parsley, endive, and turnips. Plant out celery, and water abundantly; if convenient, shade the trenches for a week after planting.

TOMATOES will bear more abundantly, and occasion less trouble, if constantly stopped before the fruit. Give them plenty of water, and mulch the surface with rotten dung.

TURNIPS.—Any sowings made now should be managed so as to outwit the fly if possible. Divide the seed into two portions; steep one-half in a solution of sulphate of ammonia, half an ounce to the gallon. Let it steep six hours, then mix with the dry seed, and sow altogether. The steeped seed will come up first, and grow so fast as probably to escape the fly; but if lost there will be a good chance of the other seed following immediately after the first shower, and there will be two chances of a crop. As the fly only attacks the plant in the seed-leaf, it is not so formidable an enemy as it is sometimes represented.

LETTUCES.—Sow two or three different sorts, and let Dixon's Champion Cos be one of them. Plant out on heavily-manured ground. Some should also be sown where they are to stand.

ASPARAGUS to be cut no more after this week; the beds then to be lightly forked over, and covered with a thin coating of rotten dung.

WINTER GREENS to be planted out in showery weather at every opportunity. If only one row can be got out at a time, it is a benefit to the seed-bed in giving the seedlings more room, and a benefit to the plants in preventing their getting drawn.

Flower Garden.

BALSAMS should never be allowed to get pot-bound; it throws them into bloom prematurely, and stops all growth. Therefore, as fast as they fill their pots with roots, shift on in rich light soil. Small plants showing bloom-buds should be disbudded, and shifted to pots two sizes larger. Never let them suffer for want of water. Keep well aired, and in a good greenhouse temperature.

BEDDERS to have as little water as possible, as it tends to prevent them rooting deep. Hoe over the beds between the plants, and pay scrupulous attention to pinching and pegging as required, as on this will depend the beauty of the display as the plants come into full bloom. In pegging, secure first a supply of shoots to the north side of all the trailing plants, as they will grow all the season more freely on the south side.

BULBS are frequently lost through inattention at this time of the year. As the leaves decay, all those that are usually taken up should be lifted and laid aside in a shady dry place, with earth over them, to ripen. They should then be cleared and stowed away, all named kinds with their tallies, so that at the next planting there need be no mixing of colours, or regrets for the loss of choice kinds through leaving them in the ground to be chopped up in some digging operation.

HERBACEOUS PLANTS out of flower may now be propagated from cuttings. These should be put in a cold frame, in a mixture of sand and loam, and kept shaded. It is important to secure plenty of such things as *Alyssum saxatile*, double Wallflowers, *Iberis corifolia* and *sempervirens*, *Aubrietia purpurea*, *Dielytra spectabilis*, &c.

POMPONE CHRYSANTHEMUMS intended for beds and clumps may be planted out in a piece of well-manured ground in the reserve garden, and the only further trouble they will occasion will be to stop every three weeks till the middle of July. When grown in quantities to make a display after the summer hedges are removed, this is the easiest way of all, as they can be lifted in October without losing a leaf by the operation.

ROSES require now to have an engine played upon them as upon a house on fire. This will drive the fly away much more effectually than any other method, and do the roses good too. To fumigate out of doors is a very troublesome affair, and to wash with tobacco-water or solution of albes greatly disfigures the foliage, as the stuff must be strong to be effectual. Gardens newly made may be furnished with roses now as well as at any time of the year. The nurseries supply dwarf plants in small pots at a cheap rate, and these turned out with care, in ground well dug and liberally manured, will grow with vigour, and bloom well in the autumn. In forming a plantation of dwarf roses, we would as soon plant in May or June as at any time of the year.

PLANTING ROSES.—This note may at first seem out of place at this time of year, but in truth it is most seasonable, for this is the best time in the whole year to plant roses out of pots, for if well done they will grow vigorously from the first, and bloom well in the coming autumn. To effect this is not a very difficult task now the large rose nurseries keep such a stock of strong plants for the purpose, many of them potting up *Manettia* and short briars from the nursery quarters during the winter, either for early forcing or to plant out in the spring. These are precisely the same class of plants as are sent out from the open ground, but have the advantage of some sort of protection during severe weather, so that their first growth is not destroyed like that of the ordinary bushes; they can, moreover, be transferred with safety at any time to desired positions, when lifting would be certain death to plants removed from the ground. The chief things required will be a proper attention to the preparation of the beds, and a judicious selection of the varieties to be used. The beds into which roses are transplanted from pots need not, for the first season, be more than eighteen inches deep, and the soil should be rather rich and free than too stiff. There should be a staple of soft fat loam, which should be well intermixed with good manure of any kind and lumps of half-rotted turf; charcoal, charred wood, and clean bones will be a valuable addition. When the plants are turned out of the pots all suckers should be extirpated, the drainage just removed, but otherwise the ball should be disturbed as little as possible, although when the earth has been pressed well to it, a slight pressure near the collar, just to insure the water passing through the fibres, will not be amiss. After a good soaking, the ground round newly-planted roses should be deeply mulched with only half-decayed manure, over which a layer of fine mould ought to be sprinkled, to take off any unsightly appearance among dressed borders, and the plants should be further strengthened now and then by refreshing draughts of liquid manure. These operations, with cleanliness and the watchful eye of an enthusiastic insecticide brought to bear daily upon the welfare of his favourites, will ensure a fine bloom; somewhat later, perhaps than in November-planted rosaries, but in not the less perfection. *Small* plants, especially those sent out in 60's on their own roots, must not be expected to bloom this season, but they will grow finely preparatory to a good bloom next year. The following is a selection of varieties, limited it may be, but unsurpassed in their styles, and in their several adaptabilities for the generality of soils and localities, and also remarkable for their strong and healthy growth. Beginning with the darkest, they may be taken in the following order:—*Hybrid Perpetual*: Vicomte Vigier, Prince Camille de Rohan, Charles Lefebvre, Madame Victor Verdier, Sénateur Vaisse, Le Rhône, General Jacqueminot, Jules Margottin, Victor Verdier, Madame Clémence Joigneaux, C. Guillot, John Hopper, Madame Domage, Baron Gonella, Centifolia Rosea, Duchesse de Morny, Baronne Prevost, Chahriland, Mrs. Rivers, Lord Nelson, Madame Alfred Rougemont, Thérèse Appert, Louise Darzins. *Teas*: Gloire de Dijon and Devoniensis. *Bourbon*: Malmaison, Acidalie, Sir Joseph Paxton. *China*: Mrs. Bosanquet, Cramoisie Supérieure, Archduke Charles.

LAYERING CARNATIONS.—The time is near at hand when the cultivator must take measures for the perpetuation and increase of his stock. The simplest and safest method of all is by layering. Strip off the leaves to the third or fourth joint from the top. The soil in the pots should be stirred, and fresh added to the depth of about two inches. Take a shoot in your left hand, bend it towards the stem of the parent plant with your forefinger, make the incision about half an inch below the third joint, extending it upwards, then cut half-way through the joint, severing the tongue from the shoot. The layer must be gently lowered into the soil, and retained in its proper position by a peg cut out of the common brake fern and dried. Too much earth must not be placed upon the layer, and the more upright the layer itself is the better. In layering, water should be given the day before, and also through a fine rose after shading carefully. The best time to perform the operation is from the middle of July until the middle of August. In about six or eight weeks the layers will be ready to take off; the peg should be drawn out, the layer detached with a sharp knife, and lifted with a flat piece of wood about an inch wide, cut rather thin at the point. The portion of the stem beyond where it is rooted must be removed, and then they must be planted in pairs (two in a pot) in 48 or 54 sized pots. Be careful not to pot them too deep, and do not use a rich soil, but let it be of a light nature. After potting, water them, and let them be placed in a frame on bricks, so as to admit air underneath, and the pots placed upon a good layer of ashes. They should be kept close for a week or ten days, and be fumigated once to destroy green-fly. The lights should then be propped about six inches above the frame, and lowered to about one inch in case of frost, with a mat thrown over, taking care to uncover when it disappears, and in fine weather the lights may be thrown off altogether. During the months of January and February the plants must be kept as free from damp as possible; all decayed leaves must be picked off, and the surface of the soil stirred. Should the weather prove frosty I generally cover the frame over with a mat, and as long as frost lasts I give water very moderately.

CARNATIONS AND PICOTEES.—SAVING SEED.—As these are now coming into bloom, perhaps a word or two may be advantageously said with regard to saving of seed. Few plants are more shy of bearing seed than the carnation and picotee; it often happens that out of a hundred blooming plants you may not get a score pods of seed. It may be accounted for in this way—first, because the flowers do not appear till late in the summer, and hence have not time always to ripen their seed, especially if it be a wet season; secondly, because the flowers that are usually cultivated are so very double as to preclude in a great measure the possibility of much seed being produced. The semi-double flowers yield the most. If you perceive the seed-vessels swell and grow hard, so as to give hope of seed, which it will not do till the flower is fading, then pluck the petals one by one out of the calyx or cup, taking care not to injure the styles (which have the appearance of a pair of horns), for if you do you lose all chance of seed. By

letting the flower-loaves remain in the cup, they are apt to hold the dew and rain, which frequently occasions the whole to rot. As the seed-vessel fills up you may with a pair of scissors cut off the ends of the cup all round, and make a slight incision down it to keep the wet from resting in it. It will ripen towards the end of September, but do not gather it till it is fully ripe, when it will be of a dark brown or black colour.

Fruit Garden and Orchard House.

MELONS need no shade if the hillocks are of good sound turfy loam, and the plants have water when shut up at night. We never knew scorching to happen except through mismanagement. The general causes of ill-health are watering with cold hard water, planting in rich light soil, or keeping them too dry while growing. To ripen the fruit, dryness is essential, but while the plants are growing they require plenty of water, warmed by being put in the house every morning for use in the evening; and the soil to fill in with as the hillocks are occupied with roots should be tough turfy loam; even clay is preferable to the mixtures containing leaf and manure.

Greenhouse and Conservatory.

GREENHOUSE AND CONSERVATORY PLANTS require special attention now. Turn out for the summer those that require to be in the open air for the completion of their growth and the ripening of their wood. A great many of these are suitable for decorating banks and odd places about garden seats, or for groups on the terrace, which is a more profitable mode of disposing of them than hiding them away among the sheds and outhouses. Take care in all cases to guard against worms finding entrance to the pots, and top-dress at once any that require it.

HERBACEOUS CALCEOLARIAS are now in fine perfection, and we have reason to congratulate the breeders of improved forms on the robust habit and beautiful colours that have been produced. Any choice varieties to be seeded should be secured in duplicate, to keep up the varieties from cuttings, as the plants that furnish seed will probably die. Those to be cut from not to be allowed to ripen a single seed; cut away the flower-stems as soon as the bloom is nearly over, and put them in a pit facing north, with the lights off night and day, and the sun kept off by a thick screen of mats. When watering, drench these mats, the evaporation from which will assist the plants to break; and secure cuttings as soon as they are large enough to be taken off.

CHELOSIA AUREA PYRAMIDALIS is now showing flower, and will be benefited with weak liquid manure occasionally. It is one of the most useful of all the novelties for conservatory decoration, and needs the same treatment as Cockscombs. Plants required extra fine to have a shift in rich light soil.

CINERARIAS are generally very mixed as to quality, owing to the too frequent keeping of seedlings that have pleased by their colour, but had no other good quality. Seeing how many really beautiful varieties are now obtainable, it is a positive waste of time and glass-room to propagate any seedlings that have not some decidedly good qualities. We name this now, because many gardeners who grow these plants largely for decoration are at this time of year tempted to propagate from whatever old plants they possess, with too little regard for their quality, whereas if a few of the best new ones or a complete set have to be purchased, the cost is little, and quality is of the first importance in a flower which every one can criticise. When admiring a sheet of Bourgainvillea, none of us think about properties; but the most uninformed take note of the form and proportions and colouring of a Cineraria, and every second-rate seedling should be thrown on the muck-heap as soon as the bloom is over, so as to reduce the work of propagating to a few of the very best. Those to be kept should either be moulded up in the pots or be planted out on a shady border in rich sandy soil, an inch below the level, to induce them to break freely for increase of the stock.

PROPAGATION OF EXOTIC HEATHS.—As the season has arrived when heaths are usually propagated in quantities, a few practical remarks may be useful to some of our readers. Heaths may be propagated with certainty, but the process consumes much time; hence we advise those who wish to make the best of their time to purchase their stock, as the propagation of the heath is a somewhat slow process. There are those, however, whose principal gratification lies in the accomplishment of the most intricate and patience-testing part of the craft, and to such untiring enthusiasts we owe our thanks for very many of the beautiful hybrid varieties we possess. Raising from seed is interesting on account of the varieties it produces, and if two varieties are properly crossed by impregnation, something differing from the parents will be obtained. In order effectually to accomplish this, some experience by practice must be attained, as the anthers must be extracted, by means of tweezers, from the flower that is to bear the seed, whilst the stigma must be guarded from injury, and have the pollen from some other variety applied to it. When the seeds are ripe and thoroughly dry, they may be sown at once in pots of finely-sifted peat, pressed tightly into the pot, and well watered before sowing, afterwards covered with a bell-glass; they may then be placed in any cool house or pit, where they can be kept in an equable state of moisture. To this end, place them in a shady corner until they vegetate, when they must be placed quite close up to the glass until they are large enough to handle; they must then be potted singly in very small pots, known as thumbs. There is some nicety required in handling these, and indeed all the heath tribe, for their extremely delicate roots will neither allow of exposure to the atmosphere nor bear other rough treatment; consequently all things must be in readiness to do the work quickly. Whilst plants are small, be they seedlings or cuttings, they must not be overpotted, or the mass of soil will become sour before their roots reach the pots; therefore the smallest pots and finest peat soil, with a larger proportion of silver-sand in it than for larger plants, must be in readiness. When potted, the pots being so small, would, if not protected from the action of the air upon their surface, soon get injuriously dry; have, then, a shelf, or tray with edges, standing up so as to hold sufficient clean sand to plunge them up to the rim. The above directions apply as well to young plants from cuttings as from seed. As to cuttings, before preparing them, have in readiness the pots and bell-glasses to fit them. Having prepared the drainage, which should fill one-third of the depth of the pot, the coarser crocks being placed at the bottom and the finer upwards, and carefully packed so as to keep the soil from entering amongst them, fill to within a quarter of an inch of the top with fine sandy peat, very tightly pressed in, and the remaining quarter of an inch

with silver-sand. The pots, when so filled, may be placed in a pan of water until thoroughly wetted through, then gently lifted out to drain for a few minutes whilst the cuttings are being prepared; they will thus be watered without disarrangement of the soil. Take the cuttings when the wood is a little more than half ripe, or when they begin to turn brown; and as this will take place in different varieties at different seasons, according to their period of growth, so must the cuttings be put in at different seasons; but as the heath is seldom quite dormant, suitable cuttings may be got from the greater part of them during the months from June to September, which time is best, as they then form a callosity before winter, and will start into growth the following spring. When preparing the cuttings, the greatest care is required in taking off the leaves from the part of the cutting which goes in the soil not to injure the bark, also in preparing the base of the cutting with a clean cut; and this may be most effectually done across the thumb-nail, as in nibbing a pen. From one to two inches is sufficient length for the cuttings, and they need not be inserted more than half an inch in the soil; prick them in with a fine pricker, and carefully close the sand against each. When the pot is filled with them, dip it again in water, so that it just run over the rim without wetting the foliage of the cuttings, and cover with a bell-glass, which must be taken off occasionally to be wiped, and should damping take place among them take care to dry them. When starting an inch or two into growth, they must be turned out of the pot, and carefully separated and potted. The after treatment is given above.

TREATMENT OF YOUNG ERICAS.—In choosing young stock from the nursery, do not aim at size so much as healthy plants in vigorous growth, short in the leg, well furnished with branches, and by no means pot-bound. Be not lured by plants in flower, as flower is often the result of cramped roots; and when once the heath gets cramped and pot-bound it is difficult to make a fine specimen of it. If received in spring or summer, and they seem to require a shift, which may be known by carefully turning them out of the pot upon the hand, to see if the roots form a network over the ball; if so, they will take a shift into pots a size or two larger. Make ready pots of the size required, and if new, soak in water before using, otherwise they will exhaust the soil of its moisture; also provide crocks of different sizes, and peat earth not too finely broken, amongst which, if it is thought to require it, sift a little silver-sand, some lumps of charcoal as big as filberts, to throw into the pot a few at a time as the potting goes on; these act as sweeteners of the soil, and help the circulation of water through the mass. A good drainage is of the first importance. Having secured this, press into the pot a little lumpy peat to set the ball on, and so regulate it that the top of the old ball may come within about half an inch of the top of the pot. Fill in round the sides of the ball with the new soil, and ram it tightly in with a blunt stick, so that the water, when given on the surface, may not run away through the new soil without wetting the ball. At this stage the form of the plant should be attended to, the branches pegged out, and taught to take such a direction as will ultimately form a symmetrical specimen, without the aid of so many stakes as are generally used. They may then be placed in a frame or pit, upon a hard bottom, where no worms can get into the pots, for if this happens they will fill up the drainage, and cause much trouble if not injury to the plants. In such a place, during the summer months their growth will be rapid, as their roots stand cool; and although plenty of air must be given, and warm showers allowed to fall upon them, yet a diminution of air may take place at three or four o'clock, p.m., so as to shut up for a few hours during the evening a large amount of solar heat, when more air may again be given. In autumn they must be removed to the house, and if young stock are received from the nursery in autumn they must have all faded blossoms picked off, and be placed in the heath-house until the following spring, when they may be treated as already described. As soon as blossoms fade they should always be cleared off the plants; from slow-growing kinds they should be picked off, but the free-growing kinds may be cut off, taking with them the points of the shoots. This will keep the plants compact, and, as they attain to the size of specimens, potting will be required less frequently, as they will stand and flower for years in the same pot, with a little fresh surface dressing occasionally; but when potting is necessary it may be done when the pruning takes place, and if the plants can be put in a pit for a few weeks, and treated to a little solar warmth, it will assist the new growth. A puff of sulphur must occasionally be given amongst them to keep off mildew, and the greatest care taken that the roots are at all times kept in a healthy state of moisture, and this by the use of soft water alone; no hard pump water or liquid-manure must be given to the heath. Some cultivators know by the weight of the pot if the soil be in a proper state of moisture; others use, perhaps, a better method, and one which may be soon acquired, viz., that of tapping the pot with the knuckles, and listening to the sound. Any one can easily learn this, by taking two pots, one of which is known to be wet, the other dry, and practising upon them, observing at the same time the difference of sound. A shade of tiffany thrown over the heath-house or pit in bright weather will tend to preserve the foliage green and to promote their growth, but heavy shading should be avoided. In turning out into the open air in summer, turn out only the hardiest varieties for about six weeks during July and August, and house again before the heavy rains set in, otherwise they may saturate the soil and injure the roots. Also be careful to place them upon racks or concrete, so that no worms enter the pots; and choose a place for them shaded from the meridian sun, but exposed to its morning and evening rays.

Stove and Orchid House.

STOVE CLIMBERS require much attention now. A moderate freedom of growth must be allowed, but shoots that interlace are sure to be weakened, so generally an occasional thinning, regulating, and stopping are needful now.

Forcing Pit.

PINES must have atmospheric moisture. Shut up early and syringe, and water the floor of the house early every morning. Give a little air at night about two hours after shutting up to water. Use as little shade as possible to fruiting plants. The temperature may go up to 95° for a maximum.

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A SUMMER MORNING'S SONG.

FROM THE DUTCH OF J. TOLLENS.

Up, sleeper! dreamer, up! for now
 There's gold upon the mountain's brow—
 There's light on forests, lakes, and meadows;
 The dew-drops shine on flow'rot bells,
 The village clock of morning tells.
 Up, men! out, cattle! for the dells
 And dingles teem with shadows.

Up! out! o'er furrow and o'er field;
 The claims of toilsome moments yield
 For morning's bliss, and time is fleet
 Than thought—so out! 'tis dawning yet.
 Why twilight's lovely hour forget?
 For sweet though be the workman's sweat,
 The wand'rer's sweat is sweeter.

Up! to the fields! through shine and stour;
 What hath the dull and drowsy hour
 So blest as this? the glad heart leaping
 To bear morn's early song sublime;
 See earth rejoicing in its prime:
 The summer is the waking time,
 The winter, time for sleeping.

Oh, fool! to sleep such hours away,
 While blushing nature wakes to day,
 On down through summer mornings snoring.
 'Tis meet for thee, the winter long,
 When snow falls fast, and winds blow strong,
 To waste the night amidst the throng,
 Their vinous poisons pouring.

The very beast that crops the flower
 Hath welcome for the dawning hour.
 Aurora smiles! her beck'nings claim thee;
 Listen—look round—the chirp, the hum,
 Song, low, and bleat—there's nothing dumb—
 All love, all life. Come, slumb'rer, come!
 The meanest thing shall shame thee.

We come—we come—we wand'rings take
 Through dewy field, by misty lake,
 And rugged paths, and woods pervaded
 By branches o'er, by flowers beneath,
 Making earth odorous with their breath;
 Or through the shadeless gold gorge heath,
 Or 'neath the poplars shaded.

Were we of feather, or of fin,
 How blest to dash the river in,
 Thread the rock-stream as it advances;
 Or, better, like the birds above,
 Rise to the greenest of the grove,
 And sink the matin song of love
 Amidst the highest branches.

Oh, thus to revel, thus to range,
 I'll yield the counter, bank, or change;
 The bus'ness crowds, all peace destroying;
 The toil, with snow that roofs our brains;
 The seeds of care, which harvest pains;
 The wealth, for more which strives and strains,
 Still less and less enjoying!

Oh, happy, who the city's noise
 Can quit for nature's quiet joys,
 Quit worldly sin and worldly sorrow;
 No more midst prison-walls abide,
 But in God's temple, vast and wide,
 Pour praises every eventide,
 Ask mercies ev'ry morrow!

Come!—though a glance it may be—come!
 Enjoy, improve, and hurry home;
 For life's strong urgencies must bind us.
 Yet mourn not; morn shall wake anew,
 And we shall wake to bless it too—
 Homewards! the herds shall shake the dew
 We'll leave in peace behind us.

CAMELLIA CULTURE.—No. IV.

If the cultivator has carried out the instructions previously given, his plants will be occupying now an airy cool position in some glass structure where the force of the sun's rays does not come directly upon them. But it is not in every case that a suitable house, to be devoted entirely to them, can be secured, though even with cultivators so situated much can be done to make the house agreeable for them by judicious shading, and a free circulation of air through the portion of the structure they occupy. With a view to meet the wants of my readers, I have endeavoured that these papers should appear from time to time, containing such portions of the details of Camellia culture as will be applicable to the circumstances of the majority of cultivators when they come to hand; and in this paper, as I promised at the conclusion of my last, the details of the summer treatment required will be given.

As to the proper treatment of Camellias during the height of our English summer, I think there can be but one opinion, that, taking our seasons as a whole, they are not adapted for the out-door cultivation of Camellias. Such, however, has been my experience in the more southern counties; but this remark is only intended to apply to collections, and not to individual varieties, which I have

myself seen enduring an ordinary winter in the open border on the south coast. Therefore I think those who have only a moderate convenience will do well not to risk a valuable collection of plants to the uncertainty of this climate by exposing them in the open air, subjected, perhaps, to a few weeks' sultry summer weather in the early part of the season, only to be visited by drenching rains and cold nights through the month of August. These are my reasons why I would not advise the placing out in the open air valuable plants, on which we depend so much for winter and early spring flowers.

In places where it is not possible to keep them under glass throughout the year, the best position for them out of doors is under the shade of a north wall or fence (the shade of trees I dislike, on account of the drip). When such a position must be resorted to, the cultivator should be particular to observe that they should have thoroughly completed their growth before they are taken out, and it would be better still if their flower-buds are prominent and plump, and then they will have nothing to do but to quietly go to rest, during which time the previously-formed buds will swell and mature themselves much better than while the plants are in a state of activity. At the end of the first week in June is quite soon enough to expose them out of doors, but the later-flowering plants will not do to be put out thus early, as they will not have hardened their growth.

In the absence of a proper Camellia house, the earliest vinery may sometimes be brought into use for Camellias after the fruit is cut, as they delight in the shade of the vines, and the abundance of air given to vineries when the fruit has been cut will just suit them, and an occasional syringing of the Camellias will do no harm to the vines. In such a structure they would be much less trouble to the gardener than when exposed in the open air, and very much better for the plants, as they are sheltered from storms and wind, and the moisture at the roots (one of the greatest secrets in Camellia culture) will be under the control of the operator instead of being at the mercy of the elements. Peach-houses generally are not adapted for them after they have completed their growth, as they are too much shaded and confined. But many times one end or a portion of a span-roofed plant-house can be made to suit them admirably, by shading the roof, and by standing the plants on a cool bottom, and by allowing a free circulation of air night and day until the end of September.

The success of those old-fashioned dark houses which I have advocated in previous articles on this subject for Camellia culture is abundantly testified by the one at Knowle Park, briefly alluded to by me in my notes from that place; for there they can be seen in a span-roofed house one hundred feet long, in the finest possible health and vigour, producing flowers in abundance. Why it is that those who professedly admire them cannot see the utility of providing a suitable structure is past my comprehension, for they are evidently a class of plants that have many claims upon our notice; for they are not only desirable and useful winter and spring flowers, but when planted out in the borders, as they are at Knowle, they give to any well-ordered garden a character of stateliness and grandeur that is not secured by any other class of plants; and considering that they are much sought for as desirable acquisitions to the lady's toilette, we may well complain of the make-shift system under which they are ordinarily grown.

That some good collections are grown without the aid of a house devoted entirely to them I am not prepared to deny; but I would ask the cultivator of such collections what amount of labour they entail, from the fact that they are constantly removed from one house to another, to secure the proper degree of temperature they require to suit the different stages of their growth; and, even if he be an enthusiast, he will be obliged to admit that it is very great in comparison to what it would be if grown in a house by themselves.

The more practical details of their management during summer may be summed up in a brief space. One of the most important is to carry out a thorough system of watering, which, when the plants are under glass, is no difficult matter; but with the man whose plants are without shelter it is not so easy to work out. The more favoured cultivator should keep his plants liberally watered with water of the same temperature as the house until they have completed their growth and formed their flower-buds, after which it should be gradually reduced, only to give sufficient to the whole ball of earth to keep it moistened without saturating it. Where plants are exposed, the cultivator must endeavour to work out the same rule, but there will be times and days when plants exposed will require double the quantity they will at other times. When a force of circumstances compels us to expose our plants to a certain amount of rough usage, it becomes the gardener to reduce the ill effects of such treatment by devising such means as are within his reach, and are admissible under the circumstances; and in the case of Camellias exposed in summer, much may be done by plunging the pots in cocoa-nut fibre or any similar material, and by securing them against the force of the wind, and by standing the plants on

some firm bottom, so that the worms cannot get into the pots and choke up the drainage. These are essential details, that will be observed by those who wish to excel in the cultivation of these noble plants.

I shall conclude this paper with the remark that those plants intended for autumn or early winter bloom should receive particular attention in watering, as an excess or an insufficiency may cause many of the bloom-buds to fall; and should there be more buds formed than the plant ought to carry, pick them off a few at a time at intervals of a week, that the plants may not suffer from any sudden loss.

J. C. CLARKE.

Correspondence.

GROWTH OF VEGETABLES IN PRIVATE GARDENS.

In your issue of May 11, you have a leader on the early supply of vegetables to Covent Garden Market, in which is set forth the notion that private gardens where gardeners are kept do not and cannot compete with the market gardeners around London. That no private garden can compete with Covent Garden in the earliness and quality of the supply of vegetables is indisputable and certain; for not only the market gardeners around London cater for its supply, but all the world, not excepting hundreds of private gardens in England where gardeners are kept.

If your leader was in any way intended as an apology for the shortcomings of well-managed private gardens, it is altogether delusive in its aim, and calculated to produce the very dissatisfaction it was intended to remove, and requires, on this account, an apology from you; for the generality of employers know that there is no stint or spare of the means you advise for the production of the earliest and best quality of vegetables.

The writer of this has had many years' experience as gentleman's gardener in town and country, and is now in business as a market gardener in a town where the earliest and best produce is in demand, and he is keenly alive as to the means, time, and price of garden produce. As to the merits and advantages of market gardeners over gardeners of private gentlemen, it must be obvious that the former have advantages over the latter, but not from the causes you state, but from his attempting to grow only such things as the nature of the soil and situation render almost certain, avoiding such as he knows will not succeed, so that great breadths in most favourable conditions of growth afford better opportunities for picking the first and best from the best conditions of cultivation; whereas the gardener of a private gentleman is expected to have everything in season; and if one of the everything fail, it is an object of mark and den. erit in the gardener. Your remarks on the means and for encouragement of early garden produce are very good; but they have nothing to do with the supply of early vegetables in Covent Garden.

The first vegetables of every kind in Covent Garden come from France. Every steamer that crosses from Boulogne to Folkestone brings vast quantities; they go to London by truck-loads every day; they are not detained to go by goods train, but go by the earliest after arrival, and from London to all parts of England. French vegetables are sent to London till the English supply becomes general, and then they are valueless. Do not suppose that this French supply is an insignificant item in the English market, for it is by no means so.

I am not in a position to furnish quantities, but I often look at the huge baskets, and I know that sometimes by one consignment there are lettuces enough to strip acres of land, even if the crop is good. There have been sent seven tons of strawberries in one day to London, *via* Boulogne and Folkestone, before English are in. This season, more than a month ago, before I began to pull radishes, French were selling here at 2s. per hundred bunches. There is in Folkestone a wholesale shop for the supply of French vegetables, and all through the winter salading might be had; and now, with a day's notice, any quantity of peas, new potatoes, carrots, turnips, superior lettuce, cherries, cut flowers, &c., may be had, and in another week splendid cauliflowers, such as are seldom seen in England even in the month of June. These are also in abundance in the London markets. I do not write this with any spirit of disaffection towards free trade, or to detract from the merits or efforts of market gardeners, but to correct the false notion that the earliest supply is English; and that because a thing is to be seen in the greengrocers' shops in London it ought therefore to be had in a private garden where a gardener is kept. All the world caters for Covent Garden, and not the least important part of the supply of the best and earliest is from the private gardens of noblemen and gentlemen in England.

GEORGE PILCHER.

Replies to Queries.

Planting a Fountain.—R. W. P.—Nothing better for the vicinity of a fountain than Pampas grass, *Tritoma nvaria*, hydrangeas, fuchsias, *Lysimachia thyriflora*, *Gnothera Fraseri*, *Calla Ethiopica*, *Osmunda regalis*, *Athyrium filix femina*, *Arunda donax*, and other such plants of graceful habit and fond of moisture. You cannot have anything grand to flower in winter, but you may plant the banks with winter aconite, Christmas rose, and primroses. In a sunny, dry position, one or two laurustinas would be useful for winter bloom.

Hedge for Division.—S. W. B. R.—Cotoneaster makes a nice hedge if trained to a trellis of stakes, or a lattice of hazel-rods, three or four feet high. You could obtain from a nursery plants of sufficient size to make an effect at once, and they can be removed now or any time in autumn or spring. If you begin with small plants, it will take five years to make a good fence. It can be managed with very little trouble. Cuttings put in frames at the end of July will be well rooted by next spring, but they grow slowly. If you are really anxious for this fence, and cannot use large plants, plant them when well-rooted eighteen inches apart in the line where they are to remain, and train to wires as they get up; this will do away with the necessity of a trellis, and may be added to as the growth requires. Strong bushes we should plant three feet apart. Veronicas would make a fine hedge in a warm climate, and for these wires would do as well as stakes; none so good as *V. Andersoni*. This would certainly

answer, but must not be clipped, but cut back moderately with the knife. Lastly, roses are first-rate for divisional lines, especially the robust-growing hybrid perpetuals.

Diseased Vines.—C. P.—Your vines are suffering from defective root action, the cause of disease in nine-tenths of the cases of vine failure submitted to us. You do not say how they are planted, and therefore it is impossible to advise you minutely. They are either in a damp border, or a border excessively fat with undecomposed manure, or where they have not a sufficient amount of sun-heat.

Planting after Tulips.—R. Thomas.—Why grieve that you cannot plant your beds till the middle of June? All you need do is to get the plants shifted into 48-sized pots, and plunged out of doors till wanted. Then you can turn them out without any check, and in full bloom. So in autumn you need not take up your plants till the end of October, and you have then good time to plant the tulips. Suppose you were to have some kind of cheap frame-work for inclosing those beds, and then fill them with potted plants for the summer, on the plunging system. That system proves to be about a hundred times more grand than any system of planting out, and it has but one defect, and that is, that it uses an enormous quantity of plants, but that is an advantage to those who grow plants in quantities. But you have only to give your bedders another fortnight's growing.

Caterpillars and other Pests.—Philip.—There will be no injury by the splashing of soap or chloride-of-lime solution on the soil. If any effect is produced, it will be to the benefit of the plants, but we doubt if you will get rid of caterpillars by any method except hand-picking. The best remedy for red-spider is pure water alone, or the fumes of sulphur. Red-spider never attacks plants that are growing vigorously, and that have plenty of moisture; in fact, moisture is certain death to this pest. Soda will, if strong, spoil the foliage; if weak, not harm the vermin. Stick to plain water or tobacco-water, and you will do well.

Cucumber Failure.—W. M.—The vines that bore so well, and then produced distorted fruit, and got full of fly, were probably exhausted through being in a poor soil, or wanting water. When cucumbers play these pranks it is usually best to destroy them. Touch up the bed and plant again, but you might have cured yours by using good linings to the bed, slightly pruning back the vines, and giving them frequent syringings with soft water over the leaves, and manure-water at the root.

Turf on Dry Slopes.—W. Roberts.—We have seen the hottest slopes of sand and chalk as verdant as a fat meadow a fortnight after the hay was carried. Some grasses will grow on such slopes, such as Sheep's Fescue and Italian Rye. Better than all the grasses are such plants as common camomile, common wild thyme, common yarrow, and white clover.

Classification of Auriculas.—Septimua.—You must never be surprised to find in one list a variety classed as green-edged, and in another list the same variety classed as gray-edged. The fact is, many varieties vary in respect of the colour of the edging, and those that do not vary may by some growers be called green, and by others gray. There is scarcely a gray but has a tinge of green to be found, and the system of classification is at fault, not the critics who differ as to the class to which a particular variety belongs.

Early Tulips.—Simson.—No; we do not approve of the prevailing system of dragging them out of the ground when they are fresh and green, and compelling them to ripen off artificially. We do not approve of any violent proceedings, and are quite satisfied nature will not be outraged with impunity. Bulbs so treated do not flower so well the next season as those allowed to ripen naturally, and that are not taken up till their leaves are dead, or nearly so.

Calceolarias.—R. Whitbread.—We cannot say whether they will die off this summer as they did last, and as they have too frequently done in past years. But we can say this, that in several experiments with calceolarias at Stoke Newington, those planted in soil consisting of about three parts out of four of rotten hotbed dung, none died, and the growth and bloom were the astonishment of many practicals who saw them.

Ivy.—W. W. W.—The common Irish ivy is the best you can use for edging the large compartments in a public garden. Do not employ *Hedera Regneriana* except in some isolated spot apart from the general scheme, as it begins to grow so late in the season that at this time of year it is scarcely presentable. In a warmer climate than yours we might recommend it, but it will not do for the extreme east of England except as a wall shrub; and when warmed by a wall, it is scarcely any later in making its new growth than any other ivy.

Geranium.—C. M., Isle of Wight.—Your seedling, the result of a cross between Helen Lindsay and Lord Palmerston, is a nosegay of the grandest character, the truss of immense size, the flowers bright pink. The nearest to it in the nosegays is *Boule d'Asperides*, which is a lighter colour than yours.

Dahlias.—W. Price.—The following are a good selection: Miss Henshaw, Mrs. Piggott, Charlotte Dorling, Bird of Passage, Helen Potter, Norfolk Hero, Hugh Miller, Charles Turner, Fanny Purobase, Leah, Mrs. Wyndham, Anne Austin, Madge Wildfire, Lord Palmerston, Boh Ridley, Scarlet Gem, Andrew Dodd, Lord Derby, Midnight, James Backhouse, Juno, Lilac Queen, Criticism, Blushing Fifteen, Dursley Gem, Charles Perry, Garibaldi, Regularity, Startler, Artemus Ward, Miss Frampton, Stafford's Gem, Lady Paxton, Norah Creina, Pauline, Prospero, and Fanny Surt.

* * * Several reports are unavoidably kept back, owing to the pressure on our space this week.

FLORAL AND CHORAL.—The other morning *Mr. Punch*, as he chipped his second egg, saw his youngest daughter smiling at this notice in the *Guardian*:—

WANTED, a Situation as HEAD GARDENER. Has great interest in flowers. Lately taken bass part in surpliced choir. Single. Steady. Good reference. Address, &c.

Well, what is there to laugh at, Miss? was *Mr. Punch's* stern remark. There is nothing very ludicrous in the fact that a gardener is able to sing bass. Oh, you are tickled by the surplice, are you? A gardener in a surplice! Well, pray, and why not, Miss? "A saint in serge is twice a saint in lawn," and a bass voice in a surplice may to some ears sound far finer than if its possessor merely wore a fustian jacket. Besides, the surplice shows the gardener is a man of High Church views, and not a dangerous dissenter; and this may serve to recommend him very strongly to some people. There are persons in the world who would hardly eat asparagus, if they knew that it was cut by a go-to-mooting gardener.—*Punch*.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. Imp. avg. of 43 yrs. Gravh	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	rises.	sets.	rises.	sets.	Barometer.		Thermometer.					Rain.	
1867			h. m.	h. m.	h. m.	h. m.													
9	S	Whit-Sunday (Pentecost)	3 40	8 11	p. m.	0 19	a. m.												1867
10	M	Whit-Monday	3 46	8 12	1 9 p. m.	0 48													9
11	T	West London Rose Show, Faling	3 45	8 13	2 13	1 12													10
12	W	Messere at Cawnpore, 1857	3 45	8 14	3 24	1 37													11
13	Th	Leeds Hort. Soc. General Exhib., 13th & 14th	3 45	8 15	4 28	2 3													12
14	F	Length of day, 14h. 30m.	3 45	8 16	5 30	2 30													13
15	S	Thomas Campbell died, 1854	3 44	8 16	6 28	3 1													14
																			15

The Gardener's Magazine.

SATURDAY, JUNE 8, 1867.

VICTORIA PARK IS AGAIN IN DANGER of being despoiled, and the inhabitants of the eastern parts of London are crying out for help to resist the invader, and establish inviolate their right to recreation and fresh air on the 290 acres originally allotted them. A year ago it was proposed by certain gas companies to erect new works within a few hundred yards of a portion of the park much frequented by the public; and, after a hard battle with the promoters, they were beaten, and retired. Now the speculative builder is the invader; and it is reported that not less than one-third of the entire area, now covered with grass-turf and trees, is to be appropriated to building purposes, reducing the park to less than 200 acres, though the original 290 afford a space far too contracted for the tens of thousands who need a place of open-air resort for healthful exercise in this part of London. This is a very serious case, and we trust it will meet with the attention it deserves, not alone in the eastern parts of the metropolis, where the park is known and appreciated, but throughout London—yes, and throughout the country; for it is a matter of more than local importance. The preservation of public parks and pleasure grounds generally is in some way related to the preservation of this particular park; and public opinion must now be heard in defence of public rights, for opinion is the only weapon the people possess either for the defence or advancement of their rights and interests.

Victoria Park was opened 1842. As an open space, it was from the first of inestimable value to the over-crowded districts of Mile End, Bethnal Green, Whitechapel, Shoreditch, and Hackney. But, as a park, it has only within some seven, or at the most ten, years past acquired any degree of celebrity for its beauty. The site was never inviting, and it has always been severed into two parts by a public road. Everything in the laying out of this park was done in a careless manner—in a manner which would not have been tolerated at the West End of London. The trees, in irregular plantations, were planted in rows; the walks and roads were made to follow every little irregularity of surface; the ground was sown with grass without being levelled, and the margin of a sheet of water was left with a steep gravelly bank from three to twelve feet high. The trees have saved it. They have grown superbly; they have obliterated harsh lines, and harmonized incongruous elements; they have given an air of richness and repose to a place which was made wild without being made picturesque; they have contributed variety, comfort, and shade to walks that were designed with bad taste, and have made views of their own, irrespective of the levels and configurations of the principal compartments. Under the skilful care and ceaseless watchfulness of Mr. Prestoe, Victoria Park has become celebrated for its beauty. As an arboretum, it is worth preserving intact; as a place for recreation, and as one of the lungs of London, it is worth any sacrifice to keep the builders from encroaching on its precincts. The population that may fairly claim to have a direct interest in the preservation of this park numbers at least one million persons; so we are assured by Messrs. John Holms and John Plummer, who, in behalf of the toiling population of East London, have besought us to aid in checking the progress of spoliation. It would be a calamity for this now beautiful park to be shorn of its fair proportions. Not an acre can be spared; it is actually too small for the purpose to which it is dedicated, and all the open spaces nearest to it are fast being cut up by railways or covered by houses. Moreover, the eastern parts of the metropolis are the least salubrious: there are factories innumerable; there are vast districts inhabited by the poorest classes, where, owing to imperfect drainage and over-crowding, fever is a permanent plague, and cholera a frequent visitant. In a very few years hence Victoria Park will stand alone, the only breezy No. 110, NEW SERIES.—VOL. X.

open space for miles around, the last refuge of the destitute when desirous of a breath of the pure air of heaven, and the music of a bird or a rustling leaf. To cover one acre of this ground will be a crime; and this crime can only be averted by the power of public opinion, which we earnestly hope will be uttered promptly and without equivocation.

It is impossible to have this case brought before us and not feel that the governing classes are over careful of themselves. We believe there is not an Englishman, rich or poor, who grudges the expenditure incurred for the keeping and embellishing of the West-End parks. We confess, speaking for ourselves alone, that we do not; and we hope yet to see the beautiful gardens lately planted by Albert Gate in Hyde Park extended westward, so as to take in another strip of the sheep-walk which abuts upon the Drive there. But it will be supremely indecent if the government permit the abstraction from the poor of the East-end of London of 100 acres of recreation-ground, while the parks in the West of London, and to which the wealthy chiefly resort, are being made more and more magnificent. It is on this ground, that public expenditure should be regulated by just principles, that we implore the earnest co-operation of all classes to put such pressure upon the government as shall secure the preservation of Victoria Park; for one third part of the whole population of London look to it as their only place of free resort for healthful exercise and innocent recreation. There should be meetings called in all parts of London, and petitions and protests should be poured in upon the government while an hour remains to avert the contemplated mischief. Let Manchester, Liverpool, Birmingham—all the great towns—help in the same direction, remembering that if public parks of which the London poor are almost the sole possessors, can be turned into building ground at the whim of a commission, all the great manufacturing towns in the country may be robbed of their breathing grounds, and the poor be everywhere excluded from the occasional enjoyment of the sight of a green tree, except by climbing the wall of a private garden, or rusticing in the midst of intoxicating drinks. Messrs. Holms and Plummer say in their appeal, "Fancy that portion of St. James's Park abutting on Piccadilly being covered with houses! This is what is being done at Victoria Park." If the people are resolute they can defend themselves, and if they are not the park must go; for the governing classes of this country are strangers alike to the justice and generosity needed to bring about a sufficient opposition to stay the wrong that it is intended to perpetrate in the East End of London.

THE LINDLEY LIBRARY.—In another column will be found copies of correspondence on the subject of the appropriation of the surplus funds of the International Horticultural Exhibition of 1866, in which it is proposed on the part of the Executive to establish a library under the foregoing designation, the nucleus to be the late Dr. Lindley's own library, which the Royal Horticultural Society has already provisionally secured. It will be seen that the Council of the Royal Horticultural Society accept the proposal in its entirety, with the slight exception of suggesting an amendment of the 5th clause. At a meeting of the Executive Committee of the International Exhibition, held on Monday last, the proposals were confirmed, inclusive of the amendment suggested in clause 5. We may therefore consider the "Lindley Library" as a *fait accompli*.

WORCESTER FLOWER-SHOW.—This kind of exhibition has long been in abeyance in Worcester (says the *Worcester Herald*), owing to a variety of causes, jealousies, indifference, &c., into which we need not enter. An effort, however, is at length about to be made for the re-establishment of flower-shows. A short time ago several promoters of the cause issued a circular, setting forth their desire, and several subscriptions were promised, including £5 from the Earl of Dudley. Mr. H. Gummery, of St. John's, was elected hon. sec., and called a public meeting at the Guildhall a fortnight since. The chair was occupied by the Mayor (John Stallard, Esq.); also present Messrs. W. Webb (Sheriff), E. Webb, Josiah Stallard, J. Wood, Redgrave, Birley, Evans, Close, Bozward, and J. W. Williams. The Mayor, in opening the proceedings, said that the objects of the meeting were to decide if it was desirable to hold a flower-show in this city during the present year, and if so to appoint a committee to make the necessary arrangements. He had found that this city was greatly behind other places in this respect, as in almost every small town and country village the great event of the year was the flower-show, but for some reason or other they had not had one in this city for the last three or four years. Those which had been held previously had not prospered very well in a financial point of view, but still he could see no reason why that should be the case, and they must manage to be more careful in the matter of expense. On the last occasion they had gone to a great expense in engaging the band of the Coldstream Guards, but now they had plenty of local talent. Mr. Redgrave said that the expense of bringing the Coldstream Guards' band here was £100. A short conversation ensued, in the course of which Mr. Bozward agreed with the effort being made, but

suggested that a cottagers' show should be combined with the general exhibition. Mr. Redgrave said that had always been done, but Mr. Bozward wished the cottagers' show to be made a special feature. A committee consisting of the gentlemen attending the meeting was appointed; and on the place for holding the show being mooted, Mr. Williams suggested the Market House, which the committee entirely approved of. A sub-committee was then appointed for making the necessary arrangements, to collect subscriptions, and to call a general committee meeting when requisite. Mr. Gummery was unanimously appointed hon. sec. It is intended that the first show shall be held in July, and another in September.

THE MANCHESTER EXHIBITION, which was opened yesterday in the Manchester Botanic Garden, is one of the most extensive and magnificent ever held in the northern parts. Southern growers have contributed liberally, indeed, there are but few names amongst celebrated exhibitors wanting; but the local support accorded is even more satisfactory, we think, than all the assistance rendered from distant gardens. Manchester is a smoky city and has a bad climate, yet the contributions from the immediate neighbourhood are both numerous and meritorious in the highest degree. The Magazine is printing while we insert these few words to chronicle a good beginning; in our next we shall hope to present a report. It is expected that on Monday next many thousands of visitors will arrive from the great manufacturing and trading towns round about, and even from Sheffield, Leeds, and Birmingham. We can assure our friends of the midland and northern districts that an hour or two of travel will be but a small effort as compared with the magnificent spectacle and the abundant interest of this exhibition.

ANOTHER HYDROPULT!—We have been asked to try the "Niagara" (Holman's patent), manufactured by Tangey and Holman, of Birmingham, and 10, Laurence Pountney Lane, London, and it has been fairly tested and taken to pieces. It is not made of "brown paper," as an instrument of this class was once described to be in these pages; nor is it a "foot refrigerator," to use another term applied to a hydrocuilt that wetted the operator's feet as much as the plants for which the water was solely intended. This is at once a substantial and a skilfully constructed engine, demanding no extravagant exertion, and performing its work admirably. It has one piston-rod only, and the possibility of going out of gear by any lateral pressure of the hand is reduced to a minimum; but there are two cylinders, one for drawing, the other for delivery; and an air vessel extending the whole length of the machine contributes in a material degree to render its action easy and constant. It has a solid foot, two lengths of hose, and a jet fitted with a spreader, so that a stream or a fine shower may be produced at the pleasure of the operator. We strongly recommend the "Niagara" force-pump as one of the best and cheapest portable engines adapted for garden use we have hitherto seen.

FINCHLEY, FRIERN BARNET, AND HORNSEY HORTICULTURAL SOCIETY.—A special meeting of the committee was held at The Compasses, Hornsey, on the 28th ult., to receive subscriptions and applications from gardeners and cottagers who wish to exhibit at the forthcoming show, which is to be held in the beautiful grounds belonging to the Priory, Hornsey. To Horatio Cooper, Esq., are the inhabitants of these northern suburbs much indebted for a personal canvass of the whole neighbourhood, which has materially strengthened the funds of the Society. The schedule of prizes to be competed for on the 4th of July next has just been published.

THE late frosts have done much damage to the peach crop in New Jersey and Delaware, U.S.

THE tobacco crop of Virginia now going into the American market is one of the largest and best raised for many years, and is commanding high prices.

A NEW impetus has been given to the fruit trade at Philadelphia by the large number of vessels which are constantly clearing from that port, with petroleum for the Mediterranean, returning laden with Messina and Palermo oranges and lemons, all of which find ready sale at from 50 cents to 5 dols. 75c. per box.

PROPOSED FORMATION OF A HORTICULTURAL LIBRARY AT SOUTH KENSINGTON.

We have been favoured by the Executive Committee of the International Horticultural Exhibition and Botanical Congress with the following correspondence:—

Botanic Gardens, Chelsea, April 11, 1867.

Sir,—I am desired by the Executive Committee of the International Horticultural Exhibition to forward you the enclosed copy of certain proposals for the disposal of the surplus funds now in its hands, adopted at its last meeting, and through which it is trusted the Society will derive some permanent benefit in acknowledgment of the facilities granted by your Council to the Committee at the time the extension of the Great Show was thought desirable.

May I beg that you will lay the proposals before the Council at the earliest opportunity, and that you will as soon as possible acquaint me with its reply.—I am, sir, your obedient servant,

THOMAS MOORE.

To the Secretary of the Royal Horticultural Society.

Extract from Minutes of Executive Committee, embodying the proposals above referred to.

1. That the surplus funds realized at the International Horticultural Exhibition of 1866 be applied to the establishment of a permanent Horticultural and Botanical Library, to be vested in seven Trustees, as hereinafter mentioned, and to be called the Lindley Library, in memory of the late Fr. Lindley, and his zealous devotion to the cause of Horticultural and Botanical Science.
2. £600 of this surplus to be applied to the purchase of Dr. Lindley's own library. As it appears that the Royal Horticultural Society has already provisionally secured possession of this collection with a view to prevent its dispersion, the Society to surrender it to the Trustees absolutely, in consideration of being repaid the sum of £600 in question.
3. The Society to consent to the Library now proposed to be formed being placed in the Council Room during the period of the continuance of their lease under the Royal Commissioners for the Exhibition of 1861.

4. Of the balance of the Fund (about £1,200) the Trustees to expend such sum as they may think expedient in the purchase or construction of book-cases and fittings for the reception of the Lindley Library, and any subsequent extension of it in the Council Room of the Society.
5. The Library to be available for consultation by Fellows, Members, and Associates of the Royal Horticultural Society, and other persons possessing rights of admission to the premises; also by gardeners on their producing a satisfactory introduction from their employers, and by young gardeners who may have passed or are preparing for the examinations held by the Royal Horticultural Society and by the Society of Arts. In the case of other persons to whom it may appear desirable to give the privilege of consulting the Library, the Trustees and the Society to agree upon the conditions under which the privilege of admission shall be given.
6. In the event of the books being kept under lock and key in the book-cases, the Society to entrust the custody of the keys to one of its officers, who shall be prepared at all reasonable times to give access to the books to those persons entitled to consult them.
7. The remaining balance of the surplus, after providing for the above items of expenditure, and setting aside any sum that may be necessary for contingencies (such as the preparation of the trust-deed hereafter referred to, &c.), to be applied by the Trustees to the purchase of further works to be added to the Library.
8. A trust-deed to be prepared for the purpose of giving effect to the present arrangement,—three of the Trustees to be appointed by the International Executive Committee (namely, the three Secretaries of the International Horticultural Exhibition and Botanical Congress, Mr. Thomas Moore, Dr. M. T. Masters, and Dr. R. Hogg), three by the Royal Horticultural Society (namely, the Treasurer and Secretary of the Royal Horticultural Society for the time being, and one other person to be chosen by the Society), and one to be added by the six Trustees above-mentioned jointly.
9. The Trustees to have the power of removing the whole of the books purchased under the trust, or added to the Library by presentation, together with all the book-cases, fittings, &c., referred to in paragraph 4, in the event of the determination of the lease held by the Society under the Royal Commissioners, and of making such arrangements as they may think fit for establishing the Library elsewhere."

Royal Horticultural Society, South Kensington,

April 17, 1867.

Sir,—The Extract from the Minutes of the Executive Committee of the International Horticultural Exhibition, respecting their surplus, which you were good enough to forward me, was yesterday read to the Council, and I am requested to convey to you their thanks for the very liberal proposition which your Committee has made.

The Council will, as wished, surrender absolutely the Lindley Library for the sum of £600; and in accordance with the terms of paragraph 8, has elected Mr. W. Wilson Saunders as the third and permanent Trustee from the Council.

With respect to paragraph 5, the Council would prefer that the admission of strangers should be regulated by the Trustees, and perhaps your Committee will find no difficulty in adding this slight concession to their very handsome present.

The Council desire me to add that in their opinion no better or more acceptable return could have been made to the Society for the facilities afforded to your Committee by the Council.—I have the honour to be, sir, your obedient servant,

HENRY SCOTT, Secretary.

To Thomas Moore, Esq., F.L.S., &c.

ROYAL BOTANIC SOCIETY.

FIRST GREAT SHOW, WEDNESDAY, MAY 29.

(Concluded from page 228.)

ROSES.—The trade class for ten pot-roses brought a lively competition, and secured for the enrichment of the tent several magnificent groups of plants. There could be no question about the superiority of the ten from Mr. Turner, for which the first place was awarded. They were of great size, symmetrical and uniform in shape, not over-tied, yet precisely finished. In respect of leaves and flowers, their quality was such as is but rarely seen; frosh to a marvel, and arresting attention instantly by a certain grandeur of carriage that it would be in vain to attempt to describe. The varieties were Charles Lawson (the grandest of all as to size, number of flowers, and general condition), Viconte Vigier, Anna Alexieff, Souvenir d'un Ami, Céline Forestier, Maréchal Vaillant, Baronne Provost, General Jacqueminot, Souvenir de la Malmaison, Victor Verdier. Second in this class, Mr. William Paul, with fine examples of Lord Raglan, Paul Perras (huge in size and perfect in finish), Madame Willermoz, Juno, Souvenir d'un Ami (with more colour than usual), Lælia, President, Charles Lawson, General Jacqueminot, Caroline de Sansal. Third, Messrs. Paul and Son, of the Old Nurseries, Cheshunt, with a superb Céline Forestier, Charles Lawson, Madame J. Daran, Paul Ricaut, Louise Odier, Madame St. Joseph (splendid), Baronne Provost, Sénateur Vaisso, Victor Verdier, Gloire de Dijon. Mr. Francis came in fourth with plants that had been respectable, but were now worn out, and the flowers falling to pieces. In the amateur class, the best plants came from Mr. Terry, gardener to G. Fuller, Esq., Youngsbury. Cut flowers were abundant in the annexed, Messrs. Paul and Son contributing a beautiful collection.

ORCHIDS.—The display of these was a pleasing feature of the show; but the truth must be told, that there was scarcely a plant in the whole of the bank that merited special attention or admiration from a professional point of view. Nevertheless, there were many beautiful plants, and amongst them many interesting species and varieties. Mr. Peuny, gardener to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, took the first place in the class for fifteen with a very pretty lot, in perfect health, and comprising a very good selection. They were as follows: Lælia purpurata, Acridis Fieldingii, Acridis virens, Dendrobium nobile, Phalenopsis grandiflora, Saccelabium curvatum, Vanda snavis, Lycaste Skinneri, Oncidium sarcodeus, Cypripedium barbatum superbum, Cypripedium levigatum, Dendrobium Parishii (with two spikes out, and more coming), Acridis Warcei, Calanthe veratrifolia, Odontoglossum phalenopsis. Mr. Wilson, gardener to William Marshall, Esq., of Enfield, took the second place with

an interesting group, comprising examples of *Cypripedium candidum* (with over a dozen flowers, the tails of which were thirty inches in length), *Eriopsis rutilus* (a pretty and valuable orchid), *Warzeowiczella discolor*, the charming *Odontoglossum Alexandræ* (with its chaste and peerless flowers), *Dendrobium densiflorum*, *Cattleya eitrina*, and others. The third prize in this class was awarded to Mr. Gidney, gardener to the Rev. W. Ellis, Hoddesdon. In this group, a good *Cattleya Mossiæ*, also the intensely bright orange-coloured *Lælia cinnabarina*, a good *Phalanopsis grandiflora*, and *Epiphora pubescens*. Fourth, Mr. Peed. The first prize for eight orchids was awarded to Mr. Hill, gardener to R. Hanbury, Esq., Ware. One of the most striking plants in this group was *Cattleya Skinneri*, with five spikes of eight flowers each, of the most lovely rose-purple colour; also *Cypripedium Stonei*, *Aerides Lindleyana*, *Phalanopsis grandiflora*, *Vanda suavis*, *Chysis Limminghii* (with five spikes), *Calanthe veratrifolia*, and *Vanda tricolor*. Mr. Wiggins second, with a good *Dendrobium densiflorum*, *Cypripedium hirsutissimum*, *Saccolabium præmorsum*, and others. Mr. Fairbairn and Mr. Young also contributed. In the collection from the last-named exhibitor, a beautiful *Phalanopsis Schilleriana*. In the trade class for six, Messrs. Veitch and Sons took first place with *Aerides Fieldingii*, *Cypripedium barbatum*, *Lælia purpurata*, *Cattleya Mossiæ superba*, *Cattleya lobata*. Mr. Williams sent *Cattleya Skinneri*, *Dendrobium nobile*, *Wallochianum*, *Angulosa Clowesii*, *Cypripedium barbatum*, *Vanda insignis*. Third, Messrs. Lee.

STOVE AND GREENHOUSE PLANTS.—The display of these was most profuse, and the immense variety of forms and colours found amongst them contributed in a very material degree to the enrichment of this splendid exhibition. In the class for ten, Mr. Baines took the lead with a faultless group; second, Mr. Peed; third, Mr. Kemp; fourth, Mr. J. Wheeler. In the class for six, first position was assigned to Mr. Donald, gardener to J. G. Barclay, Esq., Leyton; second, Mr. Coles, gardener to H. H. P. Henderson, Esq., Beckenham; third, Mr. Wilkie, gardener at Oak Lodge, Kensington. The trade exhibitors were Messrs. Lee, Rhodes, Glendinning, Williams, and Baxendale. In the class for six plants, Mr. Ward, gardener to F. G. Wilkie, Esq., Leyton, first; Mr. Smith, gardener to A. Anderson, Esq., Norwood, second. To enumerate subjects shown is impossible; the following were, however, more especially worthy of notice: *Medenilla magnifica*, grandly done, by Mr. Wilkie; *Acrophyllum venosum*, from Mr. Baines, extra fine; also from the same, *Genetyllis tulipifera*, trained to a huge balloon, and evenly covered with flowers; Mr. Peed had a fine *Allamanda grandiflora*, *Dracophyllum gracile*, and *Erica ventricosa magnifica*. In various groups there were noticeable examples of *Stephanotis floribunda*, *Diplandra crassinoda*, *Leschenaultia biloba*, *Statice Holfordi* and profuse, *Tetratecha verticillata*, *Clerodendron Thomsoniæ* and C. Balfourii, *Ixora aurantiaca* and *coccinea*, *Hæmanthus punicus*, *Pimelea decussata*, *Rhynchospermum jasminoides*, *Polygala cordifolia*, *Aphelaxis macrantha*, &c.—**FINE-FOLIAGED PLANTS** were plentiful; the contributors were Messrs. Lee, Williams, Wheeler, Fairbairn, Baines, Glendinning, Ward, and others. Mr. Baines presented his fine pans of *Sarracenias*; in other collections were *Rhopala*, *Yuccas*, *Aloes*, *Cordylines*, *Palms*, *Tree-Ferns*, *Alocasias*, *Cycads*, *Pandanads*, *Beaucarneas*, *Dracenas*, &c. Mr. Fairbairn showed *Alocasia zebrina*, so placed that its finely-marked stems were near the eye and the leaves overhead. When placed in this way it is a much more interesting plant than when tilted forward so as to display the upper sides of the leaves; it is then somewhat coarse.—**EXOTIC FERNS** were shown by Messrs. Williams, Taylor, Baines, and others. Mr. Ivery presented British Ferns, as did also Mr. James, of Isleworth.

NEW PLANTS.—Numerous certificates were awarded for new plants of merit. Amongst them were the following: *Sanchezia nobilis variegata*, from Mr. B. S. Williams and Messrs. Veitch. *Echites rubro-venosa*, from Messrs. Veitch, Mr. Williams, and Mr. Bull. *Dichorisandra mosaica*, from Messrs. Veitch and Mr. Bull. *Maranta illustris*, from Messrs. Veitch and Mr. Bull. *Coleus Veitchii*, from Messrs. Veitch, Mr. Bull, and Mr. Williams. *Panicum variegatum*, from Messrs. Veitch, Mr. Bull, and Mr. Williams. *Retinospora filifera*, from Messrs. Veitch. *Anthurium regale*, from Messrs. Veitch, Mr. Williams, and Mr. Bull. *Tillandsia argentea*, from Mr. Bull. *Amorphophallus nobilis*, from Mr. Bull. *Agave macrantha*, a fine broad-leaved, glaucous-tinted species, with distinct and formidable spines, will no doubt make a splendid plant when of sufficient age to show its characters: this came from Mr. Bull. *Blandfordia Cunninghami*, from Messrs. E. G. Henderson and Son; this is a valuable novelty, though it is by no means a new plant, having been discovered years ago by Mr. Allan Cunningham. It is a tuberous-rooted evergreen greenhouse plant, with glossy sword-shaped leaves, and a flower-scapa bearing a cluster of bell-shaped flowers of a brilliant copper colour. From the same, the new orange-leaved elm, *Ulmus campestris aurea*, and the new golden-leaved alder, *Alnus glutinosa aurea*, both of them beautiful trees. Mr. Wilson, gardener to W. Marshall, Esq., brought a good variety of *Mitonia spectabilis*, called *rosea*, and a nice plant of the rare *Dendrobium thyrsoiflorum*.

New Pelargoniums.—The new pelargoniums made a distinct and interesting feature, and amongst them were certainly some beautiful and useful varieties, but only two or three were remarkable for distinctness and high quality. From G. W. Hoyle, Esq., Reading—*Man of Mark*, small, neat, quite finished in smoothness and colour, rosy carmine, with small black spots, the top petals dark; first-class. *Victor*, large, fine form, pinkish rose, white throat, dark top; first-rate. *Example*, medium size, perfectly circular, smooth and finished, rich carmine, white throat, dark top; first-rate. From Mr. Nye, gardener to E. B. Foster, Esq., Windsor—*The Emperor*, very large and showy, fine broad petals, but the top petals rather curled at the base, soft clear pink, the top petals reddish pink, with small dark blotch; a handsome flower. *Rob Roy*, large, fine form, smooth, carmine-pink, with superb top, dark shading to lake; one of the best of the season. *Grande*, small, perfect form, pale pink, dark top; first-rate. *Northern Star*, small, orange-red, top dark, rough. *Troubadour*, large, with a slight fold at base of top petals, clear salmon, top petals reddish salmon, with small maroon blotch. *The Peer*, large and fine, only one flower fully expanded to judge it by, and that beautifully formed and quite smooth; colour pink, heavily overlaid with lake veins, top petals maroon-black, with sharp whitish edge; very showy and fine, but not enough of it for a final decision. *Conquest*, in the style of *The Peer*, but apparently wanting in smoothness; very handsome and effective. *Autocrat*, large, rough, salmon-flesh, dark top; pretty. *Magician*, large, good form but scarcely smooth, clear rich carmine, top richly veined; fine for colour. From Mr. Wiggins, gardener to W. Beck, Esq., Isleworth—*Hermite*, large, fine form, blush white, top petals maroon shading to lake, richly veined; first-rate. *Lady of Quality*, small, extremely neat and perfectly finished, clear red with lake veins, top very dark, with sharp red line;

first-rate. *Aspasia*, large, good form, wrinkle in top petals, rosy pink; top petals dark, white throat. *Orange Spot*, small, orange-scarlet and black spots, dark top; good for colour. *Mignonette*, small and neat, top petals wrinkled, lively and lovely shade of carmine, top petals blotted black; very rich. *Armida*, neat, rosy carmine, dark top. *The Cardinal*, large, rough, orange-red. *Calypso*, small, clear salmon-red, dark top; second-rate. *Queen of Roses*, large, good form but not perfect, intense pure carmine, with shade of violet in throat, top petals with dark blotch. *L'Empereur*, carmine-pink, dark top, pale throat; pretty, but second-rate. *Electra*, large, good form, pale flesh, dark top shading to lake, white throat; a fine flower, peculiar and striking. *Aurora*, neat, good form, lake, dark top; good. From Mr. Turner, of Slough—*Thros Fancies: East Lynne*, a pretty flower, large, rich rosy carmine, whitish throat; *Marmion*, neat, but scarcely smooth enough, reddish carmine, whitish throat; *Pink of Perfection*, small, magenta, pale centre. These three varieties appear to be eminently adapted for specimen culture. From Messrs. Dobson and Son, Isleworth—*Magnet*, medium size, quite second-rate in form, flowers in huge trusses, colour fiery carmine and black; one of the most telling varieties for decoration ever seen.

New Zonale Pelargoniums.—An immense number of new varieties in all the classes were shown; to describe them all would be waste of time and space, and a needless tax on the patience of readers. But a certain number must have attention, and if the following should be thought too long a list, it must be remembered that there is much curiosity and inquiry in reference to these plants, and the only way to sift out the best from the thousands offered us is to go through them carefully as opportunities happen. From Mr. Watson, St. Alban's, a series of Tricolors and others: *Miss Gladstone*, leaf top deeply lobed, colours good, in the style of Mrs. Pollock. *Miss Watson*, leaf small, flat, round, no lobes, pale yellow margin, fiery red zone, green disc, a few radiate bars; first-rate. *Mrs. Dix*, like the last, more black and less red in the zone, but first-rate. *Gipsy Bride*, in the way of Luna, but with larger leaf.—From Mr. John Mann, the Nursery, Brentwood, a large collection of zoned, bicolored, and tricolored varieties. The most remarkable among them was one called *Leah*, the leaf large, round, and flat, clear yellow margin, broad brilliant zone of brick-red, not far removed from Egyptian red, disc green and yellow rays. This is an extraordinary variety as shown, but no dependence must be placed on this description for the present, as the plant was evidently a seedling showing its first break of colour, the lower leaves being deep green. If it should keep to its present character, it will be the leader in a new race. *Palladium*, sulphur yellow margin, zone chestnut and dark, disc dark green. *Idothea*, in the way of Luna, but not so good. *Fair Graham*, in the way of Italia Unità, much colour in the young leaves, the old leaves washy. *Mario*, large leaf, broad sulphur margin, broad rufous red and olive zone, green disc. *Little Wonder*, very small and very pretty, a miniature Lucy Grieve; first-rate. *Lady Farnham*, large round leaf, yellow margin, very broad zone of black, amber, and red, green disc. *Dido*, a miniature tricolor, straw edge, pink zone, dark disc with radiate bars. *Rosa*, dwarf habit, very compact and neat, pale yellow margin, zone black and red; good. *Diana*, dwarf and compact, leaves round, edge sulphur, zone red and dark, disc radiate; very pretty. *Prince of Wales*, fine bold leaf, in the way of Mrs. Pollock. *Standard Bearer*, a middling good tricolor, in the Mrs. Pollock style. From the same a series of zoned varieties, with attractive flowers. *Lord Derby*, a fine dark zoned leaf, flowers large, finely formed, stout, smooth, brilliant scarlet; unquestionably one of the finest scarlets ever shown. *Juno*, a neat habited Dr. Lindley. *The Baron*, a good scarlet crimson nosegay. *Orion*, a good scarlet. *Christabel*, salmon red, flowers good. *Eugénie*, good style of growth, leaves distinctly zoned, flowers large, well formed, and stout, colour pale salmon; good.—From Mr. William Paul, Waltham Cross, *Waltham Nosegay*, in the style of Cybister, with carmine shade. *Dr. Hogg*, a fine nosegay, with massive trusses and substantial flowers; a fine shade of violet red. *Peach Nosegay*, a good truss of clear pink. *Jason*, a had or good self, yellow leaf; it is impossible to judge this except in a bed or ribbon-line.—Mr. Paul also contributed a beautiful lot of Standards, most of them tricolor varieties; they are effective ornaments for the conservatory.—From Messrs. F. and A. Smith, Dulwich, a large and beautiful collection. *Brilliant*, in the style of Luna, with a fine bright orange-brown zone; likely to be of the greatest value as a bedder. *Sunshine*, in the way of Sophia Dumaresque, first-rate, the colouring bright and even. *Ariel*, a convex leaf, bold, clean, creamy edge with tinge of rose, dull green disc. *Wonderful*, quite in the style of Mrs. Pollock, clear lemon edge, rather zig zag zone of bronze and bright red, green disc; fine. *Miss Louisa Smith*, like the last, so much so that no one could choose between them having only a plant of each. *Sylph*, very delicate and pretty, pale cream margin and faint rosy zone, dull disc. *Glory of Dulwich*, a small tricolor, with narrow yellow margin, broad bright red zone, through which break a few dark rays; this is one of the best of its class, and cannot fail to become a general favourite. Two or three guineas is nothing for the first start to get a stock of such a thing as this. *Sunrise*, small, round, flat leaf, lemon yellow margin, bright red zone, green disc, radiate bars breaking through to the edge. *Impératrice Eugénie*, in the way of Italia Unità, the young leaves cupped, all the leaves wrinkled. *Queen Victoria*, small, neat, flat leaf, margin varying from cream to gold, red zone; neat and pretty. *L'Empereur*, large flat leaf, quite round, without lobes, margin lemon yellow, zone clear red, with dark shades where rays from the disc break through. *Peace*, large wrinkled leaf, creamy margin, the zone very dark with flashes of flame red; superb for colour, but otherwise faulty. *Sunray*, in the style of *Glory of Dulwich*, leaf quite flat and round; a dull tricolor. *Delicata*, pale cream margin showing tints of pale rose, disc dull green. *Champion*, a very large round leaf, rather convex, margin sulphur, plenty of red in the zone; fine. *Cleopatra*, in the way of Luna, and first-rate. *Mr. Grieve*, medium-sized leaf, pale yellow margin, red zone, rays of yellow and green extending from centre to circumference; handsome and distinct. *Black Prince*; this is a member of the race of the zoned scarlets, and is peculiar and striking; the leaf has a broad black zone almost covering it, the remaining parts being of a deep black green; the flowers are first-rate in form and substance, colour bright orange red. It stands apart from all the other scarlets by the contrast between its black leaves and dazzling flowers.—Mr. Stevens, of Ealing, sent a batch of large-leaved tricolors, but they were of the wrong sort, and nearly alike, the leaves large and flat, margins creamy buff or pale yellow, zones pale red, and dark green discs; rather coarse, yet weak in colour, and wanting in character.

MISCELLANEOUS NOVELTIES.—There are always some subjects that it would be an error to class as new plants, and some such heading as the above becomes necessary for them. Mr. Bull sent a group of new varieties

of *Lobelia erinus*. *Rosy Gem* is much like the variety *Messrs. Carter* sent out a few years ago, called "*Kermesina*," and which nobody would buy, though it was exceedingly pretty: this variety has plenty of purplish rosy flowers. *Celestial*, large, light blue and white; no good. *White and Blue*, very much white, slight tinge of blue; no good. Another not named, and the best of the group, has very pretty flowers, which are heavily striped blue on a white ground.—From Mr. W. Paul a beautiful collection of *Aucubas*.—From several exhibitors, but from Messrs. E. G. Henderson in particular, the *Golden Feather Pyrethrum*, which is a variety of *P. parthenifolia*. It has been a good deal pooh-pooh'd by knowing people, but is likely to be as useful for bedding as many of the best yellow-leaved geraniums, with the advantage of being absurdly cheap and wanting only frame protection all winter, and no protection at all in sheltered dry places. *Jasminum officinale aurea*, richly variegated with gold blotches. A good variegated form of *Althea frutex*, very much white and cream; and a finely variegated *Ligustrum ovalifolium*, the greater part of the plant being of a rich gold colour. S. H.

CAMBRIDGE HORTICULTURAL EXHIBITION.

The exhibition held in the beautiful grounds of St. John's College, Cambridge, on the 23rd of May, was one of the most interesting and successful in the long and bright annals of Cambridge horticulture. The day was piercingly cold, but it was bright and breezy enough for a yacht race. The question arose, would there be a company? and this question was answered as the day wore on by the pouring in of visitors, who at last completely filled the great tent and covered the beautiful lawn, on which the band of the Coldstream Guards, with Mr. F. Godfrey leading, warmed the atmosphere with melody, and sent the wind on its journey westward whistling a pleasant tune. To a stranger, the out-door attractions were the most fascinating, for the grounds of St. John's College are exquisitely green, and pervaded by a quiet which is almost religious. The glorious elm-trees,—Cambridge is a paradise of elm-trees—the ample breadths of emerald-green turf, the romantic shadows, the beautiful and various architecture, and the clear winding Cam, which takes several turns through the grounds, are all so charming severally, and so happily blended into an harmonious whole, that it is a question, when judges are invited from a distance, if they should not pay instead of being paid, for enjoyments of this sort are not over plentiful. In the tent there was a very fine display of plants and flowers: a centre table filled with stove and greenhouse plants, in the midst of which Azaleas made a brilliant show, and on either hand continuous banks of plants, comprising amongst them many fine specimens and examples of superior cultivation. The best group of twenty plants in bloom came from Messrs. Wood and Ingram, second Messrs. Hudson, third Mr. Snell. The best ten came from Mr. Snell, second Mr. J. J. Chater. The best specimen from Mr. F. Butler, second Mr. J. J. Chater, third Rev. Dr. Clark. Best six, Messrs. Hudson, second Mr. Butler. Best three, Rev. Dr. Clark. These collections made an attractive bank. Amongst the subjects shown we noticed good examples of the sweet-scented *Rhynchospermum jasminoides*, in most cases trained out on wire balloon-shaped trellises, a method well adapted to its sub-scandent habit. *Pimeleas*, *Eparis*, *Hoya carnosa*, *Polygala cordifolia*, *Genetyllis tulipifera*, *Eriostemon buxifolia* and *pulehella*, *Boronia serrulata*, *Kalmia latifolia*, *Kalosanthes*, *Scarlet Leschenaultia*, and various ferns, were noticeable for their beautiful condition and effective staging. A *Medenilla magnifica* in Messrs. Wood and Ingram's lot won many plaudits for that eminent firm. There were fine examples also of *Clerodendron Thomsonia* and *C. Balfouria*, covered with their elegant flowers. In Messrs. Hudson's lot, a *Rhododendron*, labelled "*aureum gloriæ florum*," presented a peculiar and beautiful appearance in spite of its absurd name, the colour being a ghostly buff, with pale yellow top petals overlaid with ghostly olive spots. For conservatory decoration this variety is most desirable, but quite unfit for out-door cultivation. Of orchids there were a few good species in these groups, more particularly of *Dendrobium nobile* and *Calanthe veratrifolia*. In the classes for orchids, Mr. J. J. Chater and Messrs. Wood and Ingram were the principal exhibitors. In the classes for foliage plants, Messrs. Wood and Ingram took the lead, Mr. Hurrell, Rev. Dr. Clark, and Mr. J. J. Chater following close. The favourite plants were *Caladiums*, amongst which *Chantini* shone out conspicuously as by far the best. We were pleased with a plant of *Pœcile*, which, although rather burnt through insufficient shading, bore a quite commanding character; the leaf is large, with carmine red veins and pale red centre, the margin dark dull green. *Houlettii*, *Wightii*, and the lovely *Belleymeii* were also well shown. With the *Caladiums* were associated *Crotons*, *Dracæna*, *Marantas*, and one of the best plants ever shown of the variegated *Alcacia macrorrhiza*.

In the classes for geraniums, the principal exhibitors were Richard Heady, Esq., Messrs. Wood and Ingram, Messrs. Hudson, Mr. Hurrell, Mr. F. Butler, and Mr. J. J. Chater. An interesting point arose in judging the groups of six show varieties. Messrs. Wood and Ingram put up six convex, uniform, finely-finished plants, solid with leaf and bloom, and the colours well chosen for effect, both separately and as a group. Mr. Heady put beside them six fine plants that were neither so compact, so perfectly rounded off in convex outlines, nor so effective in respect of colours. But Messrs. Wood and Ingram's varieties were decidedly inferior to Mr. Heady's; the flowers were rough though showy, whereas Mr. Heady's flowers were large, round, flat, and of the true florists' type; indeed, Mr. Heady, as everybody knows, could not endure a rough flower, no matter how gaudy its colours. How are these to be placed? The judges decided in favour of Messrs. Wood and Ingram's *plants*, placing them first, and Mr. Heady second. In the show classes there were fine examples of *Fair Rosamond*, *Sir Colin Campbell*, *Sanspareil*, *Lilacina*, *Fairest of the Fair*, *Rosebud*, *Spotted Gem*, *Admiration*, *Empress Eugénie*, *Guillaume Severeys*, *Lady Canning*. In the classes for fancies, we noticed *Cloth-of-Silver*, *Countess of Waldgrave*, *Evening Star*, *Godfrey Turner*, *Lilac Queen*, *Madame Sainton-Dolby*, *Madame Teitjens*, *Negro*, *Modestum*, *Roi des Fantaisies*, *Undine*, *Delicatum*. Herbaceous and shrubby *Calceolarias* were shown in plenty, and in beautiful condition. Mr. Hurrell took first first place in the herbaceous class with well grown plants, which were too nearly alike; indeed, the herbaceous varieties were all apparently from inferior strains, though admirable as to condition and bloom. Mr. J. J. Chater, Mr. Clarke, and Mr. F. Butler, contributed pretty examples. In the class for shrubby kinds, Mr. Richard Heady stood all alone in his glory, with magnificent examples, mountains of colour, and in condition as to contour and leafage that left nothing to be desired. As we considered the her-

aceous varieties below the London standard, so we thought the shrubby kinds from Mr. Heady far in advance of the same standard. One called *Diana* presented a remarkable appearance. It is in the style of *Lillio*, with immenae trusses, and large round flowers of the purest yellow. *Pot Roses* were shown in a fine condition by Mr. Turner, first for six; Mr. Cumming and Mr. Wallis best single specimens, and Mr. R. Heady first for three. There was nothing new amongst them. *Azaleas* were plentiful: first in the class for six, Messrs. Hudson, second Mr. Heady; in the class for three, first Mr. Heady, second Mr. W. P. Snell; best single specimen, Messrs. Hudson: these were good throughout, rich in colour, and in good training. *Cinerarias* were past their season; the best came from Mr. Heady. *Rhododendrons* were well shown by Messrs. Hudson, Mr. F. Butler, and Mr. Chater; *Heaths* by Mr. Snell, Mr. Heady, Mr. Cumming, and Messrs. Wood and Ingram.

Cut flowers were not plentiful, but such as were shown were good. Mr. Heady presented the best twelve tulips, as might be expected; and from the same exhibitor came the best six, the best three, and the best one. Mr. Barrett, Mr. Wallis, and Mr. Serjeant, followed with beautiful blooms. *Anemones* were shown by Mr. Ingle, Mr. Serjeant, and Mr. Cross. *Pansies*, by Mr. Serjeant Wallis, Mr. Serjeant, Mr. Swan Wallis, Mr. Chater, and Mr. Lilly. There were numerous bouquets and baskets of flowers, which possessed their several points of interest and attraction. Some excellent vegetables and salads were shown in the cottagers' classes. The judges were Mr. Lightbody of Falkirk, Mr. Mudd, curator of the Cambridge Botanic Garden, Mr. Riccard of Cambridge, Mr. Shirley Hibberd, and another gentleman, whose name has escaped our recollection.

A DAY IN THE WEST OF LONDON:

BUCKINGHAM PALACE GARDENS. THE FLOWERS IN HYDE PARK.

On Saturday, the 18th of May last, an impulse irresistible, but not unaccountable, took possession simultaneously of Mr. Crute and myself that we would go and see what was being done for the out-door comfort and consolation of the poor rich people, who during the severities of the London season commonly take air and exercise in the parks. All in pure philanthropy, of course, and very justifiable I am sure, considering how much is done for the poor in these times, and how generally neglected are the rich. For *them* (that is to say, for the rich people) there are no scripture readers, no tracts, no special services, no free drinking fountains, no provision of tea and cake, and amusing speeches, each with a lovely moral at the beginning or the end; no hard free seats near the door, with cold pavement for the feet and a cutting draught to act upon the nape of the neck, in the parish church; no dissolving views and no Christmas boxes. To compensate for these spiritual, moral, and material voids in their earthly lot, they ought to have the consolations of a little nice gardening; and in our anxiety to be assured that this much was done for them, we (Mr. Crute and self) rejected our customary late Saturday dinner and extra half pint of Bordeaux, and, with nothing beyond a couple of chops each and a little brown sherry at the hour of noon to support us on our mission, started together for the scene of our investigation. On the way, the thought struck us that we ought to call upon the Queen first; true loyalty made us anxious about our beloved sovereign's welfare in respect of out-door pleasures. So we turned aside from Piccadilly to Pimlico, having the evident approval of Field-Marshal the late Duke of Wellington, as he smiled down from the cloud-capped tower where, as a mounted sentinel on a house-top, he does duty faithfully at Hyde-Park Corner. As Mr. Matthews used to say of the country man whose "feather died detested and agin his will," that he "went to the Temple and knocked at the door, and the gentleman com'd out his sen," so we went to the Palace and rang the bell; and instead of Her Majesty, as is the custom with great people in receiving distinguished visitors, opening the door, Mr. Wynne, the head gardener, came out instead and gave us a welcome. We then learned that the Queen was at Windsor, so we could not dare to cherish the thought that there was any decline in the observance of etiquette at Buckingham Palace. Mr. Wynne is too well known to the horticultural world, and especially to the readers of the Magazine, to need any introduction. Every one of our readers is always glad to hear mention of his name, and still more glad when his able and experienced pen is employed in these pages for our mutual edification.

We very soon commenced a tour of the grounds, and I can assure you that the beauty of the place is something astonishing, if the scene within be fairly contrasted with the scene without. It need not be said that Buckingham Palace is built in a hollow, and is densely walled in by houses on all sides except that which faces the park. The site might most appropriately be called the "valley of smoke" all the spring and summer, and in autumn the name could be changed to the "valley of fog." That the Queen should now stay at Buckingham Palace only as a matter of convenience, and fly thence to Windsor, or Osborne, or Balmoral, the moment the business calling her to London is concluded, ought not to surprise any one who has surveyed the wondrous semicircle of roofs and chimneys to be seen from the centre of the garden, or who will take the trouble to push through a thicket of trees in order to become clothed with soot from contact with them. It is a wofully sooty place—it is literally bathed in smoke; and many essentials of a good garden have ceased to be possible since the houses have multiplied in Pimlico, and the fields and gardens have disappeared. Nevertheless, for all this, it is a most charming spot, laid out in the English style, rather artificial in some places, especially in the boundaries of the lake, and the proportions and dispositions of the mounds, yet showing ample breadth of treatment, and presenting many beautiful scenes and bits of scenes, such as we look for in a landscape garden. The belts of shrubs, the knolls, recesses, and isolated objects near the garden entrance to the Palace are as beautiful as in any park or garden in the metropolitan district; and I believe I may venture to assert there is not in London, exposed to a smoke-cloud so constant and so dense, and so unfortunately situated as to make a garden at all compatible with this in freshness, beauty, and interest. It is rich in trees and shrubs, everywhere admirably kept, and its smooth green lawns are a perpetual testimonial to the skill and fidelity of our excellent friend Mr. G. Wynne, Her Majesty's gardener.

We went through the gardener's garden first, and saw plenty of those subjects to which Mr. Wynne has more especially directed his attention dahlias, chrysanthemums, fuchsias, and geraniums. The dahlias were already planted out, and chrysanthemums were pretty forward in pots, for specimens hereafter. In the greenhouses there we found extensive

collections of the more useful subjects, and saw our friend's seed-beds of fuchsias, geraniums, chrysanthemums, and lobelias, in which were many good novelties that the public will hear of in time. Mr. Wyness has long laboured in the improvement of the fuchsia, and we are indebted to him for many of our best varieties. Several pretty varieties of *Lobelia erinus* took our attention; but it is only when bedded that such things can be judged, and so we soon got away to the woodland walks, and broke their silence by three talking like one. Comparing the garden with the building it embellishes, it has the merit of consistency, for it presents no such diversities of style as the Palace itself, where Mr. Bloor's rich German front is mixed up with the trashy architecture of Nash. Indeed Buckingham Palace, architecturally considered, is the most heterogeneous jumble of costly, florid, mean, shabby, and vulgar work ever seen in modern times; and, by the way, modern times are sufficiently famous for architectural failures. In every part of the garden Cheerfulness reigns in company with Quiet. We see here the marvellous effect of trees in subduing the harshness of artificial undulations and of harmonizing elements that must originally have appeared incongruous. We commence our walk by ascending a hill, which is thickly clothed with trees. As we descend on the other side we cross a bridge to a pretty pavilion, which was the favourite breakfast room when the Prince Consort was our Queen's companion and the master of this beautiful London garden. This pavilion is octagonal, and is superbly adorned, the compartments being richly gilt in a series of panels, and in every panel is a highly finished fresco by some one of our greatest artists. From the front of this pretty structure there is a charming view extending over gently undulating ground, to the right being an apparently boundless extent of mixed tree and shrub, like the outskirts of a wood; in the foreground tall elms and a great sweep of turf, and in the background the still lake with its wooded islands and rich depth of timber on the opposite shore. No one unacquainted with the boundaries and the immediate proximity of houses could possibly suppose that these gardens comprise only fifty acres in all, so judiciously is the space opened for affording the eye free range from the principal points of view, that is to say, from all points near to the Palace. There are full twenty-five acres of grass-turf, and immediately in front of the Palace itself, that is to say, the garden front, the turf stretches right and left without a break, the water in front, and the shrubberies on either hand, forming its boundaries and screening off the blocks of buildings that hem in the garden.

Having reached the Palace, we took a stroll through the conservatory. This is a hideous *architect's* structure. No horticulturist, no architect, indeed, who had ever grown a cucumber could have built such a sepulchre and called it a plant-house. Mr. Wyness manages to keep it gay, and there are many beautiful plants in it; but I think I would sooner turn my back upon gardening altogether and become a milliner or a lord than give my mind to the cultivation of a sixpenny geranium in such a house. It consists of solemn pillars with heavy capitals, and a very solemn and very heavy cornice with glass between and above. It might do well for ferns, but for any kind of plants requiring a good light it is as unfit as a coal-mine. It is just such a blunder, only perhaps worse in degree, as the engine-room-looking structure once intended for oranges, and now used as a timber museum, in the Royal Gardens at Kew. I am glad I have seen this "conservatory," because I can now understand how it is that the Queen so seldom stays in London. I do not think any person, rich or poor, possessed of any degree of taste could endure to see daily such a plant-house, except as a sheer sacrifice and for some other end. The Royal Family lived here much in the days of the Prince Consort, but then there was nothing gloomy in the round of his daily life, and an architectural abortion would have some beauty in it by contact with his powerful and elegant mind.

Choice trees abound in the shrubberies. There are many fine thorns, and indeed of flowering trees generally a rich assemblage. Coniferous trees are not plentiful, which is an advantage, for it is impossible they should thrive in so dense and constant a cloud of smoke. The big elms are declining in vigour, but many of them are still beautiful and stately, and their grand shadows seem to magnify the amplitude of the grassy space to which they serve as a foreground. The grass-turf is kept in beautiful order by means of one of Green's 42-inch horse machines, which Mr. Wyness describes as doing capital work. It is somewhat of an error, though, to speak of this as "grass-turf," for in some places the predominating plant is yarrow, and in one spot near the margin of the lake there is about an acre of camomile, which far surpasses grass in greenness, closeness, and felt-like texture; it has the beauty of spergula, and is far less trouble to make and keep. Respecting the wild and tame birds, and many other interesting features of these gardens, I must refer readers who wish for further information to an article in the GARDENER'S MAGAZINE of August 26th, 1865; for our way now lies towards Hyde Park, to see what is going on there for the delectation of the upper ten.

It will be remembered that the display of double tulips and other spring flowers in Hyde Park was principally confined to the walks immediately adjacent to Park Lane, more especially in close contiguity to Stanhope Gate. No sooner was that display exhausted than the ground was cleared and planted with summer bedders; and another slip of ground, namely, that lying parallel with the high road between Hyde-Park Corner and Albert Gate, became splendid with the bloom of thousands of rhododendrons. We gave notice of the blooming of these in good time for our London readers to see them, and we trust that many took advantage of the opportunity, for it was a grand display, and is not even now quite past. This feature is the more interesting at the present time because of its newness, for the slip lying between Rotten Row and the carriage drive which proceeds from Apsley House directly westward has but recently been reclaimed from a semi-waste condition, and is newly formed into a garden. Mr. Mann, the superintendent, was unfortunately laid up with illness, and we met Mr. Chamberlain, his representative, making now a party of four, and we went into the enclosure and had an enjoyable look about us. It is well to traverse the whole length of the ground, and look beyond it to a half wild hollow where usually may be seen a number of sheep grazing. Now, just such a dirty savage spot was this skirting ground before Mr. Mann bestowed his skill upon it; and observe the difference. The ground undulates throughout in very nearly the same configuration as it had before the work began, so no one can gain a point in overwise criticism by saying that hills were heaped up and hollows scooped out to make a sham picturesque. Yet the undulations contribute in an eminent degree to the beauty of this garden, and have been made the best use of in the planting. Let us observe, first, that there is an even and close green turf throughout. We are informed by Mr.

Chamberlain that this is true London-grown turf, and is far to be preferred for London use to the best turf from the country. It is the practice to sow down a few acres in some part of the park every year, expressly for special purposes such as this, and when the ground is stripped of three or four year old turf the ground is sown again. Country turf, if well chosen, would look better at first, but would not last; it becomes patchy and bald after a few months' life in London, and never can be restored. Herein a hint perhaps to some of our London readers who are accustomed to difficulties of the kind. The principal embellishments here are rhododendrons, but there are many flower beds richly planted, and a few beautiful specimen hollies and other ornamental trees. The rhododendrons are the governing elements, and there is no such collection anywhere to be found in the metropolis. There are belts of unnamed hybrids of Catawbiense of fine quality and every shade of colour, the so-called "scarlets" being most largely employed. There are also beds of select dwarf species that contribute to vary the scene and afford in their seasons sheets of colour. But the standard rhododendrons are the most stately and splendid embellishments of this series, and they comprise some of the best ever grown, and are by no means few in number. On every hand may be seen trees, with straight stout stems, four to six feet high, carrying round compact heads three, four, and five feet through; some, indeed, of considerably larger dimensions—noble objects irrespective altogether of their magnificent appearance when in flower. As to the behaviour of these trees this season, nothing could be more satisfactory. They have been literally solid with bloom, gigantic bosses of the richest and most varied colours. Those which we especially noted as good were:—*Roseum elegans*, which is for general purposes the best of all, its fresh colour and abundance of bloom render it a general favourite; John Waterer, a fine dark crimson, flowering late, is fine; *Atrosanguineum*, blood red, with grand foliage, is at once peculiar and gorgeous; *Barclayanum*, deep crimson; *Delicatissimum*, blush with a warm tinge of pink; *Maculatum grandiflorum*, rosy lilac with showy spots; Prince Albert, clear lake, fine foliage; Sir Charles Napier, rose richly spotted; Victoria, deep rich claret, free to bloom, and fine habit; and *Blandyanum*, rosy crimson—have all been noticeable for distinctness, richness, and profusion of flowers. It must not be supposed that these trees are doomed to languish in the London smoke. The fact is, if rhododendrons are properly treated in the first instance, they thrive in London; and Mr. Chamberlain assured us that the Catawbiense breed, after they have been in London a year or two, cease to drop their leaves during frost, and actually appear to be strengthened in constitution by town life. No one who has seen—as some hundreds of persons have—the hybrid rhododendrons this season at Stoke Newington, and which have been growing in the same bed for ten years, can doubt the suitability of this noble evergreen for the London atmosphere, or entertain any fear of their well-doing in Hyde Park. The Hyde-Park rhododendrons are all planted in Wanstead peat, which is the favourite stuff with us North Londoners, because it happens to be near at hand and costs little for carriage. But it must be good also, or it would never have been selected for this particular purpose at Hyde Park. Some of the standard trees here have cost twenty to thirty guineas each, and the smallest of them must have cost from three to five guineas each; and they are well worth these prices, for there are many long years of growth in them. Much skill and time have been bestowed in making straight stems and round heads, and finishing them off for such an artistic use as we now see them put to. They were all supplied by Messrs. Waterer and Godfrey, of Knap Hill, Woking; and on the same 18th of May, when the rhododendrons were bursting their sheaths and showing their first trusses, bedding was in progress in the Park, and tens of thousands of plants were put out to risk it. How the frost of the 23rd and 24th served them I do not know, but there were some splendid effects produced there, and that by instantaneous colouring, the practice here being to put out *large plants*, and to *plant them thick*, so that no sooner are the pots cleared away and the workmen gone than the beds are pretty nearly as bright and rich as they will be at any time throughout the summer. Here were *Stellas*, Mrs. Pollocks, Lunas, and other such things, planted at about nine inches to a foot apart, the edges of their outermost leaves touching already, so that there is no waiting till the ground is covered; that is accomplished in the first instance, and one of the gravest objections to the bedding system, namely, the *waiting for effect*, is abolished. But, oh, how the old practitioners are ready with their protests against this system, that it consumes three times as many plants as would suffice at the customary distances, and that long before the season is over the plants will kill each other by overcrowding. Well, good friends, these objections are sound perhaps; but Mr. Mann has anticipated them, and, with the quick discernment and original spirit that marks all his movements, has provided against the possibility of exhaustion at either end of the routine. He meets the first objection, that there must be three times as many plants as on the wide interval system, by simply growing enough. If one hundred thousand would do at 18 inches, and he wishes to plant at 6 inches, he had but to grow three hundred thousand, and that is the way he conquers difficulty No. 1. At the other end of the story, he does not allow the beds to become yellow and flowerless by overcrowding, but when the plants are worn out he takes them up and *plants again*. Think of that, O ye *Desidiosos*, who chuckle with self-satisfaction when your annual crop of geraniums and calceolarias is beginning to show a little colour at the end of June! Here are three crops of flowers in the period between March and September, and no waiting for effect, in other words, *no intervals between them*. See the bedding *now*, and judge for yourselves. Why, when we four—namely, Mr. Crute, Mr. Wyness, Mr. Chamberlain, and self—went over the ground the beds were already rich with the colours required of them; *Stellas* were full of flower, and Lunas full of leaves. But the third crop; well, we can soon dispose of that, by saying that it consists of asters, stocks, balsams, and sub-tropicals. Yet one thing more says *Desidiosus*, "Mr. Mann has the means to do all this; take away his means, and where is he?" Well, it is true he has means, yet perhaps not such a prodigality of means, after all. I suppose he has enough, for I never heard a word of complaint. But he has also some other aids to success; he has genius, industry, pluck, foresight; take away his brains, and where is he? We were so inspired by curiosity that we went on towards the long walk in Kensington Gardens, had a look at the beautiful plantation of flowering ashes (*Ornus Europæus* and other species) there, and the named collection of trees and shrubs. Then went on to Kensington Palace, and experienced a change of sensation. I beg pardon; I remember, Mr. Chamberlain had parted from us, and that Mr. Crute and Mr. Wyness were not cynical at all, but generous and appreciative. Somebody (I leave you to guess who) was in a sneering mood up there; for what the deuce do you think some past government or first

commissioner has been and gone and done, to illustrate the persistency of muddle as an element of official business in England? All one side of Kensington Palace is a vast nursery; yes, close under the windows of one wing ranges of greenhouses, pits, plunging beds, the odour of manure and steaming grass-mowings, the creak of the wheel-harrow and the workshop eteteras, to improve the look-out from one of the royal palaces. I expressed my opinion about the relation of this fact to the fitness of things, but nobody agreed with me, and I can only now say that if Prince Teck, who resides in Kensington Palace, likes to open his windows on a great nursery which consists wholly of working stuff with not a scrap of anything ornamental about it, we ought to be very sensible of the compliment he pays to our craft. If you were to make me a prince to-morrow, and give me Kensington Palace for a residence, I would not move in my sticks or return thanks for benefits received till the nursery was cleared away, and the ground was planted as a garden.

But the nursery. It is like everything else connected with the decorative department of Hyde Park, a model of good management, and peculiar in one respect, and that is in power to turn out immense quantities of plants in a fine condition for the several purposes for which they are required. We saw here houses crammed to repletion with Castor-oil plants, India-rubber plants, Solanums, Wigandias, Cannas, Daturas, Palms, Ferns, and other such noble subjects, in course of preparation for planting or plunging out of doors. A better lot for size and health there could not be. Of bedders generally there was still an immense quantity, though on that same day many thousands had been planted. Nine-tenths of all the bedding plants are grown to as large a size as possible in large 60-sized pots, that is the largest size they can afford. They carry out at one turn nearly 2,000 plants of this size in one barrow, without breaking a stem or bruising a leaf. When I said "barrow," however, I mean a gigantic tray on four wheels, drawn by a strong horse; the said tray consisting of a flat wood flooring, with sides and ends about six inches deep. The tray measures about twelve feet long by five feet wide; and Dobbin takes it carefully along the drives to the places where the plants are wanted, and draws close up to the heds, and thus the plants are scarcely shaken in their transit from the pits to the ground.

The greater part of the geraniums, verbenas, and lobelias, are grown in pits; of these there are several long ranges, with lights eight feet long, some of the pits having one pipe only in front, others having no pipe at all. They are surfaced inside with coal-ashes, kept scrupulously clean and airy; and the result of the routine pursued is that in the month of May there is as fine a lot of plants as it is possible to imagine. I confess I have not seen this season the equal of the verbenas we found here; and as to other subjects, they were, as a rule, considerably better than the average of the stock met with in the best gardens. As most of the geraniums were in bloom, we were enabled to read them off pretty well as we walked round. The following are evidently favourites for this season:—Christine, Amy Hogg, Indian yellow, Dr. Lindley, Adonis, Stella, Cybister, Madame Vaucher, Waltham Seedling, Lucius, Black Dwarf, Beaton's Lady Cullum, Baron Ricasoli, Alexandra, Herald of Spring, Excellent, Madame Barré, Madame Rudersdorf, Merrimac, Rebecca, Gold Leaf, Cloth-of-Gold, Mrs. Pollock, Flower of Spring, Silver Chain, Flower of the Day, Bijou, and Manglesii. Traversing up and down these ranges of pits finished up our strength, and we made an end of our wanderings by compulsion of fatigue, and not by choice. Before we parted we came to the conclusion that we, the people of England, were gratified, delighted, satisfied, in some respects a little astonished, at what we had seen; that we had no objection to the extension of the ornamental slip at Albert Gate a few yards farther west, and that, in fact, an extension is necessary; that Mr. Cowper, who initiated all these improvements under the last Whig administration, had increased the already immense indebtedness of the inhabitants of the metropolis to him for elegant out-door recreations; and that, in respect of outlay from the public purse for the embellishment of this part of London, Mr. Mann is the man for our money. S. H.

BRITISH FERNS IN POTS.

I shall be speaking in strict accordance with the truth when I say that there are amongst the British Ferns some species which not only equal but entirely surpass, in point of beauty, some of our best exotics, when grown in-doors, and subjected to pot-culture. In saying this, I do not for a moment feel desirous to be understood as speaking in any way depreciatingly of the latter; for I am fully sensible of the many forms of beauty which they exhibit. One serious disadvantage to the exotics is this—everybody has not the means to give them the cultivation which is needful to bring them out to the best advantage; whilst, on the other hand, every one, whether peer or peasant, can, if they feel disposed, grow the Britishers with no more expense and trouble than the commonest plant which has ever been grown in a pot; and I feel certain that a few good British ferns in a cold house are far preferable to exotics having that half-starved appearance which they usually present when grown in a temperature too low for their requirements and well-doing. I am not going to advocate a rush to hedgerows, to dig up every *Lastrea filix mas* to be met with, and grow them in-doors, for that is scarcely desirable, although I have at the present time a fine plant of that kind, which I am prepared to back against some exotics receiving similar treatment; my object in this humble contribution is to draw attention to the better class of British ferns, for they really are much better for growing in unheated structures than kinds which require fire-heat; for the one will grow luxuriantly, while the other drags out a miserable existence for a few months, then disappears, to be replaced by others which will eventually share the same fate. I use well-drained pots, and equal parts fibry loam and peat, with a sprinkling of sand, for those kinds which I enumerate below, with the exception of the *Scolopendriums*, and I pot them in loam alone, for I find that it suits them best. I

am not going to attempt any technical account, but shall merely give a little common description, which can be understood by the uninitiated in the mysteries of botanical lore.

Few ferns are more beautiful than the airy and graceful *Athyrium filix femina*, or common lady fern; this is very fine when grown well, averaging two feet high in ordinary cultivation; but I have seen it over four feet in its native quarters. *A. f. f. Peildæ* grows about two feet high, with fronds from one to two inches wide. This is one of the best I have in my collection. *A. f. f. lacinata* is a very pretty dwarf plant, fronds from six inches to a foot long, but spread over the pot, so that the plant itself does not attain a height of over three or four inches. *A. f. f. multifidum* has the tips of the fronds beautifully tasselled. *A. f. f. crispum* is a pretty dwarf-growing plant, the fronds being crisped and tasselled similar to curled parsley. *Lastrea P. m. cristata* is a strong grower, the fronds being beautifully crested at all the points. *Lastrea dilatata coccinea* is also very good, and rather a strong grower; the common form of *L. dilatata* makes a handsome plant. Some of the *Polystichiums* are very good. *P. angulare proliferum* is a magnificent kind, with fronds about two feet long. I have a fine plant of *P. angulare* growing in-doors; but I am almost afraid to include it, on account of its being so common. Most of the *Scolopendriums* are very beautiful. *S. vulgare* looks very well in a pot, if grown to a large size. *S. v. endivefolium* is one of the best, similar to a botanical endive, but more curled. *S. v. crispum* has fronds two feet long, beautifully crisped like the frill of an old dame's cap-border. I should advise any one who intends forming a collection of British ferns to visit a good collection, as there are hundreds of really beautiful kinds. I give my plants a good shift in the spring, before they push up, which generally carries them through the season. Small plants are potted whenever they require. I shake a portion of the soil from the roots of large specimens, so as to give them a little fresh soil without increasing the size of the pot. The house in which they are grown should be well shaded, and the plants should never suffer from drought, or, on the other hand, get sodden.

VINDEX.

A HOLIDAY IN THE WEST.

PART III.—TO EXETER AND THE EXETER NURSERIES.

One of the most entertaining of railway rides is that from Tannton to Exeter; no tunnels, scarcely any cuttings, views of the country all the way, and such country! Hill and dale, high slopes, network of hedgerows, woods nesting in hollows, and woods climbing up precipices and rolling over mountain ranges. Far away, away, away, hills tower above hills, and on the far horizon rise higher still, and to the north-west the prospect terminates in faint indigo and purple peaks and piles; the mountains of South Wales—frowning mountains, but not unkind, for through the hazy distance they seem to whisper while they frown, "Come hither." Every few minutes the scene changes: you glide into woods, and through them, and out of them; you whisk past green corn-fields that stretch out flat and broad, and terminate abruptly at the feet of bright red slopes where the earth is hare; and next you plunge into the midst of picturesque villages surrounded by green meadows, and all the meadows filled with the neat red Devon cattle that take their colour from the red earth, as Adam took his name from it. Endless variety; no! variety almost to satiety, but not endless, for the journey ends where town and country mix beside the Exe; and the first view of Exeter, from St. David's station, is a series of most romantic slopes on the ridges of which are the neat cottages and villas—a poetic preface to a most prosy book; for Exeter, of all the cities in the land, is the most commonplace and prosy in which a human soul can suffer *ennui*. It is well worth enduring the tameness of the city for the sake of the journey there, because you cannot be kept prisoner, and, in fact, it would be an advantage if you were imprisoned in the Cathedral or the Guildhall; for the first is grand and solemn, and increases in beauty with every fresh observation; and the Guildhall has such a picturesque portico that, in passing under it to your cell, you would indulge the thought that Time had reversed his flight to give you a taste of the realities of mediævalism. Yes; Exeter has mean streets, tame churches; there is neither the hurry of trade nor the quiet of gentility to arrest the attention of the stranger; hut, like some of the prosy characters we meet with daily, it improves upon acquaintance, and is after all not so bad as it seems. We visited the cathedral several times during the four days that we were hovering in and about the city. The learned lady who described the interior made us deeply sensible of the peculiarity of the minstrel's gallery and the bishop's throne, of the beauty of the screen and the intricate sculpture of certain of the chapels, and we received all her gabble and female verger verbosity with the attention and devotion of earnest students listening to a Carlyle or a Ruskin. When the tale was told out, we went about in silence, and drank to the full from the fountain of everlasting beauty which has sent many a sparkling rill through this noble pile. The clustered columns, the windows, the vaulted roof, the large east window,—what harmony is there in the combination of these primal elements, and how they all appeal as with one voice to heart and mind to claim respect for the temple of the Lord! The screen, so highly praised, so proudly cherished, so curiously adorned with painted panels, is an abomination, for it mars the glory of a grand architectural perspective, and has but little beauty in itself. A lesson there for landscape gardeners—for all, indeed, to whom true art is precious. It matters not how rare, or costly, or truly beautiful an object may be, it becomes a nuisance when out of place, and like a rockery in the centre of an avenue, to interrupt the line of vision, is this hideous screen, which breaks a grand vista into two parts, and defames the dead designer by shamelessly cutting up his work. I dare not attempt to describe anything; I have no faculty in the guide-book line, and I shall quit the cathedral by observing that the west front is overwhelming in its

grandeur, yet the design is simple even to severity, and is perhaps as purely Gothic as anything of the kind in England. There are three stories and a basement screen, occupied throughout with canopied niches, in every one of which is a figure. From the corner of the little street (don't remember its name) which conducts you from close beside the door of the Globe Hotel into the High Street you have a side view of the whole of this west front, and to enjoy that for ten minutes will amply repay any lover of what is true and good in art for the whole of the journey from London to Exeter and back. This would probably be the finest cathedral in England were it surmounted by some central tower of altitude sufficient to redeem the exterior from the heavy tone that prevails throughout.

It is no mystery that Exeter is all prose; this is the proper transition from the poetry with which it is surrounded. After sweets bitters are pleasant. No doubt the people of Exeter study the prosaic as an antidote to the intoxicating tendencies of the beauties of the country in the midst of which their dull city is situated. Getting away from the trading part, where there appears to be prosperity without trade, we can find in any direction beautiful walks and drives. Wherever the river Exe appears the scenery is beautiful; wherever we see bits of the old city-wall, with ferns peeping out from amongst the stones, and great sheets of ivy hanging over like banners, and dandelions and hawkweeds flowering in the hillocks, and patches of germander speedwell (*Veronica chamædrys*) making hillocks of heavenly blue at the base, we feel the influence of old times upon us, and spring out of prose into poetry with exceeding joy. And the mention of this wild weed reminds me that we saw so much of it on the railway banks on the way to Exeter, that, except that the rattle of the train kept us fully undeceived, we might have thought we were sailing through the heavenly azure. I, indeed, being too deeply involved in a mere material inspiration, suggested to Confidante that if we were to expect any kind of flowers in heaven, I should sooner expect a spiritual reproduction of the germander speedwell than of any other flower I know, with the sole exception of the sylvan Forget-me-not. I was superbly put down for this profanity, and shall not venture such an observation (in the same quarter) again. There are two "hays" in Exeter. What the deuce is a hay or an hay? Is it a dancing green or a green for dancing? Perhaps the Saxon hæz or *haye*, a forest fenced in, or an enclosure kept for the pleasure of the town. The "Northern hay" lies high and dry, breezy, romantic—grand old elm-trees—glorious views. The "Southern hay" is the Finsbury Square of Exeter, green and semi-rural, and crammed to suffocation with doctors, lawyers, and agents for life offices, as if life must be in need of assurance where doctors and lawyers abound. There is no insurance for peace of mind, and yet one might be happy, perhaps, even in the Southern hay, for it is very quiet, has a nice garden and some big trees, and, as respects its inhabitants, might no doubt be described in language that a parish beadle used in my presence, and without awe, when I gave him a voting paper in a neat envelope. He actually called it "gallus genteel."

There are not many nurseries in Exeter, though in the horticultural world it is the most renowned city in the land, save and except the city of cities, where the wise directors of human affairs do mostly congregate. Speak of Exeter to a lover of plants, and he will ejaculate as chorus, "Messrs. Veitch and Sons." There is no such firm there now; the extreme dull prose of the city drove them away. They made their exit from the Exe, and came to the margin of the nobler Thames, to grow, blow, and show in the midst of money. But the name of Veitch lives in Exeter still, and before we quit the city we shall call and see the last of the Mohicans.

Messrs. Lucombe, Pince, and Co. have not toiled in vain to make Exeter horticulturally respectable. There is not a nursery in the British islands better entitled to our respect for the way of doing business, and the quantity of the stuff always to be found on sale. Our visit there was one of the best entertainments in the programme; for though the rain poured down every few minutes, Mr. Pince and self went about amongst the trees without discomposure or inconvenience; and when we all met at the festive board, and tasted Exeter hospitality, we really forgot it had been a pouring wet day and as cold as mid-winter; for it was now pouring wet in quite another sense, and warm as July, and the song most proper to the occasion was "Happy Land."

In the walk round, Mr. Pince took me first to his private pear garden, on one side of which is his own private vineyard. This is a walled-in enclosure crowded with pyramid pear-trees, all at that time full of bloom, beautiful to see and delightfully fragrant. By the way, folks tell me it is a delusion for me to speak about the perfume of pear-tree blossom. Is it? I can tell the folks who say this of another delusion. Yes, it is a delusion for them to suppose that nature has given them noses. She has done no such thing; appendages they may have that deceive the world, but noses!—no, no, no. "Noses were made to smell with," said the wolf to Red Riding Hood, and those who have noses can tell you that pear-trees in bloom emit a subdued odour of *Cratægus oxyacantha*; or, in other words, their fragrance is that of the thorn, but less powerful. But shut up an orchard house for half an hour when there are a few pear-trees in bloom in it, and then enter suddenly. Better occupation than than cavilling with me about the alleged delusion.

To return: the pear-trees in this out-door fructarium are nearly all worked on pear-stocks. Mr. Pince, than whom, to speak in the way of Nicholas, there is not in the land a better judge of what is right and what wrong in fruit-culture, is a decided enemy to the quince-stock, and at the best regards it as a curiosity. If it be said that the quince is to be valued because of its dwarfing property, and its promotion of early fruitfulness, the reply in favour of the pear-stock must be that here the trees are sufficiently dwarfed and sufficiently fruitful; and to me it is quite a question if in any similar extent of ground devoted to pears there can be found a better lot for number, size, shape, and fruitfulness. Mr. Pince believes in root pruning and top pinching, and practises both; and the trees are models in respect of outline and regular distribution of the fruit. To enumerate the varieties is just impossible, for I made no note of them; but the Rev. Mr. Huish's seedlings were all pointed out to me, and amongst them the original trees in several instances. All were smothered with flowers, and I trust are by this time smothered with fruit.

In going through the houses I saw nothing of special note, but on every hand fine examples of the best stove and greenhouse plants. In the show house, *Acacia grandis* is a favourite for spring decoration, and is certainly one of the best when covered with its golden flowers. Some fine examples of *Epidendrum Stamfordianum* and *Brassavola Digbyana*; plenty of *Epaeris*, *Erica*, *Chorozema*, and *Eriostemon*; in fact, everything proper to the season and the place, including swarms of *Aucubas* covered with ripe berries, and palms and ferns innumerable. Lots of glass, bedding plants, stove plants,

pinus, vines, orchids, cool conservatory plants, everything that could be thought as likely to be seen in a nursery. Yet none of these things, or all of these things together, do not constitute the real glory of the Exeter nurseries. The hardy and nearly hardy subjects, the coniferous trees and the cool greenhouse shrubs, are the pink and prime, and those on which Mr. Pince bestows the chiefest of his hopes and cares. Unrivalled collection! where and how shall we match it for specimens in the fullest perfection of their proper beauty? If a sensible echo were to reply to the question, the answer would be, "Nowhere!"

Where shall we begin? Here, among the houses? Good. Well, here among the houses is a new dipping tank, in Portland cement, with a rockery surrounding it, and in the rockery superb clumps of the creamy variegated *Euonymus radicans*, as bright as if but just created. Clumps also of several other of the best of the variegated Japanese plants. On the rear wall of one of the houses *Berberidopsis corallina*, a superb climber, as fresh and bright as if winter in these parts were unknown; close beside it a very large plant of the splendidly coloured *Euonymus latifolia aurca*, which is a great improvement on the old yellow-leaved *E. Japonica*. I have seen this new *Euonymus* almost everywhere, and it is one of our best plunging plants at Stoke Newington, but in no instance have seen it equal to the plant now under notice, which was spread out over quite a square yard of space, and had superb glossy leaves richly variegated. The new varieties of *Eleagnus reflexa* and *angustifolia*, of *Eurya argophylla* and *illicifolia*, of the holly-like *Osmanthus illicifolius*, the small-leaved *Ilex Fortunei*, with many other interesting and beautiful subjects in the same border, and all of them unhurt. A great batch of *Skimmia Japonica* (the one first sold under this name, and which is now *S. Reevesii*, or something else) covered with bunches of white fragrant flowers. This is invaluable at Stoke Newington for its neat growth and red berries, but we never get such growth as I observed here; it is the moist mild atmosphere that makes them at Exeter as free to grow, and nearly the same in habit, as *Rhododendron ciliatum*. Presently we find our way into houses full of such things, and *Aucubas* without end. Keeping a sharp eye for things new or strange, I at last light upon *Ligustrum coriaccum*, a shrub with elliptic, blunt, deep green leathery leaves. When this grows to some size, it will be one of the handsomest evergreens known.

Mr. Pince had talked several times of his rockery, and I was impatient to see it. In due time we found our way there. I shall not soon forget it, nor would you, good reader, if you have any taste in such things. One of our best contributors, who has travelled more than most of us, has averred in these pages that there is but one garden rockery in Britain worth seeing, and that is in the nursery of Messrs. Backhouse at York. I doubt, by this utterance, if he has seen the rockery at Messrs. Lucombe and Pince's. You enter by a winding walk into the very midst of rocks; they hem you in, they arch over your head, they open wide and display between their jaws grim knolls and gigantic blocks; they close again, and the path winds this way, that way, every way, now through a cave, now through a hollow, now over a hillock—endless variety, and on every hand a change in the style of planting and of the subjects employed. I saw here great clumps of double-flowering periwinkle, and of blue, white, and red periwinkle; clumps of *Aubrietia*, *Berberis*, *Forget-me-not*, and a thousand other gay flowering subjects; but the principal furniture throughout consisted of coniferous trees of the choicest kinds, and such as are especially adapted for rockeries. I shall enumerate a few of the subjects that I particularly noticed, as I can call them to mind, irrespective of their botanical relationships. *Berberis stenophylla*, when in flower a beautiful shrub, and admirably adapted for sprawling over great blocks. *Berberis Japonica*, *B. Darwinii*, *B. empetrifolia*, and indeed every variety and species of *Berberis* known, and a vast number of hybrids raised here, and wanting names, and well deserving them. One I noticed as especially good for the shrubbery; it is the result of a cross between *B. fascicularis* and *B. aquifolium*. *Cotonaster microphylla*, *C. thymifolia*, *C. nummularia*, *C. rupestris*, *C. acuminata*, and *C. luxifolia* in plenty and beautiful. I observed a *cotonæaster* with yellow berries that I should like to know more about. The variegated and the green-leaved varieties of *Arundo donax* have been thriving in this rockery for several years past, and no winter frost has hurt them; the snug shelter of this peculiarly sheltered nook no doubt was the saving of them during the winter just ended, for if they had been in open exposed quarters, I believe they must have been cut down to the ground, if not killed. They are in clumps six to ten feet through, and the old canes are 10 feet high; we cannot dream of such vegetation in the keen air of the East Angles. All the species of *Ruscus* are to be found here scattered about; amongst them one called *R. hypoglossum*, which produces in the centre of the leaf another leaf, a tongue-shaped leaf: the large leaf we may call a flattened or winged stem, and the little leaf is a true leaf produced upon it. This is a handsome plant. Of course our native "butcher's broom" is here, and the true Alexandrian laurel, which is the most beautiful of the *Ruscus* tribe. *Arundinaria fulcata* is a grand grass here, and quite hardy, and of course the *Pampas* is not wanting; but I do not remember to have seen the splendid glaucous-leaved *Elymus arenaria*, one of the most distinct of all for the sunny parts of a rockery, and needing only a spoonful of grit to live upon. Several species of *Cistus*; but one can make nothing of them in the month of April. I forgot to look for *Desfontania spinosa*, but I dare say it is here, and as hardy as a holly, though with the Londoners it is less hardy than a camellia. All the good species and varieties of ivies, in fact, a fine collection; so also of *Hypericum*, *Erica*, *Rhamnus*, and *Spiræa*, but it was no time to criticise such things. But the true glory of the rockery all through was to be found in the coniferous trees, with which it abounds. Here, for example, is *Dacrydium cupressinum*, 10 feet high, a tree made of green whippers, and in outline closely approximating to that of a sugar-loaf. I thought I knew something of *Cephalotaxus Drupacea*, *C. Fortunei*, and *C. Harringtonii*, before I went to Exeter; but the fact is I knew nothing at all of their splendour, when allowed for several years to grow in their own way, in a moist warm climate, until they attain the size of a rum puncheon, and broke into flower all over, as if hung with tassels of yellowish silk. Very few of us would expect to find *Picea nobilis*, *P. nordmanniana*, *P. amabilis*, and *P. pinsapo*, in any plenty in a rockery; but here they are, and fine examples too, sitting grandly in the midst of their miniature mountains, and showing their superb forms and colours with increased richness by contrast with the rock. *Cypripedium* in abundance, and of course *C. Lawsoniana* amongst them; *C. M'Nabiana*, *C. macrocarpa*, and *C. torulosa* also; and the transition from these to the unsurpassable *Thujaopsis dolabrata*, *Thuja pendula*, *Thuja gigantea*, the golden varieties of *Thuja (Biota) orientalis*, and the golden and silver leaved varieties of *Taxus*, cannot be out of taste. *Retinospora ericoides* is one of the prettiest of rockery trees, and here it is perfect.

R. obtusa and *R. pisifera* and *R. squarrosa* are hardy here, but in the east of England what are they? Echo, having recovered herself, replies, "What are they?" I have just taken a look at some of the first-named species in my garden, and I find them dead on the north side, and growing freely on the south side. Shall we blame the trees or the climate? Echo answers, "The climate!" No doubt about it at all; this is a horrid climate. Amongst the curiosities of this rockery are several examples of those conifers that may be said not to grow at all. Here, for example, is *Abies alba nana*, as old as Methuselah, and not yet taller than a quarter loaf. Still more diminutive is *Abies excelsa pygmaea*, a variety of the tallest of the spruces, which attains at the utmost the height of fifteen inches, but making ample amends by spreading over the ground like a mossy cushion. Many more such; but we must quit the rockery, for "life is short and time is fleeting," and we have not really got into the nursery yet.

On the way to the pinetum quarters we pass through the camellia house. It is a fine span-roofed structure, 200 feet in length, and about 30 feet wide, 20 feet high at the ridge. The trees look well, but are out of bloom, and we take Mr. Pince's word for it that they have been magnificent, and by the free growth they are making we conclude they will be magnificent again. Passing a sort of extensive shop-window, without any name or announcement upon it, I peeped in and found it was not a shop window, but a make-shift sort of glass wall for the shelter of a great lime-tree—not, of course, a Tilia, but the Lime that furnishes "lime-juice" for the navy, *Citrus limetta*. This tree covers about 150 square feet of wall, and is protected by a glass frame, through the base of which passes one return pipe, which is sufficient in winter just to keep out frost, or perhaps barely do so. The tree is in perfect health, and we brought away with us a few ripe fruits, fresh gathered, and from that day to this (a period of seven weeks) neither of us has been in the least degree afflicted with scurvy.

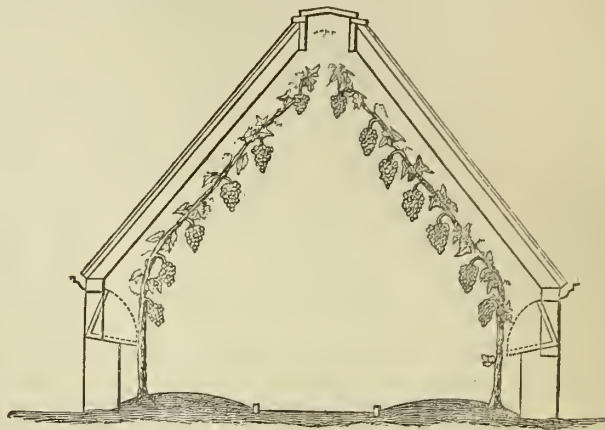
Now for the big quarters and the big trees. This is a tremendous business, and I shall somewhat shirk it, for fear of lengthening out the story.

On our way we pass a sort of tent or tiffany house, within which are some potted trees of exquisite beauty. Amongst these a perfect pair of variegated *Thuopsis dolabrata*, which surely cannot be surpassed in beauty by any other tree in the whole world. It grows here as if the tree and the climate were designed for each other, but it happens to be one of the hardest trees known. It is at present, whether green or variegated, both scarce and dear, but as to its intrinsic value it is worth any money, and it is almost a rebuke to Mammon that money will actually buy it. Presently we find ourselves amongst Wellingtonias, Araucarias, Cedars, Pinuses, and others of the princes of the mountains. It is a very grand sight to see thousands of gigantic specimens of such things in perfect health and wondrous beauty; the very formality of the nursery rows adds to the interest and effect, and the knowledge that all these great trees are periodically lifted, and can be planted any day in the year—except, perhaps, between the 10th of May and the 31st of July—gives the idea of a common property in them, for they are anybody's who can pay the price. When we admire a tree in a private garden, we know pretty well that we cannot become possessed of it for love or money; and if we could, the operation of removal would probably kill it; but all these trees are ready for distribution to the uttermost parts of the earth; there is just the formality of purchase to go through, and they are all yours, reader; ay, or any other man's. Of course, there are little trees as well as big ones, millions of little ones, but we cannot see them in the presence of the giants. Here, for example, are two Wellingtonias side by side, perfect pyramids, not a gap anywhere in their furniture that would admit one's hand, the lower branches lying on the ground like a luxurious fringe, all the rest contracting regularly till the trees terminate in sharp points. The height of this pair is 21 feet, and the price of the pair is £50. I might go on in this style, and if I said all I should like to say, some jackass would be sure to write an insulting letter and ask me how much I had been paid for the puff. But not for that reason, but to keep these sketches within some sort of limits, I will hurry on. *Cephalotaxus Fortunei*, 10 feet high, in bloom, a splendid object. *Cephalotaxus Drupacea* is handsomer than the last, and a grand tree for a choice garden, quite a proper sort of tree too for a terrace or Italian garden. *Pinus parviflora* is a pretty glaucous-leaved tree, bearing myriads of small brownish cones. *Wellingtonia gigantea stricta* is a seminal variety raised here; its peculiarity is a rigid habit of growth, the leaves being of a thicker texture than the species, and very dense in their arrangement; it is rather glaucous, but not enough so to be valued as a variety. *Picea pinsapo*, in sublime proportions, almost cylindrical in shape, and delightful when showing its new growth. *Pinus insignis* is rather tender here, as everywhere else when young, but when it gets up, and has made a lot of hard wood, it is as hardy as any *Pinus* known. Right opposite to Mr. Pince's residence there stand a pair of *Insignis*, about 30 feet high, noble trees, with not a mark of the past winter upon them. *Deodars* we pass by; the reader will guess that there are plenty of them, and that very many of them are grand in size and proportions. The last thing I shall relate is that I saw a tree of *Cupressus Lawsoniana* covered with both male and female flowers, a rare sight, and one to be remembered. If this *Cupressus* be examined now, in almost any garden, it will be found freely sprinkled with green nearly globular cones. The male flowers are produced at the tips of the branchlets, and consist of red stamens enclosed in purplish scales. When these are produced in plenty, as in the tree I am now calling to mind, the effect is at once peculiar and pleasing.

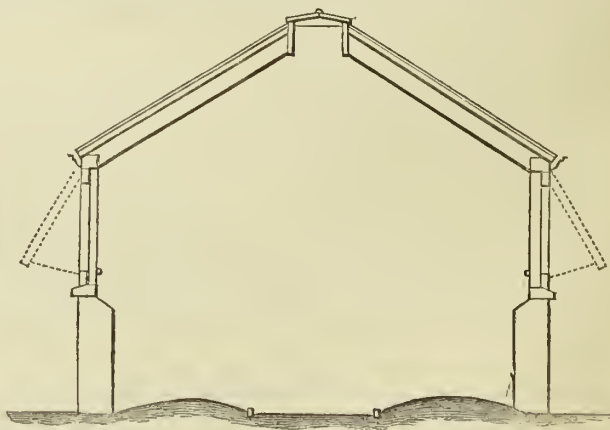
I must now beg pardon; I intended to finish, but there are two subjects yet remaining for a word each. I found a pretty crah in bloom, a good companion tree to *Pyrus spectabilis*; the name of it is *Malus floribunda*. Book it as one of the best things ever heard of for garden or shrubbery, or to pot for the conservatory. Little trees two to three feet high were smothered with large rose-like flowers of the most lively pink colour. Lastly, I saw, still hanging on the original vine, a bunch of *Mrs. Pince's Black Muscat Grape*, and I tasted a berry and found it to be delicious. When the bunch was ripened I don't know, but suppose it to have been the 20th of September, and the probability is it was ripened considerably earlier than that; yet, in that case, the bunch had been hanging seven months, and was now perfectly clean, and only a little shrivelled. It is one of the most peculiar vines in cultivation, the wood being of a purple colour, and the leaves a peculiar bluish-green. As to its value, there can be no question that for flavour at any time when ripe it is equal to any grape known in its class, and far better than any in keeping properties. Mr. Pince begged me not to make notes, and so deeper than did ever plummet sound I drowned my book, and there may be a little want of arrangement in the foregoing. If such be observable, you must blame him, not me. I can remember a great many tunes, but without my hook I am apt, like a circus clown, to play them all together. S. 11.

ORMSON'S PARADIGM HOTHOUSES.

We lately offered some practical hints on the improvement of soils and situations not naturally favourable for the production of early crops; and it is a matter of the utmost importance to most families that their supply of both fruits and vegetables should not only be early and sufficient, but also that it should be uninterrupted and certain at the season each variety is required. Now in order to ensure this in so uncertain a climate as that of the United Kingdom, many and various methods of protection are resorted to by gardeners, and many schemes invented by scientific horticulturists, in order to modify natural conditions of soil and climate, and secure suitable localities for the thousands of exotic subjects, mostly natives of milder climes, that are introduced to our gardens, by which the enjoyments of life are greatly increased, and, in the present luxurious and refined state of society, are looked upon as real necessities. What would my Lord of Belgravia think if his



housekeeper were able at this season of the year to offer him a dish of cabbage, and last year's potatoes only, with his lamb, &c.; or oranges and nuts with his wine; or my lady, to see her boudoir garnished with lilacs and daffodils? Beautiful as they are, they would fall far short of the dignity and exquisitely refined beauty and fragrance she is accustomed to enjoy in the orchids and other choice exotic forms, reared for her enjoyment in stoves and greenhouses. All these things are become necessities in proportion to the means of each individual to procure them, and are as sure an evidence of growing refinement in society at large as the removal of the glass-duty, which fettered the skill and clogged the energies of horticulturists, was a mark of progress in political economy, and a measure worthy to place its promoters in the foremost rank of human benefactors; for without a free and unrestricted use of this material gardening could not possibly have attained to the importance it has done. What can be done with it where expense is no object has already been shown in the people's Crystal Palace, the Palm



House at Kew, &c. What can be done with it when means are limited has been shown in some measure by Mr. Rivers, and others, in devices for the protection of choice fruits, &c., at a cheap rate, many of which possess considerable merit, though not always so in every particular; for that which is produced at a low rate of cost in the first instance frequently turns out anything but economical in the end. This failing, however, so far as stoves and hothouses are concerned, seems now to have been overcome, for not only may a cheap greenhouse be obtained in point of cost, but also cheap in point of quality; and gentlemen may actually surround their acres of kitchen garden with glass fruit-houses at little more cost than they can build a good garden wall. What the result of such a movement will be remains to be seen; but we confidently anticipate that choice peaches and nectarines will by and by be as freely enjoyed by every school-boy as oranges are now, and that every family that hitherto have been content with raisins for dessert will,

instead, be enabled to enjoy fine home-grown Hamburgh and Alicante grapes, besides which thousands who have never done more than hear of the delicacy and luscious richness of "Coe's" and other late hanging plums, or known figs in the state they are sold at the grocers, have yet a treat in store, and we confidently anticipate that fruit-houses as boundary fences to gardens, instead of brick walls, are destined to work a revolution in our fruit supplies. The anticipation of such a blissful state of things has given wings to our pen, and we find our space exhausted before half has been said that might be said on this subject. We cannot, however, conclude without referring our readers to an exhibition of drawings and specimens of cheap and serviceable fruit and plant-houses, which, as their title imply, are really examples of excellence and simplicity. These are to be seen in the eastern arcade of the Royal Horticultural Society's Gardens, South Kensington. Mr. Ormson, the well known horticultural builder, has made public these examples of his skill and enterprise in the expectation that their cheapness and excellence will be generally appreciated, and we doubt not but he will be rewarded by a liberal patronage.

The "Paradigm Hothouses" (*Paradigma*, an example, Lat.) are made so that all the parts may be quickly separated, the several frames of which the houses consist being bolted together, and there are no rafters in the ordinary sense of the term. The whole of the mechanism is prepared by machinery, which greatly reduces the cost, and ensures greater accuracy of fitting than the best hand-work. The ventilation is effected by side shutters, which exclude cutting draughts of wind, and admit of netting being placed, if desirable, to keep out insects, and by a continuous ventilator at the ridge, which can be opened and shut at pleasure. These houses merit the attention especially of persons who are forbidden by their means to indulge in costly structures, but who nevertheless would rather be without glass than have it in an unsightly or inefficient form. W. H. H.

DECORATIVE GARDENING.

At a time when every one's attention is directed to the replenishing of flower borders, it may be well to throw out a few suggestive hints bearing upon the mode or modes of planting and arrangement that have been practised for the last few years. Much has been said and written against the modern system of hedding out, because of the general sameness, the want of variety that characterizes many of the designs, the incongruity of the picture as representing a few shades of gaudy colours placed in diametrical opposition to the principles of colour arrangement, and scarcely less confused than a variety on the palette of the artist. To this catalogue of exceptions must be added the enormous expenditure of time, which means money, entailed in providing, propagating, preserving, propagating again, and nursing, before the hundreds or the thousands of plants can be turned out to do duty during the gay season. Such a formidable bill of exceptions appears at first sight to be almost overwhelming; and one might be glad to stumble upon any loophole of escape to seek for a simpler and less expensive method. Were it simply a question of pounds, shillings, and pence, there would be no difficulty in summarily dealing with it, for it is as clear as noon-day to any and all who are capable of giving the subject the least consideration that a mixed arrangement of herbaceous plants and annuals will not cost one tithe of the money, if all were reckoned up, that must be placed against the representatives of hedding-out.

Singularly enough, amid all the hue-and-cry, no one appears to be completely satisfied with the herbaceous border and the way it was managed. Ambition prompts numbers of all grades, very differently situated as to length of purse, and consequently size of residence and extent of domain, from the peer to the peasant, to aim at a higher style of elegance, and to seek and cater for a more imposing display. Why, it may be asked, nibble at little haits, and become supercilious and crotchety over the merits of a system which ninety-nine gardeners out of every hundred do not properly understand—that is to say, if we are to judge from actual results? Many good and clever men, no doubt, are crippled from insufficiency of resources, and often attempt far too much to be anything like successful, and possibly forget or are unable to perform certain duties which, under the circumstances, it might have been wiser to attend to. This much must be said, that a thorough intelligent (scientific, if you like) appreciation and application of the principles of hedding-out to surrounding or collateral objects is one of the grandest feats in gardening practice. Because it is so—and many lamentably fail, a few are apathetic, and some stubborn—we have a wail of lamentation against geraniums, calceolarias, and verbenas, as if these and a few others constituted the staple of high-class decorative gardening! One can understand objection being taken to expense, to the excessive formality which some drift into in their mode of arrangement, and to some other knick-knacks which it is unnecessary here to specify; but these mainly point to matters of detail, which are capable of being corrected. The great object aimed at from different points of view is *variety*, but variety is not incompatible with symmetry, as Montesquieu avers; and there must be symmetry in flower garden arrangements, be the space limited or extensive; but it is possible, verily probable, that the variety, so much lauded in connexion with the mixed borders, may degenerate into confusion, and then we have neither the congruity, order, symmetry, or proportion of even a very so-so arranged garden on the hedding-out principle. On that account, if upon no other, we must separate the two systems. Give each of them a place—the one on the margin of a landscape, facing a waving and undulating line of frutescent and arborescent vegetation, the other in juxtaposition to any architectural section, or what is known in gardening phraseology as the dress portion of a landscape. By so doing, winter and spring decoration need not be ignored, nor herbaceous plants or annuals blotted out of the gardener's plant vocabulary.

A few simple things of elegant outline should be improvised, and such things as suggest themselves to us can be gathered up either from stock in hand or bought at very little cost. Uniformity of outline, in so far as uni-

formity is formal and flat, is probably even a greater error than insufficient variety in the make-up of a parterre. By the introduction of a few of the more elegant forms of Coniferae, such as *Cupressus Lawsoniana*, *C. Nutkaensis*, *Thuja dolabrata*, *Thuja Lobbi*, &c., we would have both variety and diversity of contour. One can easily understand how very much more effective a design would become if a little more attention were given in that direction. Even the common Irish yew and the golden one would be very effective subjects. Then might be called in various plants with ornamental leaves, such as the variegated *Negundo fraxinifolia*, and the many other types of hardy forest trees which would do duty most effectively, and embellish a design in their younger stages. Many of them might require to be sacrificed after a time, but first cost is a mere bagatelle, much less than many pelargoniums. Look, again, at plants of a graceful habit, after the manner of *Humea elegans*, than which there is not a more graceful or appropriate subject, only it requires considerable space to winter. The cut-leaved birch would even make a famous fellow, trimmed with the knife; and there are many elegant grasses that could be well improvised, such as the variegated forms of *Poa trivialis* and *Arundo donax*, to say nothing of the more gigantic Pampas and the still more gigantic *Arundo conspicua*, the plumes of which appear in the distance like great white ostrich feathers. We have yuccas hardy enough to stand any amount of fatigue; and would not the *Robinia pseudo-acacia*, the oak-leaved *Hydrangea*, the many varieties of hollies, and the splendid purple Japan maple, add to the interest and beauty of any formal arrangement? Although we have seen the *Arundo* and the Japanese maple in splendid condition at Messrs. Veitch's nursery, where they had proved quite hardy, they will be found too tender in many localities; but they are such fine subjects as to merit a little extra care, in the way of protection, during winter.

Once fairly initiated in the practice of selection of so many interesting and diverse forms to reinforce the hedding-out system, and it is bound to become popular; because we can have variety, form, contrast, and occasionally, "if weather permits," unquestionable grandeur. Let the reader profit by the hints and advice proffered, for now is the time to act, while the hedding plants are being transferred to their summer quarters.—*The Farmer*.

Calendar.

WORK FOR WEEK COMMENCING JUNE 8.

Kitchen Garden and Frame Ground.

ASPARAGUS to be cut as required when it is well above the surface. We gave a note on this subject three weeks ago. Take care that in cutting a shoot you do not spoil one just rising.

BROAD BEANS to be sown again if a late supply is at all likely to be wanted. Top those in flower as soon as a reasonable amount of bloom is expanded; the small early sorts, such as Hangdown, to be topped when about eighteen inches high, and the strong growers, such as Longpod and Windsor, at two and a half to three feet high. But the height much depends upon the way they are grown. When in close rows they run up tall; when in single rows, far apart, they are much shorter and better.

BROCCOLI coming forward in seed-pans must now be pricked out on well-manured beds, four inches apart, and when they touch each other will be a good time to plant them out for flowering. Sow Walcheren and whatever other sorts are to be sown to stand the winter.

WINTER GREENS of all kinds to be planted out as occasions offer; a few of the forwardest plants of Brussels sprouts should be put out where they are to remain in deeply trenched and well-manured ground to furnish an early supply of hutons, as they are everywhere prized when the summer vegetables are over.

CUCUMBERS ON RIDGES may now have the hand-lights or other protection removed, so as to benefit by the night dews and showers. It is not advisable to stop them, but a little pegging to cover the beds regularly is beneficial, as creating a greater extent of bearing surface.

CUCUMBERS IN FRAMES require an abundance of water, both over the foliage and at the root. Put a few cans of water in the pit or in a warm house early in the day, to have it warm and soft for use in the afternoon; then use it and shut up, and if the beds are extra warm give a little air an hour afterwards.

LETTUCE to be sown now where they are to remain. This is a golden rule to prevent bolting when the weather becomes torrid. Wheeler's Tom Thumb and Paris cos are two of the best sorts to sow now for successional use.

PEAS do better without water than with it, if they are in trenches well manured before the seeds were sown. Sow a few first and second early sorts, giving preference to the wrinkled varieties if possible.

TURNIPS.—As there will soon be a demand for these, it will be well to sow a small breadth in some odd place, so as to secure a few small bulbs in advance of the ordinary autumn supplies. Take especial care to break up and manure the ground first, or the crop will come to nothing.

VEGETABLE MARROW.—During warm showers is a good time to plant these out. But they ought first to be somewhat hardened by placing the plants in a sheltered spot for a week. To take them from warm cucumber pits or propagating houses, and plant them direct, is bad practice.

CELERY to have an abundant supply of water if the ground is dry, as slow growth is ruin to it, and may cause half the crop to bolt. Continue to plant out, using abundance of rotten dung well worked into the soil of the trenches.

LEEKS to be transplanted from the seed-bed to very rich ground, and to be earthed up as they grow, to blanch the neck of the bulb. The frequent use of sewage water will swell them to a great size, and with improved quality.

Sow lettuce for succession, broad beans, wrinkled marrow, Emperor, and Advance peas, radishes, scarlet runners, turnips, Early York, East Ham, and Shilling's Grotto cabbage, a few Rosette coleworts, and Walcheren broccoli.

SHOWERY WEATHER brings as much work as drought and sunshine. During a dry heat, ply the hoe to kill weeds, and promote a heavy deposition of dew on the newly broken ground, a considerable quantity of which will be conveyed to the roots of the plants. During showers, plant out whatever the ground is ready for, and whatever is fit for planting. It may make all

the difference between a good crop and no crop at all to seize the right moment for planting out, influence of warmth and wet being so eminently favourable to every kind of vegetation in a youthful state.

Flower Garden.

PINKS must be supported by neat stakes to keep the blooms from being spilt by rain and wind. The best way to propagate is by pipings, and now is a good time to secure plenty of them.

GRASS LAWNS newly made must not be so closely mown as old turf. But mowing must be performed with regularity, or it is impossible to obtain a uniform velvety green surface. To mow close a well-established turf is to encourage the fine grasses, and kill out the coarse kinds.

ANNUALS.—This week or next is a good time to sow any of the quick-growing annuals for autumn display. The blue Nemophila blooms beautifully if sown at the end of June; better by far than from spring sowings. Balsams, Asters, and Stocks to be planted out where they are to flower. Sow Brompton and Queen Stocks.

BEDDERS to have every necessary attention to regulate the growth and display the bloom; peg Verbenas and other trailers as soon as they need it. If the ground is very dry, loosen the surface with the hoe between the plants, and if necessary to water, soak the ground well. Plants running away to leaf to have no water; and where Tropæolums grow rank, remove a few of the leaves, so as to make more room for the blossoms to be seen.

BORDER BULBS may be taken up as soon as the leaves are withered, and to ensure a perfect ripening lay them in clumps as taken up, without damage to the roots, in a shady place, with a sprinkling of earth over them. The practice of laying hyacinths and tulips in a broiling sun is one of the causes why so many are worthless the next season.

DAHLIAS to be tied up betimes, or sudden gusts of wind will tear away the best branches from the base. On hot dry soils mulching is needful, and will prevent need of watering, but in small gardens mulching attracts vermin, and had best not be practised. Those that want a little extra help had best have manure-water.

PROPAGATE at once Neapolitan Violets by dividing; Pansies, by cuttings and layers; Pinks, by pipings and cuttings—if the latter, dibble them into pans and cover with bell-glasses; put pipings in the open ground in a shady place; Chrysanthemums, by cuttings, for blooming under glass in pots; Roses, by cuttings and half-ripe wood; and any summer-flowering plants wanted for late blooms under glass; also Iberis sempervirens, the best of all spring flowers.

TRITOMA UVARIA and varieties require abundance of water now, especially if in pots. Lilioms the same; when throwing up their spikes they can scarcely have too much. Ixias and other Cape bulbs in flower need the same treatment; after flowering, lessen the supply, but allow free growth, that they may die down and ripen naturally, during which process let them go quite dry.

Fruit Garden and Orchard House.

RASPBERRIES are swelling their fruit, and if a few extra large samples are required, it is a good plan to thin the fruit on the canes, and give them two or three heavy soakings with manure-water. But for all ordinary supplies it is best to let them ripen as much fruit as they will. The ground amongst raspberries is now pretty well paved with seedling plants from berries that fell last year. Hoe them down; they only rob the fruiting ones of nourishment.

STRAWBERRY BEDS are showing a good crop, and the plants are generally in good health. The best of all materials wherewith to cover the ground to keep the fruit clean is cocoa-nut fibre refuse. In the place of this grass-mowings may be used, or clean straw or chaff.

BUSH AND PYRAMID FRUIT TREES are generally in better health than standards, because they get more attention; and as they are in a somewhat artificial state through close pinching and frequent lifting, they require extra attention. Shorten in at once all rambling growths; tie in espaliers while the wood is pliable, as, if they harden out of shape it will be difficult to train them hereafter. Keep down grub, fly, and American blight. The simplest remedy for the last-named pest is the Aphis Wash, made by the City Soap Company.

GRAPE-VINE MILDEW AND OIDIUM.—Some short time since Mr. Lazaris, proprietor of well-managed vineyards at Corinth, made a series of experiments in order to discover some cheap substitute for sulphur in the treatment of vines. The result was the discovery that any kind of fine earth may be used in lieu of sulphur, which, he says, acts medicinally and not chemically, and that any fine dry dust will serve the same purpose. The conclusions at which he arrived were stated in the following terms: 1st. The earth should be freed from sand and gravel, dried in the sun a few hours, pulverized very finely, and then sifted or bolted like sulphur. 2nd. That as common clay is easily prepared as above, and adheres well to the vines, it is preferable to other kinds of soil. 3rd. That the instruments generally used to apply the sulphur will serve for this also, at least for the first and second operation, but the third time, as the grapes have then some size, it is desirable to have them more abundantly powdered, yet it is possible here to use the same instrument used for sulphur. 4th. The powdering succeeds best when applied after sunrise, but while the grapes are still somewhat moist with dew. The following times are the best for the application: a. When the young shoots have scarcely attained the length of a span, before the grape is in flower. b. As soon as the flower has fallen, and the young grape entirely set. c. When these are of the same size as is thought sufficient in sulphuration. 5th. Independently of these, even when performed with care, it is necessary sometimes to make extra applications, as, for example, each time after a heavy rain, after waiting a day. 6th. The removal of a part of the leaves, as is usual, is advisable, if practised with moderation; otherwise, the vines deprived of leaves, the grapes may be scorched by the heat of the sun. 7th. If from any cause the first regular powdering has been omitted or neglected, it will be necessary to supply it by two others, with an interval between of eight or ten days. But it is indispensably necessary that it be done before the time of the second regular application. 8th. It is necessary always to perform the operation with the greatest care. It is well to have the workman followed by another, who again carefully examines the vines, and powders any that may have escaped. If after this disease reappears, it is proof that the operation has not been well done, and it is necessary to immediately repeat it with all the care that is bestowed when sulphur is used.

Greenhouse and Conservatory.

AZALEAS that were flowered early have now finished their growth, and may be put out to harden. Select for them a sheltered shady position,

and stand the pots on bricks or slates to prevent worms getting in. Cultivators differ in their opinions, and consequently in their practices, in regard to putting azaleas and camellias out of doors. Long and careful observation has convinced us that if they can be kept under glass the whole year round, it is far better than putting them out; but generally glass is of too much value to be so employed, and it is a matter of convenience to take these subjects into the open air, in order that the houses may be kept gay with other things. Azaleas not yet done growing, or only just pushing into growth, must be assisted with a gentle heat, and abundance of moisture, head and foot.

CALCEOLARIAS of the herbaceous class that are going out of bloom must be cut down if it is intended to keep any of them, as if they are allowed to produce seed they will probably die. When cut down give them a shift into larger pots, or plant them out on a spent hotbed, and take the lights off at night, that they may enjoy the dew. When they break freely, propagate with the help of gentle bottom-heat, and when you have enough of each securely rooted destroy the old stools. The most skilful cultivators, however, prefer to grow from seed, and all the fine collections shown of late years by Messrs. Dobson, Mr. James, and others, have been seedlings, though it has become the custom to name them as if they were grown from cuttings, and had a permanent place in the lists. It is rather early to sow seed yet, but a small pinch may be started by those who wish for bloom at the earliest possible date in 1868.

FUCHSIAS must be shaded, and must have abundance of water, and plenty of syringe.

ERICAS and kindred plants are better off in cold pits now, as it is next to impossible to give them air enough in any plant-house. Indeed, a heath-house should have removable lights, so that the heaths could be treated as peaches are in many places, the lights removed altogether during the summer months, and put on again in autumn.

KALOSANTHES require an abundance of water now, as do all succulents that are growing freely. Liquid manure will now do great things, and careful training must be practised if handsome specimens are wanted.

CINERARIA SEED to be sown in pans of light rich soil, with a sprinkling of very fine earth over. Lay over the pans pieces of glass, or damp moss or tiles, to prevent evaporation, but keep a watch that the plants are not blighted through keeping the covering on too long. Keep the pans in the shade till the plants are large enough to pot off, which will lessen the trouble of watering, and also the risk of loss either by damp or drought. Plant out named sorts to get offsets.

CAMELLIAS need air now night and day, and the swelling of the flower-buds should be the signal to cease watering over-head, which may cause the flower-buds to start into leaves, and spoil the next season's bloom. Plants that want a shift may have it now, but large shifts should never be practised.

LIQUID MANURE.—Any manurial matters can be, to a more or less extent, dissolved in water for the production of liquid manure, and the strength of the material used must regulate the quantity of water applied, and the nature of the plants to be fed with it. The following are generally useful mixtures: One part by weight of fresh cow-dung to six parts by weight of water; stir, and leave it some hours to settle; use only the clear liquid. The drainage from the stable and cow-house is a most valuable basis for liquid manure; add to it eight times its bulk of water. The brown liquid that flows from new dung-heaps is to be used in the same way. One part of fowl's dung to eight parts of water. One peck of fresh sheep's dung to thirty gallons of water. Sulphate of ammonia, half an ounce to every gallon of water. Guano, half an ounce to the gallon of water. The best of the prepared manures is "Standen's Gardener's Friend," sold by Barr and Sugden, and the best way to use it is to sprinkle it on the surface of the soil, that the watering may wash it down to the roots. In all cases it is best to give liquid manures weak, and especially at first. If it is intended to give a plant strong doses, a few weak ones should be given first to prepare it, but to be always weak is much safer and more beneficial in the end; for an overdose will cause the leaves to fall or to become blotched, and do other injuries that need not be enumerated. As a rule, liquid manure should only be given to plants in pots; it is a waste of labour and expense to liquid manure plants in the open ground.

HERBACEOUS CALCEOLARIAS.—These magnificent flowers have been admirably exhibited this season at the London shows by Messrs. Dobson, Mr. James, and others, and have won many new admirers. The best way to raise them is by seed, and good seed may be had of any respectable seed-man; but if you want seeds of Mr. James's saving, you must apply to Mr. B. S. Williams, Victoria Nursery, Holloway, for it. Suppose you have a pinch of good seed, the proper time to sow it is during the months of June and July. These plants are not easily grown; and, unless they are well done, they become a nuisance and a disgrace; for besides giving a poor bloom, they show a wretched foliage, and are alive all over and always with green-fly. So begin properly. Sow the seed in very light rich soil—say peat, leaf-mould, silver sand, and manure rotted to dust (three years old), equal parts. Prepare the seed-pan with a nice bed of small crocks to make perfect drainage; lay on the crocks a thin spread of moss, then fill up quite to the edge of the pan with the compost, well mixed and broken fine. Press it gently to a smooth surface, wet it thoroughly, and sow thin. Sprinkle just enough of fine peat-dust to cover the seed, and lay a thin coating of moss over. Place the pan where it will be warm, close, and shaded. A cucumber pit is a good place for it. The plants will soon appear, and the moss must be removed carefully. Keep them close and moist; they do not require much air, and as to water, they must never be soddened and never go dry. If they get dry, the aphid will appear immediately, and perhaps red-spider too. The best of all (and the cheapest) shading for seed-pans or plants during sunny hours is a newspaper gently laid over them, and of course to be removed as the day advances. As soon as there are a few plants large enough to take hold of, say with about three leaves besides the seed-leaves, begin to pot them. Take thumb pots first, put one small piece of brick the size of a walnut at the bottom, and fill up with the same mixture as was used in the seed pan, and into each of these pots plant one of the little hopefuls, water gently, and place them in a warm shady place, where there is not much air. If you do not keep them growing, the vermin will grow instead, and you will regret it. As soon as another lot can be taken out of the seed-pan, pot them, and so on till the pan is empty. By the way, the best method of lifting them out is with a bit of stick, or the sharp end of a wood tally. The after management consists in potting on as fast as they need it. After the end of August an intermediate house is the best place for them, or a shady cool part of a stove. They do well where Begonias grow

freely, and the same moist atmosphere will suit both. At the first shift out of thumb pots the compost should be light, silky loam, such as will crumble to dust between the fingers without soiling them; what we call "forest loam" on the north side of London is the best ever used for the purpose. Take two parts of this loam, one part good leaf-mould, one part fresh horse droppings, rather dry, and the straw all removed. Mix this together, and break the lumps, but do not sift it. Pot into 60's, then to 48 size, and so on, till you have them in eight or ten inch pots. But if done on a small scale, very nice plants may be flowered in pots of seven or eight inches width. Potting must be done at least once every three weeks all the autumn and winter, and about the middle of February you may consider the potting business at an end, and begin to think about flowers. At that time pick out the strongest plants, and remove from the stove to a warm greenhouse. In the first or second week in March take them to cold pits, and keep them rather closely shut if an east wind blow, but during those bursts of warm moist weather, with a west wind, which generally occur in March, the lights may be taken off for a few hours, and the plants may enjoy a slight wetting. As the season advances, and they acquire some degree of hardiness by this treatment, give them more air, and at last expose them fully, but always shade them from very strong sunshine. As a matter of course, they will all find their way to cold pits by this course of treatment. They will have been grown with the aid of heat, and flowered in a cool free air, and their appearance at least will repay you for all your pains. Vermin will occasionally appear, especially during September and February, even with the heat of treatment. To allow them to get ahead is to sacrifice the plants. Shut them up when their leaves are dry, and smoke them thoroughly with pure tobacco. Do not risk the use of any preparation of tobacco, unless it be "tobacco tissue," which consists of tobacco only, and is merely prepared by pressing, not with chemicals of any kind. I have not tried the aphid wash of the City Soap Company upon them, but have no doubt at all it would cleanse them thoroughly, and without harm. The way to do it would be to mix the wash, according to the directions that accompany it, with water, in a large tub or pan, and turn the plants upside down and dip them, keeping them in the mixture a few seconds, and then holding them above it to drain back before placing them on their feet again. Dipping wets every part of a plant, syringing does not. I say nothing about tying out and many other small matters, for the simple reason that every cultivator either knows what to do or will soon find it out. They may also be propagated from cuttings. This method of growing them has this advantage, that before you begin you know exactly what sort of flowers you will have, which is impossible with seedlings. The named kinds, which of course you would alone select from, are remarkably beautiful. The best time to take cuttings is immediately after flowering, and as soon as enough cuttings are obtained throw the old plants away, for they are useless, and should never be preserved except for some peculiar reason, and then it needs much care and skill to keep them in health. Short, plump, rather soft shoots make the best cuttings, and these root quickly in a mixture of half peat and half sand, on a gentle bottom heat, if kept close and shaded. When rooted, pot them on, and grow them to flowering size in precisely the same way as described above for seedlings. Cuttings may also be taken in February to make nice plants for a late summer bloom; and if a quantity of any particularly choice variety is wanted, cuttings should be put in whenever they can be got.

Forcing Pit.

PEACHES in the succession house will require the same care while stoning as trees in a similar stage in the early part of the season—that is to say, it will be well not to overload them with water at the root, or to syringe very freely. During the stoning period is a good time to thin the crop, especially at the time when they begin to swell a second time, as they are then thinning themselves freely, and the operator can see pretty well what he is about.

PINES must have abundance of atmospheric moisture now that the sun-heat is powerful, and the plants are in full vigour. The temperature may range from 90° to 100° safely if the paths are freely sprinkled, and ventilation is attended to. Shut up with a moderate sun-heat, and use the syringe immediately, not so much to fill the hearts of the plants with water as to moisten the plunging material. Pines requiring repotting must not be neglected, or they will start into fruit prematurely.

VINES in late houses must have the bunches thinned, and the laterals stopped; syringe to be used without stint, and air to be given freely. Ripe bunches in early houses required to be kept will be safer if the house is well aired and kept rather dry, and this will be better also for the vines.

Correspondence.

PROGNOSTICATION OF THE WEATHER.—There is no question but that some mode by which the probable weather for a week in advance may be arrived at, is a matter of great moment to agriculturists and gardeners, in fact, to any person having an out-door occupation. The best guide I have met with has been the seemingly senseless selection by the French General of the 4th, 5th, and 6th days of the moon, and which generally I have found to be a sure guide. The result of the month's observations you published showed how truly the weather followed the indications of the particular days; and I am inclined to think that if the winds of those days were taken into consideration, together with the actual results of the weather of those days, that an almost sure guide would be attained. As I have before said, there does not appear to be any reason for the selection of the particular days, and it seems almost absurd when one announces the reason by which the conclusion is arrived at, whether to carry that misery of most thinking men, an umbrella; for, nine times out of ten, any one who has anything else to think about is sure to forget that such a thing appertains to him, unless a pelting shower or drizzling rain gives him a gentle reminder; so if the indicated days serve no other purpose, they at least are likely to rid one of a bore. In chattering thus I shall forget my errand, which was to send you my sailor friend's indicator, which, for convenience, I have formed into a table, and being sent, you, as well as your readers, must take it for what it is worth, for I have no observations to back it up. I am content with the French general. By the way, I forgot to say that the sixth day of this moon being very fine, and the 4th and 5th more or less cold and rainy, that no indication by his mode could be arrived at for the weather of this month. Had the 6th day been in consonance with either the 4th or 5th days, I should long before now have regretted putting out my plants. My friends the swallows have

been a little deceptive this time. However, I have not suffered yet, and I have had the plants out since the 4th of May; and one night we had 6° of frost, which was Saturday morning, the 18th of May. I looked at the thermometer at half-past 4 a.m.; it stood at 26°; at half past 7 a.m., thermometer in same place, and untouched, it stood at 66°, a difference of 40°, but fortunately the ground was dry.

Table constructed upon Philosophical Principles, from the Attractions of the Sun and Moon, in their several positions respectively, and tested by many years' experience, has been found almost unfailling.

(SAILOR FRIEND *loquitur*: "The last moon and present have not at all obeyed the philosophical principles.")

The Quarters of the Moon commencing at the hours as under may be expected to be for the continuance of the quarter.	SUMMER.	WINTER.
12 o'clock noon, or between 12 and 2.	Very rainy.	Snow—rain.
2 to 4 afternoon.	Changeable.	Fair—mild.
4 to 6 evening.	Fair.	Fair.
6 to 8 "	Fair, if wind N.W., Rainy, if S. or S.W.	Fair and frosty if wind N. or N.E.
8 to 10 "	Ditto.	Ditto.
10 to 12 night.	Fair.	Fair and frosty.
12 to 2 morning.	Fair.	Hard frost, unless wind S.W. or S.
2 to 4 "	Cold, with frequent showers.	Snow and stormy.
4 to 6 "	Rain.	Ditto.
6 to 8 "	Wind and rain.	Stormy weather.
8 to 10 "	Changeable.	Cold rain, if wind be W.; snow if E.
10 to 12 "	Frequent showers.	Co'd, with high wind.

When no particular storm about the time of the spring equinox (March 21), if a storm arise from the east on or before that day, or from any other part of the compass near a week after the equinox, then in either case the succeeding summer will be dry four times out of five; but if from the S.W. or W.S.W., on or just before the spring equinox, then the summer following will be wet five times out of six.—*Dr. Kirwan.*

Walton-on-Thames.

S. BILLING.

[The foregoing table will be found, in the same form, and almost word for word, in "Time's Telescope" for 1814, second edition, p. 357; also in "Time's Telescope," 1831, p. 411; also in "Time's Telescope," 1824, p. 200. These are the only volumes of the work we are enabled to refer to. It will be found, in a slightly modified form, but the same in purport, in vol. ix of the "European Magazine," p. 24, and is there ascribed to Dr. Herschel.—Ed. G. M.]

CUCUMBERS AND PINES IN A QUEER SORT OF HOUSE.—"Every heart knows its own bitterness;" but still there are men who hope against hope, until that hope, although it may be but dim, fades away into nothingness. Gardeners at all times, and even under the most favoured circumstances, have doubtless as many hindrances to success as any other class of men we could mention; but how frequently those hindrances are augmented to an undue extent in numerous and varied instances! The other day, in my rambles I passed through a house construct'd on the following plan: The exact length I do not know, but some'ing like 30 feet; the back wall is 16 feet from ground level, and the front wall 4 feet. At an angle of 75 degrees are placed 10-foot length lights, and at that point another angle is formed, where lights are continued to the back wall at about 40 degrees, thus forming what is called a "hipped roof." The width inside is 8 feet 6 inches. There is a pit 6 feet wide the whole length of front, with six 4 inch pipes for bottom, and two 4-inch and one 3-inch pipes for top heat. The whole is composed of iron and best plate-glass, with a south aspect, with ventilation not ample. Now this house was built for the growth of cucumbers, and the gardener told me he had grown some good stuff early and late, but in the summer months the plants were "scorched to death." Subsequently the house has undergone some slight internal alterations, and is now, as I have described it, appropriated for pines. Every one knows his own circumstances best; but if such a house was so constructed by my employer, after my protesting against its adaptability, I should be disposed to tell him in plain English either to attend to it himself, or call in the services of some one to release me of my responsibility. I have always found both cucumbers and pines to require more atmospheric moisture than, it appears to me, is possible to acquire or retain in such an oven-aired place. Perhaps you will kindly say, if any man with ordinary skill in the cultivation of the pine might or might not successfully grow them in such a place. The matter has been naturally talked over by several gardeners of this neighbourhood who are readers of the "Magazine," and a word from you, or any of the practical friends whose names we so often see in our weekly *impartial* Magazine, would I am sure be read with interest, and not less so by the craft in general. W. H. SMITH.

King's Heath, Birmingham.

RESTORATION OF GRASS-PLOTS.—Some weeks since I read in the GARDENER'S MAGAZINE the use of nitrate of soda to a lawn. I ordered 7 lbs., thinking it would be sufficient for a lawn of about 60 yards by 20. But on discovering that a square rod (on which 4 lbs. were to be put) was only 5½ yards square, I have only tried it on a limited scale. The grass has become thicker and a lovely colour, except where pieces fell about the size of a small sweet-pea; there it was burnt. My object in writing is to ask you to be so kind as to inform me where I can procure the nitrate of soda at a cheaper rate. This small quantity cost 4s. 1d.; it came in such large lumps it had to be pounded in a mortar, which, if a large quantity were used, would be troublesome. J. V.

[Cheap manures are scarcely to be had in any part of the country, and to obtain the commonest salts or alkalis is not always an easy matter. We see nitrate of soda entered at £12 10s. per ton in the last market letter. The rate at which we recommend it to be used—i. e., 4 lbs. per square rod—is equal to about 6½ cwt. per acre, just double the rate which agriculturists consider proper when this manure is applied on a large scale. At the rate of 6½ cwt. per acre, the cost per rod will be about 7d. J. V.'s lawn measures 60 by 30 yards, or about 1 rod; as there are 40 rods to a rod, the cost for the whole should be about 24s., supposing the nitrate to be purchased at wholesale price. Let us now allow the drysalter a liberal profit, and this lawn ought to be dressed for 30s. at the utmost. Good superphosphate of lime sells in market at about £6 per ton; and if a growth of clover is desired, is a better dressing for a lawn than nitrate of soda.]

Replies to Queries.

Cocoa-nut Fibre Waste.—E. Payne.—This material may be put to a great variety of uses besides the formation of beds for plunging pot-plants. As a plunging material it is the best of all, because of its equable temperature, constant moisture, extreme cleanliness, and the general dislike of vermin to harbour in it, though as it decays vermin take to it as if it was spread for their reception. It has been employed, unmixed with any other kind of soil, for the growth of ferns in closed cases, and answered admirably; the ferns grew with vigour, required but little attention, and after two years' residence, with no other soil but pure cocoa-nut fibre, were in perfect health, and greatly increased beyond their original dimensions. But when it was attempted to transfer these ferns to a peat soil, or rather when they were disturbed in any way, or if a little extra air was given it, it was observed that they had less power of endurance than ferns of the same kinds grown in the same way, but with a more substantial soil to root in. Another of its uses is for propagating. Any and every kind of plant will make roots in this material more quickly than in any other, and many plants will throw out roots after their branches have merely rested on a bed of it for a few days. But here again let us observe a fact that, as in the last case, detracts from its value. Cuttings rooted in the fibre should be potted off properly as soon as ever the roots begin to push, otherwise the roots are of the same sort apparently as those formed by cuttings immersed in water, and which usually perish when the cuttings are transferred to earth, leaving the cuttings to the second effort of producing earth-roots in place of the water-roots lost. With judicious management this fibre may be used in every kind of propagation, but we should be prepared to transfer the little plants into suitable soil as soon as they begin to form roots. Another use for this material is to ameliorate and improve any tenacious soil, and the better fit it for the growth of certain kinds of plants. We have hitherto spoken of its use *pur et simple*. When mixed with thrice its bulk of common garden loam, or even with crumbs of clay (by "crumbs" we mean the granulated surface of a bank of clay that has for some time been exposed to the weather, when the top crust breaks up into crumbs of the size of beans and peas), it forms a compost in which almost any robust habited ferns will thrive, and which will suit almost every kind of greenhouse plant. We have grown fuchsias in a mixture of equal parts loam and fibre, and they grew luxuriantly and flowered well, and we have grown scolopendriums in variety in a similar mixture, and in fibre and crumbs of clay, and they presented a beautiful glossy appearance, and were in every respect luxuriant and healthy. Another use of the fibre, where it can be obtained sufficiently cheap, is to dig in where the soil is heavy, or where, as on chalk, it is much parched in summer time. It effects an immediate improvement, and being retentive of moisture is a great assistance to vegetation during summer drought. It is generally supposed that this stuff is destitute of nourishment, but that is a mistake. What are its mineral constituents we do not know, but undoubtedly it contains alkalies and other essentials of vegetable growth, and during its decay a considerable amount of carbonic acid must be liberated, which is a direct aid to plants, and perhaps explains the peculiar suitability of this material for the growth of ferns.

Vines Injured.—G. Bromley.—It is quite certain that your vines have been nibbled by animals of some sort. Crickets may have been the marauders, and as you have found a few of these vermin, the cause of the injury may be thereby explained. But we think it much more likely that the depredators are rats or mice. We know too well that rats and mice (separately, never together) will thrive in viciaries during the summer, and will even condescend to eat geraniums. Only within the past few weeks we have ourselves lost some variegated seedlings, which were eaten close off, and the soil from the pots was dragged about in a way that no insect could accomplish. Your best course is to employ poison, and there is nothing better than carbonate of baryta, mixed with lard or damp flour, or thinly powdered on bread-and-butter. It is a deadly poison, and must be used with caution. The best way to poison rats and mice is to prepare the stuff nicely, using good bread and good butter, not to touch it at all with the hands, and then carefully to hide it under some dry bricks or broken flower-pots. If handled and laid in an exposed position, these cunning gents will be suspicious of it, and your labour may be all lost; but if not touched with the hand, and then put away as if hidden from them, they will consume every scrap, and give up the ghost.

Variegated Geraniums.—Greenhorn.—Probably yours only require to be placed in the sunshine out of doors to acquire their proper colours. Read over Mr. Smith's paper on the subject, published five or six weeks back.

Green-fly in Greenhouse.—Subscriber.—Procure one of Gidney's self-acting fumigators (from Mr. Gidney, East Dereham, Norfolk), and fumigate the house thoroughly with the best shag tobacco. The best time to fumigate is the evening; the plants should be dry, and the house closely shut. Early next morning syringe them well, and a couple of hours after the syringing give air. Gidney's fumigator is furnished with a spirit-lamp, so that having filled the receiver with tobacco, it only remains to light the lamp and walk away. The instrument then delivers a cool dense cloud until the tobacco is all consumed. If the purchase of a fumigator is objected to, take a large flower-pot, throw into it a few red cinders from the fire, and then fill up with Collyer and Roberts's tobacco-tissue, broken into pieces about the size of the hand. This "tissue" consists of the best tobacco in a pure state, and it burns away to the last particle without breaking into a flame.

Cucumbers, &c.—James Luck.—Your cucumbers appear to be wholly dependent upon sun-heat, and as this season we have sun-heat in excess about one day in ten, and the other nine a winter temperature, they live in a series of jerks, growing freely for a short time and then having a serious check. The real want in your case is bottom-heat; secure this by fermenting material or otherwise, and your troubles will cease. It is possible that you give too much air. Your hulk is one of the amaryllis tribe, but we cannot name it from a sample of the skin. The only manufactory of flower-pots we can recommend for you is Messrs. Adams Brothers, Belle Isle, King's Cross, London, just convenient for you to obtain them by rail. If you want the largest sized pots for valuable plants, there are none so good as those made by Messrs. Phillips, Weston-super-Mare.

Stocks and Asters.—Flora has but to read the several papers that have appeared in the Magazine, as for example that at page 98 of the present volume (March 9, 1867), to learn all that books can teach on the subject. Any light rich soil will do for these things, and damping-off is best prevented by giving water cautiously while the plants are very small. Frequently delicate plants in seed-pans are destroyed by vermin that eat through the stem close to the soil, and so sever the head from the root. Many cases of failure described as "damping-off" are really the result of

cating off by such grubs as that of *Tipula oleracea*, of which sometimes the soil in seed-pans contains many. If Flora will refer back to March 9, 1867, and March 11, 1866, she will find abundant information on these matters. It is a good plan, to prevent destruction of seedling plants by vermin, to water the soil in the seed-pans with boiling water, and set them aside for a few days before sowing the seeds.

Lilium hamatochromum.—D. K.—This liliun was figured in the *Illustration Horticole* for January, 1867. It is stated in the description that it was obtained from Japan by M. A. Verschaffel, Rue du Chaume, Ghent, but it is not stated whether it has yet been offered for sale.

Herbaceous Calceolarias.—We have received from "J. E." Chorley, Manchester, a boxful of flowers of herbaceous calceolarias, as samples of "Neill's extra choice strain." The flowers were packed in a most skilful manner, and came to hand as fresh as if but just gathered. In quality they were equal to any we have ever seen, and far better than the average. Large without coarseness, beautiful in form, and of refined texture, and delightfully various in colours and markings. We should prefer this strain to some that are in high favour, because of the fine character of the flowers. The originator of this strain is Mr. Neill, gardener to Mr. Martin, of Rivington.

Mildewed Peach Trees.—E. L. G.—Paint the affected parts with a solution of Gishurst compound, 2 oz. to the gallon.

Calceolarias.—Stafford.—It is impossible for us to say why calceolarias will not succeed in your garden. There are thousands of gardens—ay, tens of thousands of gardens—in which they do not thrive. Probably, as this is a cold wet season, and all tender bedding plants are perishing, the calceolarias may do well, for it is in hot dry seasons usually that they die off. We have treated of the whole case many times, and really cannot go into the subject again. The last we had to say on the subject was to this effect, that calceolarias planted in a mixture of equal parts rotten hothed dung and good loam grew freely and flowered profusely, while others planted in common garden soil were perishing. And again, calceolarias planted in a bed made up of rotten manure only, without loam, made a splendid appearance when others in the same garden were only fit for the muck-heap.

Cherry Tree.—W. S.—It is quite likely that the soil is not well adapted for the tree, a conclusion confirmed by the bad behaviour of the Morellos close by. After seven years of failure it is useless to expect to mend matters by any patchwork; a radical cure is wanted. Prepare a station in September next, and in October move the tree.

Tacsonia Van Volxemi.—H. H. H. N.—Any of the nurserymen who advertise in the Magazine can supply this plant. Write to one and inquire the price.

THE RESTORATION OF A LONDON LAWN.

A very interesting exemplification of the ease with which apparently insurmountable difficulties may be overcome by skill, determination, and patience, is deserving of mention. An amateur who pursues horticulture in earnest, and who is compelled to reside close under the shadow of the Great Metropolis, has been perpetually fighting for his grass-plot, and to a great extent fighting in vain, for till now it has never been perfect during the ten years he has laboured at it. Its appearance, however, at the present time is that of a smooth, bright green Turkey carpet dotted with luxurious cushions of moss-like vegetation, out of which spring various beautiful coniferous trees, such as *Arancaria imbricata*, *Thujaopsis dolabrata*, &c. Perhaps a few particulars of the *modus* followed may be of interest. It must be premised, then, that the lawn has been twice laid down with the very best "forest turf," which is the name applied to a beautifully fine turf obtained from Wanstead. It has also been twice laid down with the very best grass-seeds. In spite of every care it becomes patchy, as it is much overhung with large trees—beautiful trees, too, that the owner would not cut back, though he wishes they would allow the grass to grow beneath them.

Well, the remedies have consisted in first marking out circles round all the trees that are planted on the lawn, and filling these circles with *Spergula filifera* or *Spergula saginoides* where the positions were fully exposed to light and air, and with *Sagina procumbens* where the positions were much shaded. These circles have all become filled with a dense moss-like growth; all the care they demand is occasional weeding, and those that rise into mounds are now and then beaten gently with a turf beater. But the worst parts of the lawn were those near the edges, where large trees made constant drip and shade; but these are now all velvety and deliciously green with the *Sagina procumbens*. This persistent weed was obtained from a neglected garden close by, where it had on its own account made a thick turf of an old gravel walk. All the patches requiring to be mended on the lawn were prepared by removing the soil a foot deep, and then filling up with the sandy stuff which had accumulated in the potting shed from the worn-out contents of flower-pots thrown out in the process of shifting the plants. The proprietor of the garden had observed that *Sagina* grows most freely in such stuff, especially if full of bits of brick and tile, as of course emptyings of pots are sure to be. The result is a perfect success. It is now the best London lawn I have ever seen.

H. S. J., in "The Field."

POLVERS' EGGS.—Of all wild birds' eggs the plover's are considered the best. They are chiefly laid on plough, pasture, and moor land, always in the ground, and are found by the country people, sometimes assisted by dogs trained for the purpose. The full complement is generally four; they are olive-coloured, spotted and blotched with black, and those who rob the nests are, it is said, careful not to take all, to induce the bird to go on laying, and this she generally does to make up her number. Next in estimation is the black-headed gull (*ridibundus*), being a genuine gull, and belonging to the swimmers, or more properly the *Laride*. The nests, contrary to the nomenclature of other gulls, which generally form theirs in the ledges of rocks near the sea, is placed in low situations. Nowhere are they more abundant than at Scoulton Mere, in Norfolk, and Twiggmore, in Seawley, Lincolnshire. At the former place, we are informed, 1,000 eggs per diem are gathered for two or three weeks every year, and the proprietor derives a good rental in consequence. They are often substituted for the plovers', and find their way to the Norwich and London markets, where they are considered dainties. The eggs, which vary much, are generally of a deepish olive, sprinkled with large brown and blackish spots. The birds are very regular in their migratory movements, for such their departure from and to the sea-coast may properly be termed, and their return in spring may in some cases be calculated upon almost to a day. We are given to understand, by a gentleman who has kindly furnished us with information, that rooks' eggs are very delicious, and, but for the difficulty of gathering, would be much eaten.—*The Grocer*.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun		Moon		WEATHER NEAR LONDON, 1866.				M. (imp. avg. of 43 yrs. Gravh	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D	
			rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain.					
1867			b. 30.	h. 30.	b. 30.	h. 30.	59.7	59.7	59.7	59.7	59.7		1867	
16	S	Trinity Sunday	3 44	8 16	7 24	1 30 a.m.	29.78	20.39	70	37	53.5	.10	59.4	Arpophyllum cardinale, M .. Guatemala
17	M	Full moon at 4.55 a.m.	3 44	8 16	8 11	" 4 19 "	29.73	20.54	65	39	52.5	.05	59.5	Vanda Roxburghii, I India
18	T	William Cobbett died, 1835	3 41	8 17	8 58	" 5 5 "	29.65	20.49	61	47	51.0	.00	59.6	" tora, I Sylhet
19	W	R. B. S. 2nd Great Show—York Floral Fete	3 44	8 17	9 37	" 5 59 "	29.81	20.61	67	34	50.5	.02	59.8	Sobralia macrantha, M Guatemala
20	Th	Accession of Queen Victoria, 1837	3 41	8 18	10 12	" 6 57 "	30.01	20.93	72	49	60.5	.01	59.9	Dendrobium calceolaria, I India
21	F	Sun above horizon at Greenwich 16h. 34m.	3 41	8 18	10 43	" 7 54 "	29.88	20.80	81	53	67.5	.81	60.0	" cretaceum, I "
22	S	Pence proclaimed with France, 1815	3 44	8 11	11 9	" 8 57 "	29.19	20.81	73	41	60.0	.00	60.9	" tortile, I Java

The Gardener's Magazine.

SATURDAY, JUNE 15, 1867.

SUMMER HAS SUCCEEDED WINTER, and the year 1867 will be remembered as that in which we had no spring, for it would be absurd to designate by the familiar term "spring" the alternations from tropical heat to arctic cold by which the month of May was characterized, or the stormy, rainy, and frosty weather of the months of March and April. Now that vegetation is looking healthy, and the earth is warm, the sunlight is pure and strong, we may, without depression, reflect upon the trials we have gone through, and the truly treacherous nature of the climate of Britain. One meteorological fact has been deeply impressed upon the popular mind; the great race of the year, the Derby, was run during a snow-storm. A correspondent wrote from Nottingham, on the 23rd of May, to say that they had not only had plenty of snow there, but that it was lying on the ground, a most unusual circumstance at so late a period of the year. We have visited gardens and farms in the extreme west, east, and north during the past three months, and seen everywhere identical traces of the ravages of the past severe winter, and in eastern districts the successions of frost continuing quite till the dawn of June, wrought terrible mischief. Everywhere losses of a serious nature have occurred, and the potato crop has been put back a fortnight by the almost total destruction of the growing haulm on the 23rd and 24th of May last; for on the morning of the 24th there were but few plantations of potatoes but were as black as ink, and as uninviting as heaps of rags. The potato is recovering fast, but even now, when the growth is once more green and vigorous, there are still to be found shrivelled leaves and other traces of the terrible ordeal through which the plant has passed. There may be some interest in a few particulars of the peculiarities of the season as observed in our own trial ground at Stoke Newington, and we will briefly summarize them.

It is the rule amongst experienced cultivators of the cold clay soils on the north side of London never to sow seeds of any kind till about the middle of March. This rule we have ourselves followed pretty closely, but the temptation of an outburst of fine weather in February is not always to be resisted, and occasionally we have reaped substantial advantages by following the precept, "nothing venture, nothing have," and by extra early sowing have reaped extra early produce. On the venture theory, we sowed on the 20th of February last one hundred varieties of peas, twenty varieties of spinach, and a few other collections of esculents, and planted one hundred and sixty varieties of potatoes. The weather was then bright and promising, but very soon afterwards winter returned, and the peas had to struggle with cutting winds, frost, snow, and vermin, and though they came up as regularly as could be desired, they soon began to succumb to the unkind influences of the weather, and on the 2nd of May there was but one row in the entire hundred presenting a healthy and promising appearance, and that was the good old Ringwood marrow. The whole plantation was then destroyed and sown again, and the earliest sorts are at the present date blooming luxuriously, and will but be a little later in the first gathering than early peas in the same district that were sown in the middle of March, and that survived the frosts of May. The collection of varieties of spinach failed in a similar manner, the rows being patchy at the best, and several sorts failing to vegetate. On the 5th of May, about twenty-five varieties of kidney beans were sown, one of them a quite new and valuable kind of our own, which produces scarlet pods, and of which it was desired to obtain a stock of seed. These were just pushing through, when the bitter frost of the 23rd smote them, and very nearly completed their annihilation; the rows are now dotted with green at two or three yards apart, where a plant here and there has pushed through since the frost, and they might as well be destroyed as kept for any use they will be, to say nothing of the miserable appearance of rows of beans consisting of single plants a yard or two apart. This loss, including as it did a novelty we are anxious to multiply, reminds us that the Newington Wonder pea, figured in our report on peas last year, and the best pea probably ever raised, is almost No. 111, NEW SERIES.—VOL. X.

lost, for only two miserable plants remain of it, and one hungry snail could finish them both in a night. We had three quarts of the seed, and sowed it all with the rest of the collection on the 20th February. This is a forcible lesson in illustration of the "nothing venture" theory; it may be well to venture with things that can be easily replaced, but it was evidently a mistake to risk the small stock of a new variety in opposition to the traditional wisdom of the locality. Happy shall we be to obtain two or three pods of this variety wherewith to begin again. Cauliflowers have behaved strangely. Our winter kept stock of Early London and Walcheren made a rush in growing during the warm weather in the middle of February, and the plants became so gross that we were afraid they would button in the frames. They were therefore planted out in the middle of March, and about a sixth part of the whole perished very soon afterwards. But those that stood their ground have done well, and we began to cut on the 25th of May, the heads being then small but good, and the Early London has since that date kept up a continuous supply, and the Walcherens are now nearly ready for a first supply of good heads. The winter is past no doubt, and the rapid growth of vegetation consequent on a flood of sunlight will soon obliterate the traces of the trying season through which we have passed. Let us hope that after all Plenty will crown the year, and that our losses will be forgotten in the abundance of our gains. There is plenty of grass, and cereals have improved wonderfully, and we may begin to talk of "the season and the crops" in a hopeful spirit and in faithful reliance upon Providence to give us our meat in due season.

CITY GARDENING IS LOOKING UP. We can add to the list of pretty gardens in the city of London two new examples of "how to do it." In a little churchyard on Fish Street Hill, where dinginess of the extremest dingy sort has been the rule time out of mind, may now be seen a pretty rockery tastefully made and appropriately planted. It is perhaps not the best place in the world for a rockery, but we must not be hypercritical. Better that than dirt; better anything green and cheerful and alive than sour soil looking as if plague-struck, and a standing disgrace to churchwardenism. In Watling Street, on the site where used to stand the church of St. John the Evangelist, is an example of what we will venture to pronounce a perfect model of city graveyard gardening, though the spot is not and never was a graveyard. There are a few tall and beautiful plane-trees, and beneath them a circular bed, a circular gravel walk and borders for the boundary, all the lines marked out with a neat edging made of Rosher's patent stone. The bed and the borders are planted with shrubs, and in all suitable places on the walls and railings there is a screen of Irish ivy. The shrubs employed are Holly, Box, and Rhododendrons, and the effect is not only pleasing but is really tasteful; in fact, this is as pretty a garden of its size as will be found anywhere in the city of London. The immediate promoter of this improvement is Mr. James Crute, of the firm of Crute and Downing, a gentleman whose taste and spirit in the patronage of horticulture is well known to our readers. We invite our London readers to make a visit to Watling Street for an inspection of Mr. Crute's work, and we respectfully admonish all who have the guardianship of similar enclosures to do likewise.

AN INTERNATIONAL ROSE SHOW is proposed by Mr. George Paul, to be held at Boulogne next year. The proposal is worth careful consideration. The French rosarians would no doubt enter into the project heartily, but it would need the hearty co-operation of English growers to render it successful, and, in fact, to give it an international character. It is, of course, too late to say much about it for the year 1867. If it were attempted to carry it out this year, it would fail, but the idea may be cherished with a view to its realization next year.

BAD SEEDS have been sold more largely than usual during the present season. In many instances such chaffy seeds as those of carrots, parsnips, stocks, asters, and lettuces have germinated very unequally. The blame must not all be cast on the seedsman, for he must provide seeds according to the best of his ability, and in 1866 very many kinds of seeds were an entire failure, and to meet the requirements of the market old stocks were resorted to. Chaffy seeds kept in large bulk are more or less good the second year; but kept in small bulk are generally worthless. But large fleshy seeds may be kept, generally speaking, for many years without suffering deterioration. It would be well, however, if seedsman were to announce the fact of their being compelled to send out old seeds; they would be the gainers in the end by plainness of speech. Messrs. Wheeler, of Gloucester, announced that they had failed to ripen seed of their Tom Thumb lettuce, and were dependent on imported seed. We have grown a good stock from their sample, and there is no inferiority in the produce as compared with the best samples of former years.

NATIONAL HORTICULTURAL EXHIBITION,

MANCHESTER BOTANIC GARDENS, JUNE 7TH TO 15TH.

The Manchester exhibition has proved a brilliant success, and in every sense an honour to its promoters. The most experienced habitués of horticultural gatherings pronounced it the second-best meeting of the kind they had ever attended, and by a large majority of the exhibitors, judges, and professional visitors, it was regarded as, in every sense, the most interesting and comprehensive, and at the same time the most effective display of horticultural productions amongst the many such that have taken place during the past few years. Some account of the arrangements appeared in these columns prior to the opening of the show, and we are now bound to say that there was nothing extravagant in the tone of the anticipations that accompanied our brief descriptions of the preparations that were in progress, for the splendour of the display far exceeded the expectations of the most sanguine of the promoters. The garden at Old Trafford is admirably adapted for a fête of this sort. It is situated in a rural district about two miles distant from the city of Manchester, and has ample breadths of lawns and walks for promenading, and the great show-house is an elegant structure, eminently suitable to the purpose both for the convenience of visitors and for the display of plants and flowers with the best possible effect. On the present occasion the exhibition house was occupied with only a part of the vast collection of subjects contributed, for beyond it was a great tent, the ground-work of which was laid out in grass banks and mounds and spacious walks between, and here a gorgeous effect was produced by the judicious grouping of azaleas, roses, pelargoniums, and palms, and tree-ferns, the great sheets of colour being judiciously relieved with rich masses of greenery. We thought there was a want of perspective in the design, but as tastes differ we may be quite wrong in our judgment on this point, and it is a pleasure to set aside that objection, and call to mind the beautiful appearance of the scene, and the high merit of the greater part of all the subjects exhibited. The exhibition house, which became for the time a vestibule to the great tent, was occupied with orchids and groups of stove and greenhouse plants, and in the centre was a table covered with fruits. On entering the tent from thence, the visitor felt as if suddenly transported to some happy island,

Where spices breathe and fragrant roses smile;

for he found himself suddenly immersed amongst masses of gay flowering plants set out on grassy banks in the picturesque style which has long and successfully prevailed at Regent's Park. Having traversed this tent, there yet remained another placed parallel to the exhibition house, and forming the lower part of the letter L to the larger tent. In this were collections of novelties of all kinds, also of calceolarias, zonale pelargoniums, ferns, alpines, and miscellanies. These arrangements were admirable. The learned were gratified by the display in the exhibition house, pleasure-seekers had their fill of floral beauty in the great tent, and the foot of the letter L made a capital rendezvous for conversation and for orities to make and compare notes on novelties. The schedule comprised 80 classes in all, but few of which were not well occupied with entries, and as to the character of the contributions, our report will show that it was of the highest class possible in a competition maintained by the leading horticulturists of England and Scotland. Mr. Findlay, the orator of the Manchester Botanic Garden, has been the guiding spirit in all arrangements from the first, and to his skill, perseverance, and kindly courtesy is the city of Manchester indebted in a large measure for the honour of having attracted horticulturists and botanists from all parts of Britain to assist at and to enjoy one of the most splendid exhibitions of modern times.

ORCHIDS were the most important, as to their value and condition, of all the subjects shown, and it was a matter of equal satisfaction to professional visitors as to the cultivators of the district, that Manchester had the foremost place in this competition. The first prize in the class for twenty was taken by Mr. Toll, gardener to J. A. Turner, Esq., with a group comprising well-grown examples of several kinds that are rarely seen in a specimen condition. The following are the names of the plants shown in this group:—*Aerides affine majus*, 4 spikes out and one coming; *Saccolabium ampullaceum*, a fine healthy plant, in a state of free growth, bearing 13 spikes of perfect flowers, far surpassing average examples of this scarce orchid; *Oncidium bifolium majus*, 5 spikes of flowers, extra large in size, and of the purest yellow colour; *Cattleya mossiae*, good; *Saccolabium guttatum giganteum*, 3 spikes, glorious for size and colour; *Dendrobium Parisbii*, with 16 flowers; *Saccolabium guttatum splendens*, *Cattleya elegans Warnerii*, *Oncidium phymatochilon*, one great spike of its very insect-like flowers; *Vanda suavis*, *Aerides Lindleyana*, *Cypripedium barbatum*, *Odontoglossum navium majus*, *Saccolabium præmorsum*, *Cœlogyne pandurata*, an unattractive but not unhandsome orchid, the flowers green with black spots; *Cypripedium barbatum superbum*, *Aerides Dayanum*, *Vanda tricolor*. The second place was awarded to Mr. Brocklehurst, gardener to A. Turner, Esq., who, though unquestionably second, had some very good pieces. Here we found a superb *Oncidium cordatum*, with 2 spikes, one full out, the cinnamon colouring true; *Odontoglossum Uro-Skinnerii*; a fine *Odontoglossum Pescatorei*, *Phalænopsis Schilleriana*, with one spike; *Cattleya mossiae*, *Oncidium sphaacelatum*, *Saccolabium guttatum*, with 6 spikes; *Cattleya Aclandii*, *Phalænopsis grandiflora*, *Odontoglossum navium*, good; *Calanthe veratrifolia*, had, the leaves yellow, and the plant small; *Oncidium ampliatum majus*, *Cypripedium barbatum*, *Oncidium phymatochilon*, *Cattleya lobata*, *Anguloa Ruckerii*, *Burlingtonia fragrans*, *Epidendrum cochleatum majus*, a fine plant, the merits of which were variously estimated, but which is certainly worth a place in every collection, for it has beauty if it is not attractive, and it is well adapted to bring out the best characters of other orchids. The third place in this class was assigned to Thomas Jones, Esq., who had examples of *Sobralia macrantha splendens*, second-rato in colour and substance; a good *Saccolabium Holfordii*, *Oncidium Phalænopsis*, with 6 flowers, fine; a good *Trichopilia crispata*, *Anguloa Clowesii*, *Aerides Fieldingii*, and others of less importance. In the nurserymen's class for twelve, the first place was taken by Mr. B. S. Williams, of Holloway, London. In this group was a beautiful example of the rare *Cypripedium Hookerii*, a large and finely flowered *Dendrobium cœrulescens*, *Oncidium sphaacelatum*, *Cypripedium villosum*, with nine of its huge flowers; *Dendrobium densiflorum*, with about 30 spikes; and an extra fine *Cypripedium barbatum superbum*. Second, in the trade class for twelve, Mr. John Shaw, of Bowdon. In this group a good *Lælia purpurata*, *Cypripedium Stonei*, *Oncidium sphaacelatum*,

and *Brassia verrucosa*. Mr. Stafford, nurseryman, of Hyde, near Manchester, exhibited in this class some small but pretty pieces, amongst them a nice *Cattleya citrina*. In the amateurs' class for twelve, Dr. Ainsworth (gardener, E. Mitchell) took the lead with a truly noble group. Here we found one of the best plants of *Oncidium ampliatum majus* in the show; a fine *Vanda suavis*, *Vanda tricolor*, *Aerides Lindleyana*, *Aerides Fieldingii*, *Aerides cornutum*, *Saccolabium guttatum giganteum*, *Phalænopsis grandiflora*, *Oncidium hastatum*, *Cattleya mossiae*. The second place in this class was allotted to Mr. Toll, gardener to J. A. Turner, Esq., for *Cattleya mossiae*, *Saccolabium guttatum giganteum*, *Cattleya mossiae Turneri*, fine large flowers of a soft silky texture, colour warm blush, lip fringed, rich magenta veins, buff yellow throat; *Odontoglossum cordatum*, *Barkeria melanocaulon*, and a beautiful *Dendrobium chrysotoxon*. Third, Mr. Baker, of Old Trafford. In this lot the curious and unattractive *Oncidium hastatum*, *Cetasetum cernuum*, *Dendrobium densifolium album*, fine; *Aerides Fieldingii*, *Saccolabium Blumei* Dayii, *Calanthe veratrifolia*, *Vanda suavis Veitchii*, *Cattleya mossiae*, *Saccolabium retusum*, *Vanda Roxburghii*, and Backhouse's variety of *Lælia purpurata*. The first place in the class for eight was assigned to Mr. John Stevenson, of Lark Hill, who had a splendid *Dendrobium densiflora alba*, with 11 grand spikes; *Cypripedium barbatum superbum*, *Odontoglossum navium*, *Saccolabium præmorsum*, *Cypripedium lævigatum*, *Dendrobium nobile roseum*, a very poor *Phalænopsis Luddemanni*, and *Aerides Fieldingii*. Second, Mr. T. Kendall; third, Dr. Ainsworth. In the class for single specimens, there were a few superb pieces brought forward. The first prize was awarded to T. Kendall, Esq. (gardener, George Houghton), for a noble plant of *Saccolabium retusum*, with 4 perfect spikes, most richly coloured. Second, Thomas Jones, Esq., of Whalley Range, with *Phalænopsis Luddemanni*, with 8 flowers, the finest specimen no doubt hitherto exhibited. That it did not take a first position appeared to surprise some who consider value of more importance than beauty; but if beauty was mainly sought for by the judges, Mr. Kendall's *Saccolabium* certainly bore away the palm. Third, Dr. Ainsworth, with the rare and beautiful *Trichopilia crispata marginata*, with 21 flowers. This variety is of a darker and richer colour than the type of the species, and has a clear white margin. It is a curious circumstance that there were but two examples of the lovely *Lælia purpurata* in the whole of this splendid display of orchids, and of *Cattleyas* there were not many.

STOVE AND GREENHOUSE PLANTS.—Mr. Baines, gardener to H. Micholl, Esq., Manchester, took first place in the class for fourteen, with extra large specimens of the best exhibition plants in a wonderful state of freshness and finish. *Dipladenia crassinodes*, quite covered with its charming rosy flowers; *Ixora coccinea* and *I. aurantiaca*, both very fine; *Aphelexis humilis rosea*, a very fine *Franciscea confertifolia*, *Erica tricolor* Leeana, *Azalea Stanleyana*, *Acrophylla venosa*, a good *Hedera*, and a rather thin *Dracophyllum*. The second place in this class was awarded to Sir James Watts's gardener, and the third to Mr. Mitchell. In these collections *Ixoras* were conspicuous for splendour, and there were good examples also of *Stephanotis floribunda*, *Tetratheca ericoides*, *Erica ventricosa Bothwelliana*, *Rhyncospermum jasminoides*, *Acrophyllum venosum*, and *Aphelexis*. In the amateur class for eight, Mr. John Stevenson, of Lark Hill, took first place with a superb group, comprising the finest *Ixora amboyensis* in the show; a *Pimelia mirabilis* about six feet over, a solid convex sheet of rosy flowers; *Erica eximia superba*, *Clerodendron Balfourii*, *Acrophyllum venosa*, *Azalea Gem*, *Erica Cavendishii*, and an *Aphelexis*. Second, T. Kendall, Esq., with a very fine *Pimelia Hendersonii*, *Erica Cavendishii*, *Azalea Criterion*, a good *Franciscea*, and others. In the class for four the awards were to Mr. Kendall, Sir J. Watts, and Mr. E. Phillips, in the order named. The trade class for twelve was led off splendidly by Messrs. Cole and Sons, of Withington, who presented huge plants of *Erica Paxtoniana*, *Aphelexis macrantha purpurea*, *Ixora coccinea*, *Ixora amboyensis*, *Erica Cavendishii*, *Azalea Criterion*, *Azalea Sir Charles Napier*, *Pimelia mirabilis*, *Acrophyllum venosum*, *Dracophyllum gracile*, *Azalea Iveryana*, *Genetyllis Hookeriana*. Mr. B. S. Williams, of London, contributed a group, comprising handsome pyramid *Azaleas* and other plants of the same kinds as have been already enumerated. Messrs. Cole were again first in the class for six, with *Aphelexis purpurea*, *Erica Cavendishii*, *Azalea Duc de Nassau*, and others.

FINE FOLIAGED PLANTS were abundantly produced, and the noblest group of all was that comprising ten plants from Mr. Mitchell, gardener to the Duke of Hamilton. Here we found by far the finest examples of *Phœnicophorium sechellianum* we have yet seen; a grand *Dasyliroium glaucum*, *Pandanus ornatus*, *Theophrasta imperialis*, *Croton angustifolium*, a gigantic and bright green *Latania Bourbonica*, *Cordyline indivisa*, *Pandanus elegantissima*, *Croton variegata*, and a *Dracæna*. Mr. Stevenson came second with a beautiful group; Mr. T. Hobson third. In the amateur class for six, first, Mr. Schloss; second, Mr. E. Phillips. In the trade class for twelve, Mr. B. S. Williams took first place with glorious examples of *Yucca aloifolia*, *Theophrasta imperialis*, *Croton pictum*, in a brilliant state of colouring; *Pandanus reflexus*, and other noble plants. Mr. Shaw second, Mr. Stafford third. In the class for three palms, Mr. Mitchell, gardener to the Duke of Hamilton first, Mr. Broome second. Mr. Baines first in three ferns. The finest group of Stove and Greenhouse Ferns came from Mr. B. S. Williams, second, Mr. Shaw. Mr. Williams also contributed the best group of *Dracænas* and *Cordylines*, second, Mr. Stafford. Again, in the class for *Yuccas* and *Beaucarneas*, Mr. Williams stood first, and Mr. Shaw second. In these several collections the superior size, beauty, and value of the specimens from Holloway gave them a quite distinctive character, and won for Mr. Williams golden opinions. There were beautiful collections of ferns from Mr. Hobson, Mr. Stevenson, Mr. Broome, Mr. Hampson, Mr. Pearson, and Mr. Rowthornam. In the trade class, Messrs. Ascroft, of West Derby, and Stafford, of Hyde, exhibited collections of thirty-six hardy kinds.

AZALEAS.—We shall deal with these in a summary manner. As we have already given full lists of the best varieties exhibited at the metropolitan exhibitions, there will be no need now to analyze the collections, especially as they consisted of well-established kinds that are known to be the best in the several classes. But we have something special to say about them, though we shall not make lists of names. There were collections from Messrs. Cole and Son, of Withington; Messrs. Lane and Son, of Berkhamstead, Herts; and Mr. B. S. Williams, of Holloway, London, all grown in the London style—that is to say, in the form of regular pyramids, equally furnished all round with leaves and flowers, and in beautiful finish of training. There were also several collections from amateurs, notably from Sir J. Watts's gardener; also from Mr. Hauner and Mr. Baines. Our notes do not tell us whether the last named is to be condemned with

the rest of the amateurs for contributing Azaleas which were of great size, full of bloom, but hideous through a false system of training. We are so accustomed to see Mr. Balnes's plants trained symmetrically, that at the moment of writing this report we think it probable that his Azaleas were fit to be seen, but it is quite certain that a considerable proportion of those contributed by amateurs were trained to a face, that the face was the quintessence of ugliness, and the profile unlike everything else in heaven or earth, except sin perhaps, and the back view disclosed a mass of rude and obtrusive scaffolding. Impartial reporting is the rule we follow, and we must risk offending the gentlemen who contributed the great Azaleas that made so brilliant a display of colour on the grass mounds, by saying that we would rather see such plants committed to the flames than admit one of them to a decently-furnished plant-house.

ROSES.—The show was decidedly weak in roses; but as Messrs. Lane and Son, of Berkhamstead, Herts, took the first prize in the class for ten with grand pyramids; and Messrs. Paul and Son, of Chesham, Herts, took first prize in the class for sixteen with beautiful round bushes; and, again, Messrs. Paul and Son first for six, and Messrs. Lane and Son second,—there were many beautiful examples presented, and they were thoroughly appreciated. The climate of Lancashire is not the best in England for the rose, and the suburbs of Manchester are still less adapted for it. Nevertheless we should have been gratified if the lovers of roses in the district had made an effort to show the best that could be done thereabouts. Céline Forestier was shown with flowers of a rich lemon yellow, by Messrs. Paul and Son; Mr. Ashcroft, of West Derby, and Mr. Shaw, of Manchester, also exhibited.

PELARGONIUMS.—Mr. May, of Bedale, Yorkshire, presented a splendid bank of ten show plants of the large-flowered section, and a bank of ten beautiful fancies. These were even in size and bloom throughout, and perfectly fresh. Mr. Rylance put up the second-best group of ten fancies, treading very close on Mr. May's heels in this class, but finally losing first place, as at least three of his plants were not full out, and they were not so uniform in size and shape as Mr. May's. Mr. Rylance also exhibited six good fancy varieties. Show pelargoniums from amateurs were thoroughly good; and it is not often we see finer plants than the first prize six from Mr. Agnew. The second place was awarded to Mr. J. Broome for nicely-finished plants. Mr. Agnew was also first in the class for six fancy varieties, with splendid plants, fresh and sparkling; Mr. Broome second. Zonate pelargoniums were not well shown in any case. We should have rejoiced to see a few groups of large convex plants, such as are now commonly to be seen at the great London exhibitions, for this especial reason, that they are plants well adapted for great smoky cities like Manchester, where roses and some other favourites scarcely do well. The cultivators of Lancashire, in common with cultivators in many other places, have apparently not yet made acquaintance with the broad-petalled varieties of the florists' type, and have not yet turned their attention to the production of fine specimens of any of this race. The best ten zoned varieties came from Mr. H. K. Balstone, and the best ten variegated from Captain Starkey. Messrs. Phillips and Lees also contributed. In the trade classes, Messrs. Yates, R. Barnes, of Macclesfield, and J. Shaw, were the principal contributors. But here we must make an agreeable exception in favour of the exhibitors who put all other contributions in the variegated-leaved classes into the shade by their splendid groups of plants. Mr. Wills, gardener to Captain Starkey, of Huntroyde, noted above as first in the class for ten, presented a splendid group, all seedlings of his own, we believe, and mostly of the race of which Luna is the accepted type. We must go through this lot in detail, for they are destined to become famous in a very short time hence; in fact, only need to be seen by cultivators of these plants to be entered at once in their lists of the best varieties known.

Her Majesty, the most remarkable of all the brown zoned kinds; leaf medium size, round, and nearly flat, very small yellowish-green disk, and very broad bold zone of reddish cinnamon colour; the habit compact; a glorious and novel display of colour. *Beauty of Calder-Dale*, in the same style, but one shade darker in colour, the zone being nearly a pure chesnut. *Princess Beatrice*, a fine strong habit, disk and margin of yellowish green, bold brown zone, very rich and striking. *Model*, large green disk, scalloped chesnut zone, not so good as others in the group. *Beauty of Ribblesdale*, apparently not a good habit; perhaps, being quite a new variety, the plant may have been cut at over-much, and had not yet made itself for show; at all events it was a little leggy; leaf, sulphur-green or lemon-yellow; narrow red cinnamon zone, in the younger leaves shading towards pure red; very distinct and beautiful. *Huntsman*, large and coarse, but handsome; disk and margin of young leaves pleasing pale green, with bold notched zone of deep iron-rust red; the older leaves look rather washy. *Florence*, a grand tricolor in the Pollock style, with splendid shades of red and black in the zone; indeed, the black colour is one of its most distinctive and beautiful characters. For a pot specimen in a group this cannot be surpassed, but it does not look like a bedder. *Magnet*, very compact and neat-habited, and appears to be quite in advance of Luna. *Bridesmaid* a beautiful creamy-leaved variety, the leaves slightly convex, but quite round and neat; small rayed disk, with traces of a dusty zone; the rest of the leaf clear creamy white; a very fine variety. As to the flowers of these there were a few trusses of scarlet amongst them, and they would have looked better if these had been picked off. We have disagreed with Mr. Wills on theoretical matters, but we have nothing but unqualified praise to utter in reference to the best of his varieties, and his mode of presenting them. They were as bright as if horn and bred in a world where dust is unknown. Another pleasing feature was a group of tricolor-leaved varieties, from Messrs. E. and A. Smith, of Dulwich, London, and for which an extra prize was awarded. Here was the celebrated *Jetty Lucy*, one of Messrs. Smith's best; the leaf round and flat, with a brilliant red zone; *Defiance*, with very much yellow in the leaf, and the zone a good red; *Impératrice Eugénie*, the edge creamy, the zone bright pink; *Eclipse*, quite a novelty, the disk rayed, the leaf almost wholly yellow, sharp zone of bright carmine red; *L'Empereur*, exceedingly neat, the greater part of the leaf pale yellow, the zone brilliant red. There were others of scarcely less merit of which we had no time to make notes. Mr. Watson, of St. Alban's, brought three tricolors: *Miss Watson*, has a round flat leaf, with yellow margin, and a fine zone varying from red to pink, a splendid variety; *Mrs. Dix*, a compact, round-leaved variety, with splendid zone, first-rate every way; *Mrs. Gladstone*, leaf large, and much lobed; the colours are good, but there is a roughness inclining to coarseness in the plant, and it does not win upon us as we become better acquainted with it. Mr. Watson also brought forward a good nosegay variety called *Excelestior*, the flowers of which are a fine cerise red. Mr. Cunningham exhibited his pretty creamy-edged, ivy-leaved variety called *L'Élegante*, which will be a

most valuable plant for edgings, and when grown in the full sunshine will probably show a good tint of pink in the leaf, as there are traces of colour in its obscure dark zone. Mr. Wills put up a collection of new variegated-leaved varieties, but they were such small plants it was impossible to judge them fairly. The best were *Fanny*, a pretty medium-sized leaf quietly coloured with yellow, and a zone of mixed dark and red; *Unique*, like the last; *Jewell*, like Luna, very neat, small leaf; *Conquest*, a bold style for a pot plant, the leaf large, with a dashing bold zone of chesnut brown; *Canary*, a weak bronzy zone; *Oracle*, small leaf, dark chesnut zone, no character; *Coronet*, large pale green disk, narrow zigzag zone of dark brown.

NEW PLANTS.—In the centre of the exhibition house was a grand trophy-like group of new plants from Messrs. Veitch and Son, of Chelsea, which not only made a beautiful effect, but comprised some subjects of great value and of exquisite beauty. That most beautiful of all known ferns *Leptopteris (Todea) superba* presented its rich dark green plume-like fronds, with the peculiar dripping-wet-like lustre, and elicited rapturous praises from people capable of appreciating such things. *Aralia Veitchii* is exquisitely elegant, and at the same time curious, being of almost wiry tenuity of structure, with a thin tawny stem and slender toothed leaves in sets of twelve around their common axis like the rays of a star. *Nepenthes hybrida maculata*, a dwarf habited pitcher plant with neat pitchers that hang down below the rim of the pot; interesting and beautiful. *Anthurium Scherzerianum*, now well known as one of the most beautiful of stove plants, its large dark green leaves and scarlet inflorescence rendering it eminently attractive and distinct from everything else of its class. *Sanchezia nobilis variegata*, a very fine variegated plant, the leaves pencilled with creamy lines in the most precise manner; as this produces showy flowers it is doubly valuable. *Croton Hookerianum* is quite distinct and splendid in colouring, the large leaves being of a rich lemon yellow towards the base. *Alocasia species (punctatum)* would be an appropriate name for it) has neat leaves, the ground colour of which is light green, with ten large black spots arranged in marginal rows, a stencilled leaf we may say: if adapted to grow as a large specimen it will be one of the most beautiful of exhibition plants. *Begonia Pearcei* is well known and universally admired. *Phormium tenax*, with fine variegation. *Dracena Regina*, quite distinct, compact, and leafy, the young leaves richly variegated with creamy amber. *Maranta Veitchii* and *Maranta rosea-picta* both good. *Testudinaria elephantipes*, not new by any means, yet as it is rarely seen in a presentable state it is proper to chronicle its appearance in this group in a very presentable condition, the huge woody root-stock being surmounted with a vigorous twining stem, bearing abundance of its cordate leaves. *Lomariopsis heteromorpha* is a beautiful climbing fern with pretty bristle-margined pinules. *Retinospora plumosa*, a hardy shrub, with foliage like a glaucous Selaginella. We must omit mention of many other good things in this group, but it is impossible to forget a pair of plants of our good old friend Spirea (Hottea) Japonica, each measuring about a yard over, the leaves a remarkable tint of deep green, the flowers foamy, showy, and in feathery plumes in number beyond counting.—Mr. B. S. Williams, of Holloway, London, was a large contributor of new plants. In this collection we found the beautiful *Trichopilia crispis marginata*, with flowers of a fine deep red colour, margined with a clear white line. *Caladium magnificum*, the leaf medium-sized, and covered with white spots on a ground of pale green. *Dracena nigrescens*, a close habited variety, with leaves of a purplish bronze colour, very nearly black. *Yucca Stokesii*, *Sanchezia nobilis variegata*, *Dracena sanguinea*, elegant in habit, and well adapted for a grand specimen, the leaves narrow, with central line of dull red. *Panicum variegatum*, a pretty grass, with leaves variegated with creamy, rosy, and purplish stripes; it will not be universally admired, yet will in many places become a favourite for decoration. *Coleus Veitchii* does not appear fated to acquire any degree of importance; it is dull and unattractive. *Areca aurea*, a splendid palm of light graceful structure. *Kempferia Roscoeana*, a curious and beautiful plant, showing two suborbiculate leaves of a deep blackish green, richly variegated, and a charming white flower between them. *Adiantum Farleyense*, a true specimen of this glorious fern, with large, deeply fringed pinules.—M. Linden, of Brussels, sent a pretty group of novelties, amongst them *Echites rubro venosa*, with elegant carmine coloured lines on a dark ground, like some of the species of *Anæctochilus*. A fine example of *Dichorisandra undata*, and also of *Maranta Lindenii*, both of them good stove plants, with fine foliage.—Mr. Bull, of King's Road, Chelsea, London, contributed a number of interesting things, and not the least attractive was the curious but almost repulsive *Amorphophallus nobilis*, a drab or snuff-coloured arad, with the spathe unfolding, and displaying a Priapian inflorescence; this was the subject of many inquiries, and in many instances was regarded as a fungus, but its araceous structure was discernible at a glance by those in any degree accustomed to botanical analysis. *Dalechampia Reitziana rosea*, with rosy pink flowers, reminding one at a casual glance of a Bougainvillea.

MISCELLANEOUS PLANTS AND FLOWERS.—There are many subjects deserving of mention for which it is impossible to make separate paragraphs, and perhaps the most important amongst them are the groups of Liliium auratum presented by Mr. B. S. Williams, first, and Mr. John Shaw, second. How Mr. Williams managed to get these to the end of their long journey from Holloway was a mystery, for there was scarcely a scratch upon them, and the flowers were delightfully large and fresh. Mr. Shaw's were fine examples. Cape Heaths were shown in fine condition by Mr. B. S. Williams, Messrs. Cole and Son, and Mr. Shaw. Mr. Kendall took first place amongst amateurs for single specimen. Rhododendrons were few and small, but exceedingly good, especially the two groups of twenty plants from Messrs. G. and W. Yates and Mr. J. Shaw. In the class for ten, Mr. Shaw was first, Messrs. Yates second. Mr. Hodson presented a pretty group in the section for amateurs. There was a class for fifty hardy evergreen trees and shrubs, and a very useful class it was, because of the handsome masses of greenery it brought to relieve the flowers. All the competitors mixed deciduous trees with their collections, and the judges had to consider in the first instance about disqualifying, but on second thought it was determined to judge them all according to merit, and Messrs. G. and W. Yates very properly took first place; Mr. S. Stafford, of Hyde, second. Fuchsias were not plentiful, but Messrs. Balstone, Bindloss, and Chittick brought good groups of pyramids in a well-flowered and fresh condition. Herbaceous Calceolarias were useful, because showy, but they were not quite up to the standard we have become accustomed to, such as that furnished us, for instance, by Mr. James, of Isleworth. Messrs. Tootal, Keymer, and Andrews were the successful amateurs in this class; and to Mr. Keymer was awarded first place in the class for Shrubby Calceolarias.

Of Amaryllis there were two beautiful collections, the best being from Mr. B. S. Williams; the other, a few degrees less brilliant and finished, from Dr. Ainsworth. In Mr. Williams's group were some new varieties, the most remarkable of which were *William Pitt*, fine broad petals, deep orange red shading to crimson, white stripe in the centre of each petal; *Beauté sans Rival*, bright orange scarlet, with greenish stripes, very showy, and a finely-formed flower; *Cleopatra*, rich crimson, with white stripe and white lines, first-rate. There were several collections of fifty each of hardy herbaceous plants, but only one—that from Messrs. Dickson and Brown, of Manchester—was worth serious attention, for the others were brought forward in the dirty careless way which has done so much to defame this class of plants. Messrs. Dickson's specimens were shown in a large box, measuring about 12 feet by 6 feet, neatly surfaced with moss, the specimens fresh and bright, and the names correctly spelt. The plants shown were as follow: *Achillea tomentosa*, *Viola cornuta*, *Saxifraga affinis*, *Myosotis rupicola* (exquisitely beautiful), *Plox frondosa*, *Geranium cinereum*, *Erigeron speciosum*, *Saxifraga rupestris*, *Saxifraga nervosa*, *Dianthus pungens*, *Saponaria ocyroides*, *Linaria alpina* (a lovely gem, fit companion for any alpine *Plox* or *Myosotis*), *Helianthemum canum*, *Phyteuma hemisphaerium*, *Ajuga alpina*, *Iberis Gibraltarica*, *Aquilegia alpina* (most beautiful), *Silene Pennsylvanica*, *Viola lutea*, *Lychnis alpina major*, *Lychnis viscaria splendens*, *Thalictrum aquilegifolium*, *Erigeron grandifolius*, *Lithospermum fruticosum*, *Astragalus hypoglottis*, *Pyrola uniflora*, *Orchis laxifolia*, *Melittis melissophyllum*, *Erinus alpinus* (beautiful), *Silene Zawdski*, *Jasione perenne humilis*, *Dianthus alpinus* (a charming species), *Pinguicula grandiflora*, *Viola pedata*, *Maianthemum bifolium* (a newly-discovered British plant of great beauty; it is like a miniature lily of the valley), *Papaver nudicaule*, *Linum alpinum* (beautiful), *Ornithogalum umbellatum*, *Viola montana*, *Artemisia alpina*, *Arenaria grandiflora*, *Potentilla pyreniaca* (superb yellow flowers), *Astragalus purpurascens*, *Ranondia pyreniaca*, *Saxifraga aquatica*, *Dianthus petraeus*, *Hyacinthus amethystinus*. We should have taken the names all through of all the collections had they been good, but they were not, and we pass them by. The second prize was awarded to Mr. Stafford, the third to Messrs. G. and W. Yates. We wind up this section with a notice of a few pretty varieties of British ferns shown by Messrs. Edwards and Son, nurserymen, of Nuthall, near Nottingham. *Athyrium Filix femina Edwardsii* is a pretty dense-fronded kind, the pinnae overlapping so as to present an imbricated appearance, and the points curl up slightly, so as to give the whole of the frond a crisped character, though in reality it is neither crisped nor tasselled. This is extremely pretty, and well adapted to grow to specimen size for exhibition. *Polystichum angulare rotundatum* is the most distinct of all the varieties of this variable and always beautiful fern, the pinnae being entire and kidney-shaped, and the colour a rich dark green. *Polystichum angulare depauperatum* bears a close resemblance to *Asplenium adiantum nigrum*, and is better than depauperated forms generally are. These three varieties were not the least meritorious amongst the many interesting contributions to this great exhibition, though they occupied a very humble place there. Collectors of choice ferns may safely inquire about them.

FRUIT.—The display of fruit was by no means extensive, and in respect of quantity more could have been desired. But the quality was admirable, and many examples of extraordinary excellence were shown. Messrs. Lane and Son, of Berkhamstead, Herts, maintained their well-earned fame in the exhibition of pot grapes; for not only were there none to equal them, but the best accustomed cultivators and exhibitors agreed in declaring them remarkable alike for superior cultivation and finish, and for perfection altogether unimpaired by long travel. Mr. Statter took the second place. Messrs. Lane and Son again took the lead in the class for orchard-house trees, the specimens shown being in perfect health and covered with fruit. In the class for Pines, Mr. Miller showed a nice Queen, not quite ripe; Captain Glegg, a good Providence; and Mrs. Holland, of Altrincham, a smooth Cayenne. The competition in Grapes was spirited and satisfactory. Best two bunches of Black Hamburg—first (equal), Mr. Meredith, of Garston, near Liverpool, with huge triangular bunches, in a perfect state of finish, and W. Blenkhorn, Esq., with a handsome pair of bunches. Captain Glegg was a good second in this class, for though his bunches were smaller than those placed above him, he had the best finished berries on the table. In the class for best two bunches of any kind of Black Grapes—first, W. Blenkhorn, Esq., with Bidwell's Seedling. This is a variety of Black Prince, said to "supercede Black Prince," which we think open to question. Second, H. J. Hopwood, Esq., with Black Prince; third, the Bishop of Manchester, with Black Prince. Two bunches of Muscat of Alexandria—first, W. Chillock, Esq., of Bowdon, with small bunches, full ripe. In these bunches were a few small berries, indicating unskilful thinning. Second, W. Blenkhorn, Esq., with fine large bunches, wanting ten days to ripen them; third, E. Greaves, Esq., with handsome bunches, rather in advance in respect of ripeness of those to which a second place was awarded. Two bunches of any White Grape—first, W. Blenkhorn, Esq., with beautifully grown and quite ripe bunches of Buckland Sweetwater. Four kinds of grapes, one bunch of each—first, W. Blenkhorn, Esq., with a very nice sample of Buckland Sweetwater, a good Black Prince, a green Muscat of Alexandria, and a good Black Hamburg. The Bishop of Manchester exhibited Muscat Hamburg, Black Hamburg, Black Prince, and White Frontignan. The first prize for six dishes of fruit was awarded to H. J. Hopwood, Esq.; the collection consisted of Buckland Sweetwater and Black Hamburg grapes, a Jamaica pine, *Violette Hative* nectarines, Royal George peaches, and Keen's Seedling strawberries. Six Peaches—first, Mr. Hopwood, with splendid examples of Royal George; second, Duke of Leinster, with Barrington; third, R. O. Leycester, Esq., with *Violette Hative*. Six Nectarines—first, Captain Glegg, with a fine large fruit, like Bowden; second, the Duke of Leinster, with *Violette Hative*; third, Mr. Hopwood, with *Violette Hative*. Strawberries—none worth a first; second, Duke of Leinster, with a good dish of Sir Harry. Mr. Tillery, gardener to the Duke of Portland, at Welbeck, presented a collection, comprising British Queen, La Marguerite, Princess of Wales, Reeves's Eclipse. An interesting collection of grapes was contributed by W. Blenkhorn, Esq., comprising Trentham Black, Black Prince, Muscat of Alexandria, Mill Hill Hamburg, Buckland Sweetwater, Bidwell's Seedling, White Frontignan, Muscat Hamburg, Black Hamburg, Golden Hamburg, and Grizzly Frontignan—all good except the last. Messrs. Brooke and Co., fruiters, of Manchester, covered a table with a beautiful collection, comprising pines, grapes, peaches, nectarines, strawberries, and cherries, all in perfection of size, colour, and finish, the black and white cherries especially being remarkable for their fine quality. Lastly, we noticed as worth a word of praise a dish of York Pippin apples from Mr. Rylance, of Bold Lane

Nursery, near Ormskirk. This is a large round yellow apple, of good keeping qualities; the samples were not in the least shrivelled or discoloured.

There was a great display of greenhouses, implements, boilers, and garden ornaments in the open air. The greenhouses were, generally speaking, complicated and costly things. Jones's Terminal Boiler deservedly attracted attention, as it was shown in parts and also completely fitted, so that its construction and peculiarities could be understood at a glance. This boiler possesses the rare merit of sucking all the heat from the fire, so that it furnishes a maximum of power for a minimum of outlay in respect of fuel. This was exhibited by Mr. Ireland, of Manchester. From Mr. Bennett, of St. Thomas's Buildings, Liverpool, a new telescope syringe, which is an improvement on all ordinary syringes, as it draws and delivers by one and the same stroke, and is worked in precisely the same manner that a telescope is driven into or withdrawn from its tube. From the same exhibitors, a new kind of wire net, called "jointed netting;" this differs from all other kinds in its jointed construction, the separate breadths being loosely locked together, so that it can be rolled up like paper or canvas. If it can be sold cheap enough, it will make a capital trellis for peas, and the best netting for poultry runs, extemporized summer-houses, and for any and every purpose where netting is wanted of a portable nature. Messrs. Hunt and Pickering, of Leicester, made a grand display of their cast-iron portable flower baskets, which are undoubtedly the best things of the kind ever submitted to public notice, as there can be nothing more elegant when fitted up, so when unfitted they can be packed away in a small compass, and weigh only a sixth part of the weight of vases of the same size of any other make. With these many examples of the Leicester garden-seat—elegant, light, cheap, comfortable. These are the sort of inventions to encourage; those that multiply expense and bewilder by complexity are for the fid-fadding people, who like to part with their money for useless toys, and who, probably, will not be turned from their folly by anything we can say; so we will not stop to describe many attractive and costly but comparatively valueless things that were displayed upon the lawn, and that were more or less admired. S. H.

KINGSTON AND SURBITON HORTICULTURAL SOCIETY.

THIRD ANNUAL EXHIBITION, MAY 30 AND 31st.

The managers of this important society were peculiarly fortunate in obtaining the grant of the beautiful grounds of Norbiton Hall for holding the summer show of this season, for the well-known character of the place undoubtedly induced hundreds to visit the show that otherwise would not have done so, had it been held in a less attractive situation; and so far as the number of visitors, and the grandeur of the display provided for them is concerned, it can without question be pronounced a decided success.

STOVE AND GREENHOUSE PLANTS were both plentiful and good. In the class for eight, Mr. Kemp, gardener to Earl Percy, Albury Park, Guildford, first, with a grand lot, comprising fine examples of *Allamanda grandiflora*, *Aphelexis humilis rosea*, *Arpophyllum venosum*, a splendid *Phænomia proliferum Barnesii*, *Stephanotis floribunda* (superbly flowered), and a fine *Leschenaultia biloba major*, and *Genetyllis tuliperum*. Mr. Ransley Tanton, Nurseryman, Epsom, second. Amongst them was a capital plant of *Azalea Eulalie Van Geert*, perfect in shape, and a mass of bloom; a good plant of *Allamanda grandiflora*, not so full of flower as Mr. Kemp's, but the individual blooms much larger; *Clerodendron Balfourii*, *Erica ventricosa carnea*, and *Aphelexis sesamoides*. Messrs. Thomas Jackson and Sons, Nurseryman, Kingston, third, with immense plants of *Eriostemon buxifolium*, *Erica Cavendishii*, *Stephanotis floribunda*, *Epacris grandiflora rubra*, *Hedera tuliperum*, *H. fuchsoides*, *Clerodendron Thomsonæ*, *C. Kæmpferii*, superb in foliage and flower; the plants in this collection were not showy enough, otherwise it must have been placed second, for every plant was a masterpiece of good cultivation. Mr. Gray, gardener to W. Hardman, Esq., Norbiton Hall, Kingston, put up a splendid six, which deservedly obtained the first place, and included a very fine *Azalea Gladstanesii*, *Allamanda nerifolia*, *Aphelexis macrantha purpurea*, *Franciscia latifolia*, and a magnificent *Rhynchospermum jasminoides*.

Good collections of twelve miscellaneous plants in flower were contributed by Mr. Carr, gardener to D. L. Hinds, Esq., The Lodge, Byfleet, Surrey, and Mr. Baxendine, Nurseryman, Guildford. First, Mr. Carr, with *Stephanotis floribunda*, *Clerodendron Balfourii*, *Allamanda nerifolia*, *Rhynchospermum jasminoides* (each seven feet by four, beautifully trained and flowered good plants), *Clerodendron fallax* (seven spikes), *Polygala Dalmaniana*, *Rhododendron Edgeworthii*, and others. Second, Mr. Baxendine, with *Boronia serrulata*, *Coleonema rubra*, *Draconophyllum gracile*, *Pimelea Hendersonii*, *Polygala oppositifolia*, *P. Dalmaniana*, and the curious *Hæmanthus puniceus*, with six heads of bloom.

CAPE HEATHS were particularly good. Messrs. Jackson and Son, first, with the following six: *Florida*, *Candidissima*, *Perspicua nana*, *Ventricosa coccinea minor* (very fine), *Cavendishii*, and *depressa*. Mr. Kemp, gardener to Earl Percy, second, with *Cavendishii ventricosa superba*, *Tricolor Wilsonii*, *Westphaliugii*, and two others. Mr. Baxendine had a good third.

AZALEAS were very good. In the class for six, Mr. Kemp came off victorious with a nice group, containing *Gem*, *Criterion*, *Juliana*, *Beauty of Reigate*. Messrs. Jackson and Son, second in this lot, with a fine plant of Messrs. Jackson's new kind, *Jackson's Grand Crimson*, which is A 1; the flowers are extra stout, immense size, and a deep crimson colour; this variety has the peculiar property of retaining its flowers for an immense length of time, an important consideration to exhibitors of these beautiful plants. For four, Mr. W. Polley, gardener to J. A. Barton, South Bank, Surbiton, first, and Mr. Breach, gardener to W. Home, Esq., Surbiton, second.

ORCHIDS were shown by Messrs. Jackson and Son, Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, and Mr. Dawson, gardener to E. C. Baring, Esq., Kingston Hill. For four, Mr. Dawson had a very fine *Vanda suavis*, with ten beautiful spikes, *Cypripedium barbatum superbum*, and a good *Phalænopsis grandiflora*, not out sufficiently. In the class for six the judges put Messrs. Jackson first, and Mr. Wiggins second, which was evident to any one having any knowledge at all of orchidaceous plants to be wrong; they were both good collections undoubtedly, but taking into consideration the health and rarity of the specimens in Mr. Wiggins's lot,

it is impossible to conceive how they could be placed second; the most charitable construction would be to suppose that they were not judged at all. Messrs. Jackson and Son had *Vanda suavis*, one spike; *Lælia purpurata*, three blooms; *Chysis bracteosa*, two spikes; *Phalænopsis amabilis*, one spike, quite past its best; *Dendrobium densiflorum*, three spikes, and *Cattleya Skinnerii*, four spikes. Mr. Wiggins, *Cypripedium villosum*, *C. hirsutissimum*, large plants and well flowered; *Cattleya Skinnerii*, three spikes, a splendid variety; *Dendrobium densiflorum*, fifteen spikes; *Saccolabium præmorsum*, three spikes; and the scarlet-flowered *Saccolabium minutum* with one spike.

FINE FOLIAGE PLANTS made a grand display. Messrs. Jackson and Son first for eight, with two noble Palms, an immense *Dasyliion*; *Alcacia macrorhiza variegata*, finely variegated; *A. metallica*, superb, and a large *Caladium Chantunii*. Mr. Carr, Byfleet, second, with superb plants of *Spherygna latifolia*, *Croton elegans*, a *Marsanta*, *Alcacia metallica*, and others. Sixes, Mr. Gray first, Mr. Breach second. In Mr. Gray's collection were examples of *Alcacia macrorhiza variegata*, finely variegated; *Croton variegata*, *Cyanophyllum magnificum*, eight feet high, with an immense and beautifully shaped head; *Marsanta zebra*, and a splendid plant of *Chismærops elegans*. Mr. Breach presented good plants of *Pandanus revilis*, *Arslia leptophylla*, *Maranta zebra*, and *Dracæna terminalis*. Some good *Caladiums* were shown, but as the collection containing the finest varieties and best grown plants, twice the size of those in either of the other lots, were put second, the less said about them the better. Ferns, both British and Exotic, were exhibited in great abundance. In the class for eight Exotics, Messrs. Jackson and Son first, with *Todea Africana* (fine), *Angiopteris evecta*, a remarkably fine plant of *Gleichenia hestiochylla*, *Lomaria gibbs*, *Gleichenia vestita* (an immense plant), *Asplenium furcstum*, and *Neopteris stipitatum* (with immense fronds). Mr. Carr, second, with some very good plants; conspicuous were *Gymnogramma chysophylla aurea*, the beautiful *Nephrodium molle corymbifera*, and *Nephrolepis davallioides*. Third, Mr. Gray, with well grown healthy plants of *Pteris argyrea*, *Asplenium nidus-svis*, a magnificent *Adiantum cuneatum*, and a fine *Calypteris proliferum*. The same remarks will apply to the six exotics as used for the *Caladiums*, the ferns being rather the worst of the two. For twelve British, Mr. Morse, Epsom, first, with a capital lot. Prominent were *Osmunda regalis cristata*, *Lastrea Filix mas Moreri*, and *Polypodium alpestre*. Second, Mr. Carr, who had a remarkably good specimen of *Adiantum capillus veneris*. Third, Mr. Kemp. For nines, first, Mr. Crofton, gardener to A. Marshall, Esq., Kingston Hill, with a fine lot; Mr. Baileys, gardener to the Rev. E. Phillips, with a good second.

PELARGONIUMS.—Mr. Wiggins made a grand display with his leviathan plants, the nine occupying the whole of one end of the tent, and, as they thoroughly deserved, received the first prize, the varieties being, *Maid of Honour*, *Princess of Denmark*, *Royalty*, *Flambeau*, *Cynosure*, *Pericles*, *Alba regina*, *Aimée*, and *Regina formosa*. Six, first to Mr. Head, gardener to F. A. Du Croz, Esq., of Kingston Hill. For nine Fancies: first, Mr. James, gardener to W. F. Watson, Esq., Isleworth; second, Mr. Wiggins. In the collection of fancies, the sorts were principally *Godfrey Turner*, *Cloth-of-Silver*, *Arabella Goddard*, *Ame*, *Rosabel*, *Roi des Fantaisies*. Six fancies: Messrs. Dobson, Isleworth, first, and Mr. Turner second, with fine collections.

FUCHSIAS.—Several good collections were staged. Mr. M'Phearson, gardener to A. Allenby, Esq., Surbiton, was first, with six really good plants; each stood about 8 feet high, perfect pyramids, and loaded with flowers from the base to the apex, the sorts being, *Wiltshire Lass*, *La Crinoline*, *Rifleman*, *Venus de Medicis*, *Rose of Castile*, *Souvenir de Chiswick*; Mr. James, Isleworth, second. In another class for six, Mr. Smith, gardener to W. F. Hoare, Esq., Marlborough House, Kingston, first; Mr. Crofton, second.

Good collections of *Achimenes* and *Gloxinias* were contributed by Mr. Gray and Mr. M'Phearson; variegated and zonal geraniums by Mr. Lowman, gardener to W. Hannay, Esq., Norbiton, and others. Two splendid sixes of herbaceous calceolarias were exhibited by Mr. James, gardener to W. F. Watson, Esq., Isleworth (fine); and Messrs. Dobson, Isleworth, second; Mr. M'Phearson, third, with good plants, though not so large as the other collections. Mr. R. Tanton, first, with three tastefully arranged hanging baskets.

In the FRUIT tent Messrs. Jackson and Son, first, in the collection of eight dishes, with very fine grapes, Sir Charles Napier strawberries, and cherries. Mr. Pople, West Moulsey, first, for dish of black grapes; second, Mr. Rowe, Roehampton; both dishes were fine examples of grape growing, large, well-shouldered bunches, and of first-rate colour. Dish of white grapes: first, Mr. Rowe; second, Mr. Gray, who was first with peaches and nectarines; Mr. Davis, Roehampton, second for the former. Mr. Smith first in all four classes for melons. Capital strawberries were contributed by Messrs. Gray and Breach. The best pine in the tent was disqualified, the other two being so dead ripe, like East Indian pines in appearance, that because this pine was quite fresh and plump, the majority of the judges, with an unaccountable ignorance of what really constituted a good pine, supposed it to be unripe, and a part of a pine took its place, it being destitute of its top. They appear to be determined to have everything at its full maturity, otherwise the first prize for a brace of black spine cucumbers would have been awarded to Mr. M'Phearson instead of Mr. Penfold. Mr. M'Phearson's brace were several inches larger, fine deep colour, and much less in circumference than the others. The dozen cut roses which stood second must be noticed. The schedule states that they must be distinct, whereas this lot was one kind only, and ready to fall to pieces, yet obtained a second. Why were they not disqualified as the rules require?

A very important feature in the exhibition was the dinner table decorations, competed for by ladies only, the competition being very spirited both for the Society's special prize and that offered by the President (W. Hardman, Esq.). Hand bouquets were poor, with the exception of a very tastefully-arranged one exhibited by Mrs. Gordon, The Elms, Hampton Wick. A fine *Monstera deliciosa* was exhibited in fruit by Mr. Hills, gardener to H. Western, Esq., Berwood, Horsham, and a fine bunch of *Musa paradisiaca*. The roses in pots must not be forgotten. Several collections were shown. First for six, Mr. Polley, gardener to G. A. Barton, Esq., Surbiton; second, Mr. James, single specimen; both foliage and flowers were good. For flower: Mr. Gray, first, with an immense plant of *Aphelaxis macrantha purpurea*, four feet through, and a mass of flower. For foliage: Mr. Crofton, first, with a splendid specimen of *Dicksonia antarctica*. A much better appearance was given to the stages by using tape to separate the different collection

instead of chalk as in former years, through a suggestion made in this paper. The different arrangements reflect much credit upon the Secretary, Mr. Kirk, and his assistant, and it is much to be regretted that it has been necessary to call attention to other unsatisfactory points in the course of the report.

WEST LONDON ROSE SHOW.

This exhibition took place at Ealing, on Tuesday last. We regret we cannot speak of it as a decided success, but it was carried out with much spirit, and there were some very good roses, and some excellent collections of plants and fruits shown. It appears that a paper circulating in the district threw cold water on it, and created a prejudice against it, and the promoters were badly supported in consequence. We hope they will have the courage to live down such opposition, and enter upon the undertaking next year with the same or even with increased zeal, and they may be sure they will succeed, for a good flower-show is one of the best of entertainments, not only for horticulturists, but for the general public. Twenty-four cut roses, first, Mr. James, gardener to W. F. Watson, Esq., Isleworth, with *Bronne Prevost*, *Joseph Fiala*, *Madame Charles Verdier*, *Maréchal Vaillaot*, *Madame Boll*, *Princess of Wales*, *Gloire de Dijon*, *Madame Charles Wood*, *Lælia*, *Colonel de Rougemont*, *Prince Csmille de Rohan*, *François Lacharme*, *Souvenir de la Malmaison*, *Paul de la Meillerez*, *Eugène Appert*, *Madame Alfred de Rougemont*, *La Fontaine*, *John Hopper*, *Thomas Rivers*, *Pierre Notting*, *Charles Lefebvre*, *Jules Margottin*, *Monte Christo*, *Céline Forestier*. Second, Mr. Marlow, gardener to J. Wigan, Esq., Mortlake, with *Sénateur Vaisse*, *Maurice Bernardin*, *Rev. H. Dombrain*, *Madame Falcot*, *Elizabeth Vignerot*, *Lord Clyde*, *Model of Perfection*, *Princess of Wales*, *Souvenir de la Malmaison*, *Prince Camille de Rohan*, *Madame de St. Joseph*, *Madame Victor Verdier*, *Baronne Prevost*, *Géant des Batailles*, *Mademoiselle Emain*, *Alex. Fontaine*, *Souvenir d'un Ami*, *Souvenir d'Elise Vardon*, *François Lacharme*, *Gloire de Dijon*, *Mrs. W. Paul*, *Madame Damsizin*, *Charles Lefebvre*, *Comtesse Chabriland*. Mr. W. Soden, gardener to C. Hanbury, junor, Esq., of Brentwood, presented a pretty box of twenty-four. In the class for twelve, first, Mr. W. Soden, with *Madame Willermoz*, *Charles Lefebvre*, *Madame Amelia H. Iphen*, *Princess of Wales*, *Rubens*, *Victor Verdier*, *Jules Margottin*, *Louise Van Houtte*, *General Jacqueminot*, *Gloire de Dijon*, *John Hopper*, *Madame Yeatman*. The first prize for the best twelve Tea and Noisette roses, was awarded to Mr. George Marlow, whose flowers were *Madame Damaizin*, *Julie Mansais*, *Clara Sylvain*, *Souvenir d'un Ami*, *Gloire de Dijon*, *Rubens*, *Goubault*, *Comtesse Ovaroff*, *Madame de St. Joseph*, *Madame Willermoz*, *Madame Falcot*, *Madame Brvy*. In the class for new roses of 1865 and 1866, Mr. Marlow was placed first with *Duchesse de Medina Cœi*, *Dennis Helye*, *Charles Margottin*, *President Mas*, *Madame Fillion*, and *Charles Wood*. The best bouquet of roses came from Mr. Marlow, second, Mr. W. Soden. There was a pretty group of plants in flower, comprising pelargoniums, fuchsias, &c., from Mr. H. Brunell, East Acton. Some good samples of fruit were shown by Mr. A. Fraser, nurseryman, of Aylesbury, Bucks, and Mr. T. Humby, gardener to W. Jupp, Esq., Old Brentford. Mr. Fraser also contributed good samples of English grown lemons and oranges.

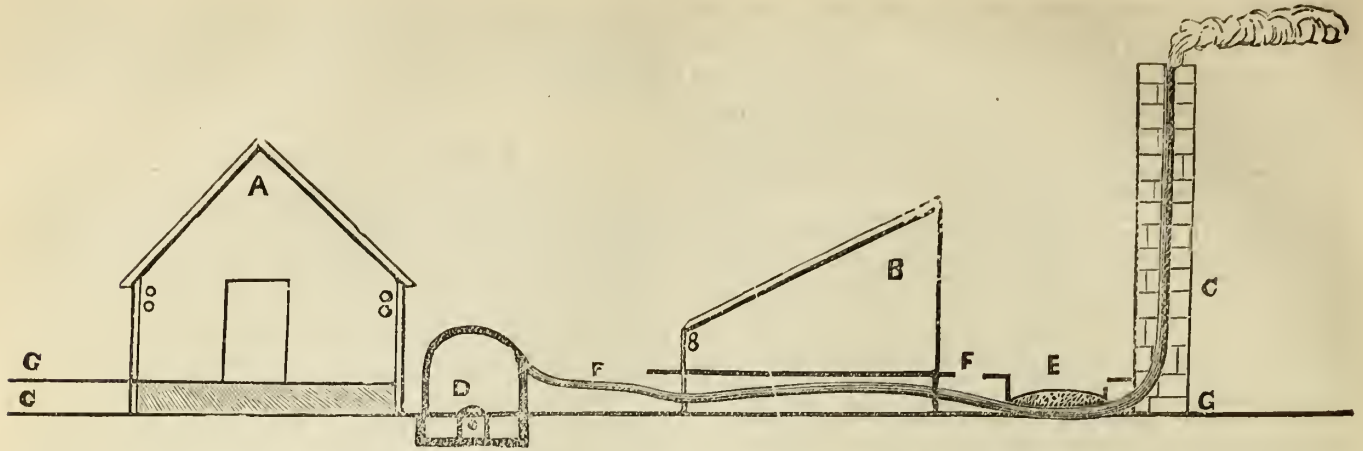
NOTES OF A TOUR THROUGH KENT.

HENSTED PARK, THE SEAT OF THE RIGHT HON. GATHORNE HARDY.

I visited this very superior residence on Saturday, May 11th, in company with a respected friend and correspondent, Mr. J. Staply, to whom I am indebted for the pleasure of a delightful morning walk through a beautiful wooded portion of the above estate, which lay in our way towards the mansion. We entered the grounds by a private entrance on the Cranbrook Road, and at once made our way to the kitchen gardens, where we were soon introduced to Mr. Stalker, the head gardener, who, with the usual frankness and courtesy that it has been my good fortune to meet with everywhere, kindly consented to show us everything that would be likely to amuse us or please us. We at once set out towards the more ornamental portion of the property. In leaving the kitchen garden by a rustic gateway, we at once enter into a delightful portion of the pleasure grounds, with noble and stately trees dotted here and there, and luxuriant banks of shrubs. Standing, as we do now, upon elevated ground, and catching, at every few paces we make, between fine belts of shrubs, views of the distant country, the spot becomes most enchanting; for the more immediate surroundings are diversified by hill and dale, while away farther in the distance, as far as the eye can reach, the scene is one of unusual splendour, with rich and charming valleys and fertile fields, and bold and striking woodland banks, lighting up the scene, until the eye rests with delight upon the distant Kentish bills. But if I enjoyed this view, which I did amazingly, how much more did I enjoy the one from the opposite side of the park from here, where the view, for a broad expanse of country, is second to none I have yet seen in this part of England! But I must not attempt a description further than to say it was rich in subjects and glorious in extent, for as the eye gathered in its focus the more immediate objects, it became a vast panorama of majestic splendour, while the distant objects blended with richness upon the horizon.

Turning our attention now towards the mansion, we find it an imposing and noble structure, surrounded by a well-timbered and an extensive park, while the surrounding country is rich in woodland scenes and luxuriant corn-fields. And in coming again to the private portions of the grounds, we find them designed with taste and in the best of keeping, with a noble conservatory in excellent order, and gay with some choice and good subjects, and a few good ferns in excellent condition, such as *Adiantum cucullatum*, and the old Stag's Horn fern of monster size. I noted also two artificial vases or stands, exquisitely and most tastefully arranged with the more hardy exotic ferns and mosses. Then there were very large specimen plants of the *Aphelaxis macrantha purpurea*, and a host of other subjects, all in such excellent condition as to furnish a ready key to the industry and intelligence of the directing mind.

In the forcing department we saw in the way of plants a choice collection of *Caladiums*, such as *Bellemeys* and others; also a superb collection of ferns, chiefly exotic, as well as some useful ornamental foliage plants. Mr. Stalker had also secured an excellent strain of herbaceous calceolarias from Messrs. Downie, Laird, and Laing. They were superb varieties, both in form and colour. The majority of calceolarias I have seen this season have been so poor and destitute of form, that I consider this case deserving of a remark.



A, Section of cucumber house. B, Strawberry pit. C, Pier of garden wall. D, Boiler. E, Walk. F F, Flue. G, Ground level of house. G G, Ground line.

There is here a continuous range of five vineries. In the early house the first crop was fast colouring, and of a uniform size both in bunch and berry; in the second vinery the crop was equally good, as well as remarkably clean and healthy, and the same remark applies to the other houses. In the third vinery I noticed a fine lot of succession pines for autumn and winter fruiting. In the fruiting pine-stove there was an excellent show of fruit in various stages; and in an adjoining house running parallel to this was a good assortment of generally useful plants for conservatory decoration. Of melons, the Scarlet Gem was swelling off a fine crop of fruit, and successional crops were making good growths, as also were cucumbers in the same range of pits.

I give here a sketch of the end section of the cucumber house, now under repair; also end section of an adjoining range of pits, with the position of the boiler. I do so chiefly to show our young readers how a chimney in connection with the boiler has been dispensed with, as in this particular position the sight of a chimney would be objectionable, and how by a clever contrivance the difficulty was got over. As will be seen, the flue is carried from the boiler (outside), but just under the ground, a little below the ground-level of the houses. The distance from the boiler to the pier of the garden-wall, as shown, is about 24 feet. The flue is then carried up in the pier of the wall, so that no chimney is visible.

As a closing remark, I must just refer to the excellent condition of the bedding plants, which were here in great number and stout sturdy stock. On the walls I noticed excellent crops of both peaches and nectarines, and other fruits.

J. C. CLARKE.

A SELECTION OF VEGETABLES, WITH HINTS ON THEIR CULTURE.

The season is fast approaching when every gardener who cultivates a kitchen garden will be anxious, as each plot of ground becomes cleared of the summer crops, to fill up the same with those plants that are needed to supply the kitchen with vegetables during the winter and early spring months. To those who have not a yard of ground too much for complying with the requirements of the household, we would say—and especially to young gardeners so situated—do not, by way of experiment, attempt to plant too many plants of any kind of vegetable with the habits and productive qualities of which you are not well acquainted. The descriptions of new things in the seedsmen's catalogues may be correct, but then situation, soil, and other collateral circumstances may not be favourable to their yielding properties, so that with such varieties it is best to only plant a small breadth, and thus test their worth, with a view to their adoption, if desirable, in future seasons. I have often thought, in the desire to avail ourselves of favourable weather for planting, when we have had a piece of ground vacant, that we have not always well thought over the arrangements of our crops previous to planting. I have seen a border alongside of a wall, to some extent, planted entirely with Brussels sprouts and other kinds of vegetables of a robust constitution. This practice is decidedly wrong in principle, because such vegetables are gross feeders on the soil, and grow very rapidly in moist seasons, thus depriving the ground on which they are planted of a deal of its nourishing materials, and proving injurious to the trees which are planted against the wall, so that it is no matter of surprise to witness the inferior and scrubby growth presented by many of the trees planted against walls in various parts of the country. This, I am certain on investigation, may be traced to the cropping of the border year after year with luxurious-growing vegetables. As these borders are generally formed with a gradual slope towards the pathway, they thus quickly and naturally drain themselves in wet weather. This, then, is an advantage which is favourable to the preservation of the dwarfed kinds of vegetable products, which are so liable in cold wet soils to canker or rot off in the stem during the winter months, such as lettuce, endive, &c. If necessity compels you to use the

fruit borders for the growth of the larger sorts, then let your selection be confined to the dwarf and more tender varieties of broccolis. Where you are somewhat pressed for space during the earlier period of planting, it is better to always prick out a few over the required number of each kind of plants into nursery beds as soon as they are fit, as by such practice you are enabled to wait a little longer time, till in due order your summer crops are all cleared away, because the operation of planting them first in nursery beds keeps them dwarf and robust, whereas, if allowed to remain in the seed bed till the period of planting commences, they in many instances become tall and weak, and very many of the broccoli plants will become blind; besides, it encourages the formation of club roots. Although this practice entails on us a little extra trouble at a very busy season of the year, yet we are more than twofold repaid in the future.

We cannot, where we are expected to furnish the table with plenty of greens during the winter, do better than plant plenty of that very hardy borecole the Cottager's Kail. It thrives well if planted between the rows of dwarf trees, such as gooseberries, currants, &c. Then again, of that old popular variety known as Scotch kail, the tall kind is the best. When planted out rather early, it will produce some extraordinary heads, which are very acceptable to cut from in severe frosty weather, after which their strong stalks will yield an abundance of sprouts till late in the spring, if needed. These are the only two varieties among the list of hardy kails that I would recommend for general culture.

Brussels Sprouts.—Not half enough of this delicious but profitable vegetable is cultivated in our gardens. Their hardy constitution makes them very desirable. Their heads are about their tenderest part as regards constitution, and should be cut in the earlier part of the winter months, as wet and frost cause them very often to rot. The Roseberry variety is a very tall grower, and a great favourite with me on account of the abundance of sprouts it yields. Though some of the dwarfed kinds afford very large and compact sprouts, yet the former for general use is the most preferable where space is limited. Many when gathering the sprouts are apt to tear them off, or rather pick them with the thumb and finger. Now, if you wish for a continuous supply of sprouts from the same plants, you may ensure them if, when gathering, you cut them off with the knife, leaving as much of the stalk of the sprout as it will give. By this means you will have three or four sprouts instead of one as originally. This vegetable is always acceptable at table on account of its delicious flavour.

Of *Broccolis* there are but very few, in regard to quality and hardiness, to surpass many of the older varieties that have been familiar to our gardens for more than one generation. It is true that in the extreme southern parts of England many of the newest sorts attain the very highest state of perfection to which the broccoli can be grown. Yet, where we have no ground to afford for experiment, let us still confine our planting to such kinds as the Brimstone or Portsmouth for early spring use. Knight's Protecting is a very hardy sort, requiring less room for its growth than the former. Then Grange's Early White Cape is a very valuable broccoli, as in favourable seasons it will continue to produce nice heads till Christmas. There is another good hardy sort which no winter, however severe, will destroy; that is Miller's Dwarf Hardy. This does not require more room than a foot from plant to plant, and they produce nice white heads late in the spring. The principal objection to this variety is that nearly all the heads are fit at one time for table, so that it is a waste of ground to plant many. But for market growers the ripening of the whole crop at one time is perhaps an advantage. We must not forget that very useful broccoli the Purple Sprouting, and the old established variety of this is far better than a few new ones that have been described as superseding it.

JOHN F. M'ELROY.

PARIS UNIVERSAL EXHIBITION, 1867.

(From our own Correspondent.)

No. III.

I continue to attend flower shows until I am giddy and weary, but more than all, distressed that I cannot send you reports worth printing. The fact is, looking sharp as you do after English exhibitions, you really don't need to be kept strictly informed about French ones, for they are inferior to such as we are accustomed to in England, and furnish but few useful suggestions to experienced habitués of floral gatherings. Before I sat down to summarize what I had seen at exhibitions lately, I turned aside instead into the department of silks and silk fabrics (Group IV., class 31), where I spent the whole of yesterday making a careful study of the numerous and valuable examples of dressed and undressed silks. To tell you that the Italians and the Christian inhabitants of the Turkish dominions show themselves to be expert in the cultivation of silk would be superfluous information, and I might be reminded that the subject was just beyond the domain of horticulture. But I must tell you I have seen samples of the silk from the Ailanthus worm and the Japanese oak-worm, in the collections from Signor Filippi of Clavesana, and in the collections from Gallizia of Turin, Bozetti of Milan, Conti of Milan, and P. Gavazzi, who was one of the first to encourage the introduction of the new silk-producing moths into Italy. I should probably have made some very learned notes about these things, but I happened to fall into conversation with M. M. Palluat and Piquefen on the subject, and as we were all in a rather mutually communicative and inquiring mood, I told them I was anxious to know something about the produce of the new worms, the more especially as there was a bit of a rage for their cultivation in England. I will not pain those of your readers who believe in the Ailanthus silkworm by repeating any of the deprecatory language employed by these practical men, when informed that English cultivators of silk were still hopeful as to ultimate results. We got very warm upon this subject at last, and gathered a few statistics from head-quarters, and found that in the best

can get fruit, whereas, the most fruit-loving birds will quit the orchards and settle amongst the silkworms; and it costs as much as all the silk is worth to keep the birds in check. In every respect, then, these worms are unfitted for the English climate, and the profitable cultivation of silk in England must be looked upon as an impossibility. A Mr. Mason, of Farnborough, has sent a nice sample of English grown silk; it has been very skilfully prepared for exhibition.

I could repeat all the praises I have lavished on the gardening at the Exhibition. Billancourt is a dead failure; not so the gardens in the park, and the reserve garden, and the central garden, which are all now in beautiful trim, and present the most varied scenes and effects. No English horticulturist possessed of catholic tastes will regret a visit to our great Exposition, if it be only to see the plantations and rockeries, and other special features illustrative of horticulture proper, and of landscape gardening. I have made a sketch of the central, or inner garden, to give you some idea of the style in which this is embellished, and which you will observe is in the so-called "sub-tropical" manner. They have new planted out in this favoured spot, which is sheltered from wind on every side, quantities of Yuccas, Cannas, Dracenas, Caladiums, Wigandias, and Ricinus, with things yet more choice than those, extending even to big Palu-trees, and other of the most costly fine foliage subjects. The colouring is quiet but rich, but it is to form they have trusted most for that artistic repose and refinement which is essential to the scene, and which I am happy to say has been perfectly secured.

That you may not conclude me to be idle, I must tell you that I went to the Imperial farms to witness the trial of mowing machines, and only failed to report thereon because there was no trial; the weather was bad, and the grass quite unfit. "Grass," I say, but I mean weeds. I could not see any grass, but plenty of docks, dandelions, and nettles. I am told that the trial will take place in earnest shortly, but I simply don't believe it; but if it does happen, it can be of no use, for the ground is quite unfit, and the competition will be tame. If any betting takes place—and the French let me tell you, are becoming as fond of betting as the English, and, therefore,



PARIS UNIVERSAL EXHIBITION, 1867.—THE CENTRAL GARDEN.

parts of Italy the produce of the Ailanthus worm in the very best seasons had not exceeded in value at the rate of 20s. sterling of English money per English acre. M. Barré, who joined our party soon after the conversation began, jocosely suggested that the worms ought to be waterproof for the English climate, and with great *éclat* pronounced it needful they should wind off their own cocoons. Having had some practical experience in silkworm culture, I was not at all surprised to hear that the cocoon of the Ailanthus worm is a troublesome thing to deal with, and requires an altogether different treatment to that adopted in winding off the mulberry worm. The vice of the Ailanthus worm is that it does not spin a continuous thread. As to the success of this worm in England, you will be able to form some idea when I tell you that the most experienced silk growers consider the climate of the south of France and Italy not good enough for it. Last year was a very bad year, but 1865 was good. The worms are heavy, sluggish, helpless things, and during stormy weather they get blown or washed off the trees, and never get up again. M. Dumas, who travels much as a buyer of silk, assures me that he has solemnly made up his mind not to buy any of the alanthus or oak-worm silks until the last hank of mulberry silk is sold; for, says he, with a shrug of the shoulders, "I do not buy silk for myself, but to sell again, and these coarse silks are unfit for any market but such as fools assemble in." A curious circumstance in connexion with the introduction of these worms is, that their very existence is in a great measure dependent on the extermination of birds, and it is the preservation of birds that observers in natural history, together with all farmers and gardeners, are interested in. Wherever these new worms are grown birds must be kept down by poison, trap, and gun, for they find out the plantations and swarm to them to gobble up the fat lazy caterpillars to become fat and lazy themselves. Here is a new argument, however, to hurl at those thick-headed people who insist that birds will not touch insects while they

as likely soon to come to ruin—I shall back Wood's American machine against all others with a certainty of winning. I have paid some attention to the grasses which prevail in pastures and lawns, and I think I may venture to say that the French are in just about the same phase of undeveloped Acrostography as we were before Sinclair began his grass garden at Woburn; when, in fact, one kind of grass was supposed to be as good as another, and poisonous herbs were cut with the swathe, and no one thought it a matter of much consequence if half the field consisted of hemlock or ranunculus. There are good pastures to be sure, but not yet can it be said, respecting the growth of grasses and the making of hay, "they do these things better in France," for the truth is they don't, nay, nor a third part so well.

METEOROLOGY FOR MAY.—(Pencailland, East Lothian, N.B., 284 feet above sea level.)—Therm.: max. 70°; min. 25°; range, 45°. Sol. max., 82°. Grass therm. 21°. Barom.: high. 30.02; low. 29.25; range, 00.77 inches.

Rain-fall, 2.03; in 1866, 1.10; in 1865, 5.60; in 1864, 2.10; in 1863, 1.40; in 1862, 3.17; in 1861, 0.80; in 1860, 0.60 inches.

On the 14th, the min. therm. stood at 25°, being 7° of frost; and the grass therm. 21°, 11° of frost. Considerable damage to vegetation; potatoes blackened, bursting buds on beech hedge and fern leaves killed, shoots on the pines nipped. The centre of the bloom of the strawberry blackened, and a great deal of damage to geraniums and other plants in the bedding-out garden. 21st: Hail showers, and on the Lammermuir Hills, highest point 1,716 feet, snow fell sufficiently to indicate its very distant.

Tyneholm, June 4, 1867.

TREVELYAN, J. P.

SOME BEAUTIFUL TREES AT BEAUPORT, THE SEAT OF J. BRASSEY, ESQ., NEAR BATTLE.

Beauport, the seat of the late Sir Charles Lamh, is so well known in the horticultural world as offering attractions of a superior order to lovers of beautiful trees, that the mention of the place will revive to many pleasing reminiscences. It is pretty generally known that the late worthy and enthusiastic proprietor not only devoted much of his leisure time, but also expended yearly large sums of money on the embellishment of the park and grounds with all the rare and beautiful trees that were introduced to this country.

It was to inspect these grounds, and collect at the same time some notes and information of this extensive collection of hardy trees, that I specially made my way to Hastings, and from thence to Beauport, which lies about midway between Hastings and the ancient town of Battle. On arriving at the mansion, Mr. M'Bean, the intelligent foreman (who, I may take the liberty to state, has been there thirty years), kindly offered to show me all I desired to see; and in drawing upon my notes I shall take them in the order they were made on the spot.

Starting from the steps of the flower garden, on the eastward front of the mansion, a glorious scene presents itself—a fine open space of ample width, looking through a mighty bower of large trees down far away into the distant valley, with various tints of foliage of extraordinary cheerfulness and variety. Such a scene cannot be met with in any other part of England. As we stand here admiring the many magnificent specimens of choice and beautiful trees within view, and the changing and ever-varied hues of the different varieties of foliage, we lift the eye to scan the distant country, when in the distance we observe the sea-shore, known on that part of the coast as Dungeness. From this same point, too, there is on a clear day a fair view of the coast of France. The scene here is indeed a rich one for those who can appreciate perfect harmony and judicious planting. The many beautiful combinations secured on this lovely spot, by the exercise of skill and taste in arranging the various trees and shrubs which make up the scene, speak much for the good taste and superior foresight of the designer. To give the reader an idea how varied are the effects, and how valuable the collection, I will now notice some of the subjects which especially interested me. On the left, about twenty yards from where we stood, were two magnificent specimens of the Cedar of Lebanon, *Cedrus Libani*, and next these, in the same line, was a noble *Cedrus Deodara*; the dimensions of the *Deodara* are as follow: height 46 ft., diameter of branches 36 ft., girth at three feet high 6 ft. 2 in. These trees are hacked by a variegated plane and other large trees, such as oaks and heeches, towering far above them. Following up these two lines on either side by well-defined outlines, there are Irish yews, arbor-vites, rhododendrons, and the graceful single pink and double flowering thorns, *Crataegus oxyacantha* vars. in abundance. Farther on, as the distance increases from the house, is a grand scarlet-flowering chesnut, *Aesculus rubicunda*, standing out boldly in the foreground, and making quite a striking feature, giving variety and character to the scene. This spot is still more enriched by the graceful drooping branches of a copper beech, *Fagus sylvatica cuprea*, hard by; while on the opposite side are good examples of *Cupressus* in variety, some from 9 ft. to 10 ft. high. The background to these extends far away in the distance, increasing in beauty and adding variety to the scene. Leaving this spot, and turning our footsteps in a more northern direction, we come upon another superb *Deodar*, 46 ft. high. Near this, and in a most luxuriant condition, is the Swiss Stone Pine, *Pinus cembra*, with its almost scarlet-like flowers at the base of the new growth peeping up in the most erect manner above the foliage, giving a very pleasing effect; this plant is 30 ft. high, and 3 ft. 6 in. girth. Of *Cupressus torulosa* there are but few to compete with the many large plants here. I noticed one especially, before we had gone far into the park, over 20 ft. high, a noble plant. Of weeping subjects perhaps the most graceful and effective were the silver birches, *Betula alba pendula*, as they stood on the edge of a charming dell; or as some more noble and favoured tree stood out with plenty of space for extension, their slender branches dipped gently down in most graceful attitudes, presenting a fine contrast to the more rigid and formal characters of our English oak. Then there was that majestic-growing subject the *Pinus ponderosa*, 36 ft. high. Of the superior specimens of *Pinus Douglasii*, which are here in strong force, the following dimensions of the largest tree will give the reader an idea of their imposing character: height 66 ft. 6 in., girth 6 ft., diameter of branches 39 ft.

Of *Araucaria imbricata* there are some of the finest in the kingdom, and in such numbers as I have not yet anywhere else met with, as there are no less than three hundred, averaging from 14 ft. to 40 ft. in height, the highest plant being 41 ft. in height. I thought this one a superb specimen, as it was very evenly furnished from top to bottom, but soon after I lighted upon another, the stem of which could not be seen at ten paces from the tree except about two feet of the leader at the top; from this point down to the ground the branches were so dense and symmetrical in outline that not a particle of stem was visible. This specimen is 38 ft. 6 in. high, girth 4 ft. 1 in. at three feet from the ground, diameter of branches 23 ft. For beautiful outline and density of growth this tree surpassed all the rest. I met with that scarce variety also here, *Araucaria lanceolata* (or *Cunninghamii*, as it is sometimes called), but it was evidently not at home here, as it is in a very sickly state, which was quite an exceptional case, as I saw nothing else but what was most vigorous and healthy, which speaks wonders for the fertility of the land, as the fact that everything here escaped the severity of last winter's frost does for the suitability of the position for valuable and somewhat tender trees. But the distant reader must not be misled by these statements, because the grounds of Beauport are perhaps the most favourably situated of any in this country for the growth and cultivation of all choice hardy plants, and more especially those of doubtful hardiness, standing as it does (about midway) on a ridge of hills that extends itself to the eastward down to the sea-coast, and to the west on to the town of Battle; it enjoys such an immunity from all impure atmospheric influences as to render it at once the position of all others that would be likely to be conducive to a vigorous and healthy vegetation. This fact, taken in connexion with the statement above made, that the soil is of a fertile character, and naturally well drained, must prepare our readers for the success that has attended the cultivation of the trees here named.

Referring again to my notes, I have *Pinus Nordmanniana*, a beautiful subject for a prominent position; the specimen under notice is 30 ft. 6 in. high, girth 2 ft. 6 in., diameter of branches 14 ft. Then we have another magnificent subject, the *Cupressus macrocarpa*, upwards of 50 ft. high.

This was a striking feature, and the best specimen I have yet seen. Of *Wellingtonia gigantea* there were many excellent plants, the largest measuring 23 ft. 6 in. in height, girth 3 ft. 5 in., diameter of branches 25 ft. This was 2 ft. high when planted in 1859. The rate of growth of the leader, therefore, must have been about 3 ft. annually. The next six are 18 ft. in height, from which they vary down to some considerably smaller. I noted also that fast-growing conifer *Pinus Menziesii*. This was 64 ft. 6 in. high, but straggling in habit. There was also here another *Pinus Douglasii*, towering up to the height of 66 ft.; this is a grand and an imposing tree. One of the best habited *Pinus insignis* I have ever seen is here, standing in the grounds near the carriage entrance to the house; its height is 37 ft., girth 6 ft. 5 in., diameter of branches 40 ft. It was planted in 1840, and was then 6 in. high. Near here was the beautiful fern-leaved beech, *Fagus sylvatica heterophylla*, and many other choice and rare things, including some fine varieties of rhododendrons, araucarias, copper heeches, the flowering ash (*Ornus Europaea* and *O. Americana*), and a host of other equally interesting subjects. There, too, was *Abies Braziliense*, close and compact, 5 ft. high; and also *Pinus morinda* (*Abies Smithiana*, *A. Kurotzu*), 36 ft. high, in fine condition, as was also *Cryptomeria Japonica*, better than usually seen. The height of this plant is 29 ft., diameter of branches 25 feet, girth 3 ft. 6 in. The greatest curiosity amongst deciduous trees is a marvellous fern-leaved oak, *Quercus filicifolia*; it has been planted twenty years, and has only grown to the height of 5 ft.; the diameter of the branches does not exceed 10 ft., and the girth 6 in., with a flat top in the form of a bush. In this part of the grounds the most telling subject, as looked upon from the distance, is the noble pine, *Pinus nobilis*. It is dense in habit, dark in foliage, with an erect and noble bearing, and altogether a magnificent plant; its height is 32 ft. 6 in., girth 2 ft. 7 in., diameter of branches 13 ft. Near here was also *Picea Cephalonica*, towering up to the height of 29 ft., while a little farther to the right is *Pinus Webbiana*, with its young dark purple cones peeping up erect above the leaves. This is a superb species, very effective and grand in its bearing, and worthy of extensive cultivation where trees of character are required; the height of the plant under notice is 26 ft. 7 in., girth 3 ft. 2 in., diameter of branches 18 ft.

In the above list I have only attempted to notice some of the most effective and largest trees that are to be seen here, as there is perhaps a larger collection of hardy trees and shrubs in this place than in any other private garden in this country. When I say the largest, I mean principally of the more choice and rare kinds; and these, he it remembered, are so judiciously distributed, that any one going with a view to see them finds that the interest never flags, for in every part of these extensive grounds we were ever and anon coming upon something curious or rare or beautiful. But the time is at hand when this extensive and valuable collection of trees will require the attention of some interested person, as the beauties of many of them are already partially shut out from view by the surrounding trees and undergrowth, and as these were evidently planted with a view to shelter and protect the more choice ones, the time is coming when they will require to be gradually taken away, to give room for the fast extending branches of the many beautiful trees with which this place abounds; and sincerely do I hope that the litigation in which the estate, I am told, is involved, may not be the means of preventing this being done. So great was the love of trees in the mind of the late Sir Charles Lamh, that every available position is occupied with them; indeed, to such an extent, that the disposition of the ground cannot now be seen to advantage, and the character of the park, as a natural consequence, is becoming heavy and monotonous; the open glades and green slopes are hidden from view. There is a great want of relief from the overpowering richness of the planting, and it is only at wide distances that the beautiful fertile valley below can be seen.

I truly enjoyed the few hours I spent in this beautiful park, and there was only one circumstance which tended in any way to mar our pleasure, and that was the absence of the respected head-gardener, Mr. Streeton, who is busily engaged superintending the making of a new garden some four miles distant, where the present occupier of Beauport, J. Brassey, Esq., has bought a new estate, but which time did not permit me to visit, though I hope some day to do so, and report. J. C. CLARKE.

ON THE ORIGIN OF TRICOLOR-LEAVED PELARGONIUMS.

PAPER READ BY MR. GRIEVE, GARDENER AT CULFORD HALL, NEAR BURY ST. EDMUND'S, AT THE SCIENTIFIC MEETING OF THE ROYAL HORTICULTURAL SOCIETY, MAY 21.

The cause or causes of variegation in the leaves of plants, including, of course, the pelargonium, are as yet, I believe, unknown; consequently, no means could be successfully used to produce it; but when from some unknown cause it spontaneously developed itself in an individual plant, then in accordance with the law or doctrine of hereditary transmission of qualities, little difficulty is experienced in inducing it to reproduce itself in succeeding generations.

The chemical or other changes, however, which must take place in a plant to induce its foliage to become variegated, present undoubtedly a very interesting subject for inquiry, and one worthy, it may be supposed, of the attention of the vegetable physiologists. I have at different times consulted various authorities upon this subject, without, however, being much enlightened thereby. Doctor Hope says:—"That there is in plants a colourable principle consisting of two separate parts, one of which forms a red compound with acids, while the other forms a yellow with alkalies." And he attributes the green colour produced by the latter to the mixture of the yellow matter with the blue infusion. The two principles, according to him, may exist together or separate, in different parts of the same plant.

Dr. Balfour also says:—"The whitish or brown spots which occur on the leaves are often produced by thickened cells containing peculiar colouring matter underlying the chlorophyll cells. In such cases variegations might be traced to an alteration in the epidermal cells, and the same is true of certain bright colours assumed by the surface of some leaves."

With regard to the leaf of the tricoloured pelargonium I have sometimes been inclined to think that the zone undergoes no change whatever when the leaf becomes variegated, or yellow margined, and notwithstanding the fact of red being one of the primary colours, consequently, according to theory, cannot be produced by any combination of colours. But covering, as the zone does, the junction of the yellow margin with the green disk, or centre of the leaf, we find that whatever part of the zone rests upon the yellow appears bright red, while the portion which may rest upon the

green part of the leaf retains its normal or brown colour. The question now is, how is this red colour produced? For my own part, I too hastily jumped at the conclusion that the brown and yellow had produced the red; but this, according to the theory of colour, could not have been the case. So I must leave the settlement of this interesting question to those whose scientific knowledge may qualify them for the task.

Before proceeding to what was intended to have been the principal part of this paper—viz., the furnishing what little information I could as to the history of the tricolored Pelargoniums—I may notice a defect incidental to the Silver tricolored section, but without being able, I am sorry to say, to suggest a remedy. I alluded to the cupping, or crumpling of the foliage, more particularly when the varieties are cultivated in the open air, and if the weather is at all cold and wet. This crumpling appears to be caused by the fact of the white or colourless margins being unable to expand in proportion to the growth of the green, or central part of the leaf, consequently cupping or crumpling is inevitable; and very possibly this deficiency of expansive power in the white margins of the leaves may be attributed to the nearly entire absence of chlorophyl, or the green colouring matter; and that this defect does not in any way apply to the yellow-margined varieties may be accounted for by the fact that their yellow margins are not entirely destitute of this principle.

Some twenty years ago there were, I believe, but few varieties of variegated Pelargoniums in existence. Of these the two best fitted for the purpose of bedding or massing in the flower garden were a sort known as Variegated Nosegay, and another called Mangles' Variegated Nosegay. Of the origin of the first named I know nothing. Of the latter I have heard that it was obtained by the late Captain Mangles as a sport from a green-leaved variety. This sport is well adapted for the purpose of bedding, and is still, I believe, extensively used for that purpose. The two varieties named above were both silver-margined sorts, with Nosegay, or very narrow-petalled flowers. The only golden-margined sort of any merit was the variety known as Golden Chain, and of its origin I am also quite ignorant, but I have been informed by an old gardener that he recollected having grown it along with a collection of stove plants nearly fifty years ago.

But somewhere about seventeen or eighteen years since the horticultural world was somewhat startled by the announcement of a Scarlet Pelargonium, having broad-petalled flowers and variegated foliage. This proved to be the celebrated and now well-known variety called Flower of the Day, and I believe that we are indebted to Mr. Kinghorn for the introduction of this forerunner of a highly ornamental race of plants. This variety was soon followed by others of increased merit, the production, I believe, of more than one successful raiser, amongst which the names of Lennox, Elphinstone, &c., deserve to be mentioned.

Amongst these new introductions the beauty of several varieties was greatly enhanced by having, in addition to their silver margins, a well-defined red or pink zone, well defined and exceedingly beautiful when the leaves were in the early stages of their development.

These varieties, combining as they certainly did three distinct colours in their foliage, may with propriety be designated as the forerunners of the silver tricoloured race. And to Mr. Kinghorn, I believe, belongs the credit of having originated the first of them, and the variety was, I think, named Attraction.

About the year 1855 or 1856 I had succeeded in originating several varieties which were considered as advances on their predecessors, the best of which, however, was the variety named Italia Unità, which in its class is perhaps unsurpassed. And about the time stated above it occurred to me that similar improvement might possibly be effected in the golden-margined varieties, which at that time consisted only of Golden Chain, and I think one or two other sorts inferior to the sort named. But at all events I confined my experiments to the variety I have named (Golden Chain), and after trying many experiments, many of them resulting in failures, I at last succeeded in originating two varieties which were considered as worthy of being distributed under the names of Golden Tom Thumb and Golden Cerise Unique.

These were succeeded by Gold Pheasant, which was also in its turn eclipsed by the variety known by the name of Sunset. And in the following year I succeeded in raising the now well known variety, Mrs. Pollock, which was succeeded by Mrs. Benyon, Lucy Grieve, and lastly Lady Cullum, which is now being distributed by the Messrs. Henderson, and about which variety it is quite unnecessary to say that it will be sure to prove a public favourite. The great desideratum in a variegated pelargonium is a vigorous constitution, and consequently the power of rapid increase by cuttings. And this quality is possessed in an eminent degree by the variety last named, and in a still greater degree by the variety which I had named Queen Victoria, which I consider to be in all respects the best I have ever raised, and on that account took the liberty of giving to it the name of her gracious Majesty. But since doing so I find that I have been forestalled, as the name appears to have been already assigned to another variety; but I think that I may still adhere to the name in the slightly altered form of Victoria Regina.

Soon after the introduction of the variety named Mrs. Pollock, the attention of other cross-breeders appears to have been directed to this subject, and the consequence is that the number of tricolored pelargoniums may now be said to be legion; and growers have ample opportunities of selecting and adding to their collections varieties of the greatest merit, including, of course, habit of growth, quality of bloom, &c.

I have recently given the pedigree of the variety Mrs. Pollock. All the Golden Tricolor Pelargoniums which I have originated have descended from Golden Chain. I have also at various times tried sundry experiments with the variety called Mangles' Variegated Nosegay, without having been very successful. It is a sort which did not produce pollen freely, nor did it seed freely when fertilised by the pollen of other varieties; and even when it does appear to ripen seeds, they very frequently refuse to grow. I have, however, succeeded in raising a few seedlings from it, and one of them is known as Stella variegata, and was produced between a seedling Nosegay variety (raised from a very strong growing sort known as Mrs. Vernon), and Mangles' Variegated Nosegay. This variety (Stella variegata), greatly resembles sports which have at different times, and in various localities, been obtained from Beaton's Stella, although their origin, as I have endeavoured to show, is entirely distinct, and their flowers, it will also be observed, are of a different shade of colour.

Last year I fertilized blooms of a small-leaved seedling Nosegay sort, with well-defined zones, and which has been named Blackband, with pollen taken from Stella variegata, and one of the results is the Minimum variety, with very white leaf margins, which has been named Minnie Warren.

Some years since, on the introduction of some of the better sorts of the white-flowered zonal varieties, such as Madame Vaucher, White Tom Thumb, &c., all kinds having well-defined zones, it occurred to me that if sorts with foliage similar to Mrs. Pollock, Lucy Grieve, &c., could be induced to produce pure white flowers, that it would be a very desirable acquisition. And I immediately set about experimenting in the matter, but found the process to be much slower than I had at first calculated upon; and I fear that if I were to attempt to describe all my experiments and failures, that it would justly entitle my paper to be considered as tedious and lengthy, if it be not already entitled to that distinction. But suffice it to say, that in four generations I succeeded in producing plants having golden tricolored foliage, and also in producing pure white flowers, but unfortunately accompanied by an exceedingly feeble constitution, and apparently a strong determination to leave this world as soon as they conveniently could, and which most of them succeeded in doing; still I managed at the same time to persuade a few of them to live, and one of them is now before you; it is named The Ghost, as it is only the ghost of what I wished it to be. But the first two points had been gained, viz., tricolored foliage and white flowers; and the third point only is wanting, and that is vigour of constitution; and the first step towards that point is, I believe, successfully taken, and the proof of which is now before you in the variety named Eva Fish.

Two principles, it will be observed, had been active in tending to enfeeble or debilitate the constitutions of the white-flowered and golden tricolor race; that is, variegation itself, which always tends to diminish the vigour of any variety; and also what is called the "in and in" system of breeding, which is known to have a similar effect in the vegetable as well as in the animal kingdom. And the method I have adopted to throw fresh blood, as it were, into the race is as follows, and as far as I can judge at present, I think that it is likely to prove successful:—

I selected one or two strong-growing, silver-margined seedlings, having very light pink, or nearly white flowers; these I fertilised with pollen taken from Madame Vaucher, White Tom Thumb, and some other green-leaved, white-flowering sorts. Most of the progeny proved green-leaved; a few, however, showed variegation; but I selected a few of those which showed no symptoms of variegation whatever, and when they bloomed they nearly all proved to have white flowers, and these I fertilised with pollen taken from the variety named The Ghost; and the result of this cross is the plant named Eva Fish, and one or two other promising seedlings, which I have little doubt will produce white flowers.

It would appear that because the hand of Science has not directed such experiments as I have endeavoured to record above, scientific men hardly feel inclined to assign to the rough and ready cross-breeder the amount of credit which he may possibly consider as due to his exertions. Professor Morren, in treating upon this subject, says that the cause that operates in the production of such varieties as Mrs. Pollock, Sunset, &c., is a multiple or complex one; and draws attention to the apparent diversity of the origin of such plants, and to the simultaneous appearance of similar forms in different localities in England, in France, and in Belgium. Now, all this I believe to be incorrect, and to be an instance of conclusions being arrived at without trouble having previously been taken to ascertain the facts. I believe, in common with most growers and raisers of these plants, that no Golden Tricolored Pelargonium deserving of the name existed antecedent to Mrs. Pollock and Sunset; and if any similar varieties originated simultaneously, either in this country or on the Continent, let me ask where they are to be found, or what has become of them? M. Morren further says:—"These varieties are not the result more or less directly of man's agency, nor of this or that operation of the cultivator, but they are the indirect but inevitable natural and spontaneous consequences of the mode of development belonging to the species when grown under artificial circumstances, &c." Possibly we may be told some day that St. Paul's Cathedral was a spontaneous production, independent of man's agency, &c.; and some, perhaps, may be found to believe it.

For my own part, I believe that the pelargonium is grown at present under much the same artificial circumstances as it was grown a hundred, or, possibly, two hundred years ago; and our great-grandfathers might have enjoyed the luxury of hedging-out tricolored pelargoniums in the summer of 1767 in precisely the same way as their descendants are doing at the present time, had their tastes led them in that direction, and if the idea had occurred to them to use the means at their command.

As I have said before, I believe that the cause of variegation is unknown, and consequently cannot be produced; and the cross-breeder does not for a moment presume to say that he can control Nature. All that he can do is to watch her closely, and when he perceives her in the least degree inclined to tread the path he wishes her to pursue, he can as it were smooth that path and render it as inviting as possible. He may, perhaps, even go a little further, and policeman-like touch her gently on the shoulder, and respectfully request her to move on. More than this he cannot do, for what the poet has said with regard to nature's fairest production will also apply to nature herself—

"For if she will, she will, you may depend on't;
And if she won't, she won't; so there's an end on't."

I have stated that the pedigree of the pelargonium Mrs. Pollock has been made public. But as some who may read this paper may not recollect the particulars, the seed parent of Mrs. Pollock was Emperor of the French, and the pollen parent Gold Pheasant. The seed parent of Gold Pheasant was also Emperor of the French, and the pollen parent Golden Tom Thumb. The seed parent of Golden Tom Thumb was Cottage Maid, and the pollen parent Golden Chain.

As to the parentage of some of my seedlings of the present and last years, I am unable to give any information, as in most instances both parents were themselves seedlings, and many of them have not been preserved.

MUSHROOM GROWING IN LIGHT OR DARKNESS.

The quality of the forced or artificially produced article is very inferior, indeed, to the natural production from the pasture and the sheep-walk. The former is generally brown, hard, and leathery; the latter snowy white, soft, and crisp. It lacks, too, the delicate pink colour of the gills and fragrance characteristic of the field mushroom. As to flavour and digestibility, we will not institute a comparison. We are told to study nature, because nature is a friend to truth. Do we do this in the cultivation of the mushroom? Are we altogether right in consigning the mushroom bed to the dark shed or cellar? or still further excluding light by the conventional covering of straw or musty hay—the latter, at least, neither adding

to the flavour or aroma of the produce? Who in quest of the genuine wholesome article would go seek for our favourite *Agaric* in the dark shade, or among the long, dank grass? Would he not, even if found in such a situation, reject it, and turn his steps to the comparatively bare upland pasture, or still more closely-cropped sheep-walk, fully exposed to all the vivifying influences of air, heat, and light? The best forced crop of mushrooms we ever saw was at a place in a southern county. The shed was made quite flat on the floor of a shed, the roof of which had a very small pitch, and supported only by a couple of slight iron columns. The shed was also fully exposed on two sides; consequently there was abundance of air and light. At the time we saw it the shed was without any covering whatever, but we cannot say, for we did not inquire, if it had been always so. Again, the most extraordinary crop of field mushrooms, as well as the most beautiful in appearance, and doubtless delicious in flavour, we ever met with was on a very elevated plateau in the Co. Wicklow, more than ordinarily exposed to all those influences from which we take pains to exclude our artificial plateaux for the growth of this much-prized esculent. Is our practice of the exclusion of light, and growing them in dark sheds or cellars, merely conventional, because they will grow without the former, and in any out-of-the-way place like the latter? We rather think it is. In the absence of that all-important element, and in such places, they can, as said before, be produced in quantity, but—and this is the point we venture to throw out for the consideration and test of our practical friends—subjected to the influence of light and the situation improved, would not perchance the quality be also improved, so as to approximate more closely to that of the delicious produce of our pastures? Even as regards quantity of produce, there may be some doubts of the correctness of our practice; for though darkness is generally favourable to the growth or extension of the mycelium of fungi, it is by no means so to the development of their fructification. We may be wrong, but one day or other cheap glass and double glazing, we fancy, will do something in improving the quality of forced mushrooms.—*Irish Farmer's Gazette.*

GRASS "IMMORTElLES."

The now important and still rapidly increasing demand for winter floral decorations has not only led to great improvement in the manufacture of artificial flowers, but has also given rise to the extensive sale of "immortelle bouquets," in which the dried flowers of *Helichrysums*, *Xeranthemums*, *Gnaphaliums*, and other so-called everlasting, are largely supplemented, and their sameness agreeably relieved, by tastefully introduced spikes and culms of grasses, many of which are, from their beauty and delicacy of structure, highly available for such a purpose. Their producers, or caterers for the market demand, have, from the want of sufficient variety in their colours, been led to attempt their improvement by means of artificial dyes, which in many instances are far from being either tastefully selected or applied. Dyed wool and artificially-coloured feathers have been looked upon as being in unison with correct ornamental taste, from very early times, and we may have no right to find fault therewith, provided the colouring be well applied and permanent in its endurance. Nor do we mean to disparage the colouring of immortelles, provided it be effected with sufficient care and a reasonable regard to the observance of nature's laws, which seldom distribute the same colours over flowers and flower-stalks, and never without accompanying them with a beautiful shading off and blending with those of the still more remote stems, whereas all our artificially-coloured flowers, grasses, and even mosses, present disagreeably decided markings of the dip into the dye-pot. "Whatever is worth doing at all is worth doing well," is a truism which our "immortelle" dyers seem to ignore, or at least disregard; but they will do well to take care in time, or their craft may be endangered by that unpopular but highly artistic class of colourists, the clover-seed dyers, who are now threatened to be deprived of their dishonest vocation; for assuredly they, who possess the ingenuity requisite for imparting several beautifully blended shades of colour to a small speck like a clover-seed, will find little difficulty in adapting their skill to the more legitimate calling of flower-dying.

It is commonly remarked that coloured grass-heads never present that purity and delicacy in their tints which is so conspicuous in coloured feathers; this is, no doubt, chiefly, if not entirely, in consequence of the pure white ground on which, in the latter case, the colours are laid; whereas in the more common grasses the ground or basis for the artificial colouring is generally dark green, more or less shaded with purple. With white-headed grasses, such as the feather grass, *Stipa pennata*, and the first introduced variety of the pampas grass, *Gynerium argenteum*, purity in colouring is easily effected, but it is very different with many of the other favourite bouquet sorts, such as the *Aira caespitosa* and other hair-grasses; the two native soft grasses, *Holcus mollis* and *H. lanatus*; *Poa trivialis*, and other meadow grasses; the elegant annual and perennial quaking grasses; the delicately paniced family of *Agrostidae*; the magnificent reed tribe, *Arundineae*; the pretty melic grasses; the robust but graceful brome grasses, and others, the ordinary forms of all of which have the ground colours too dull or dark for taking on pure dyes, unless such as are of the darker tints. To a certain extent this imperfection in their grounds may be overcome by bleaching, but only in most instances at the risk or certainty of destroying that beauty of structure which has recommended them for selection. Most grasses have, however, like other plants, their albinos or white-flowering varieties, in which the colours of the plants are lightish green, while to that of their inflorescence the term *whitish* is strictly applicable; and these have only to be selected with discriminating care, propagated by division, and cultivated to a sufficient extent, to supply all that is desiderated both in quality and quantity. Among common grasses these albinos are perhaps most frequent in *Poa trivialis*, *Holcus lanatus*, and *Aira caespitosa*, but a demand has only to be created for them when they will soon be forthcoming of any other species; and we would specially advise those having opportunity to look out for a white-flowering variety of the common reed, *Phragmites communis*, on the muddy shores of rivers and fresh-water lakes, the discoverer of which will be rewarded by possessing a perfectly hardy grass, equal in elegance and beauty to either the somewhat tender South-American pampas grass, *Gynerium argenteum*, or the famous *Tobi-tobi* or *Toe-toe* reed of New Zealand, *Arundo conspicua*.

Large sums of money are now annually expended on the importation of grass immortelles, the production of which could be equally as well, if not better, done at home—for the delicate ramifications and elegance of structure, in the paniced grasses more particularly, render them very susceptible of injury from packing and long transit. Here, then, is a new branch

of industry specially suited for females—the wives and daughters of gardeners for instance—and which for its establishment would only require a little initiative example and support at the hands of any willing to undertake such a labour of love, aided perhaps by a little stimulating encouragement from city and village horticultural societies. Flower culture has of late been largely superseded, or rather greatly supplemented, by fern culture, and why should not grass culture have its turn of popularity? Assuredly a little minute examination and acquaintance with the beauty, delicacy, and diversity of their forms should secure for them a fair share of cultural care from all plant lovers who can spare a small space, either in the open ground or in pots, for their occupation.—*The Farmer.*

Calendar.

WORK FOR WEEK COMMENCING JUNE 15.

Kitchen Garden and Frame Ground.

CELERY.—The early crops to be earthed up as soon as the plants have attained a good size. If the ground is dry, give a heavy soaking of water the day before intending to mould them, and be careful that the soil is nearly dry, or at most only moderately moist, when the moulding is to be done.

CABBAGE.—If there are any vacant plots of ground, and no occasion to crop them with successional summer vegetables, it will be advisable to sow good breadths of *Early York*, *Rosette Colewort*, and *Dwarf Early York* cabbages. These will come into use in advance of the ordinary winter greens, and will be very acceptable.

BROCCOLI.—The last sowing of *Walcheren* may be made this week. Any plants remaining in seed-beds must be planted out at once where they are to remain.

BROAD BEANS may be sown for late supply.

RUNNER BEANS sown now will give supplies late in autumn, when the peas and early-sown beans are gone. We have for several years past sown on the 20th of June or thereabout, and found the result most satisfactory.

LETTUCE.—It is a good plan to sow some quick-germinating kinds, such as *Wheeler's Tom Thumb*, where they are to remain, as the operation of transplanting tends to cause them to "bolt." Dig and manure the ground, and sow thin in drills a foot apart. As soon as large enough to handle, thin them to six inches apart. Begin to draw for use as soon as they show a tendency to bearing, which will give more room to those that remain. Lettuces to be transplanted from seed-beds now should have a very rich soil, and if possible a shady position, and abundance of water. If they can be kept from bolting, they will form fine hearts very quickly. The best preventive of bolting is to keep them growing fast, and manure, moisture, and shade are favourable agencies.

LEeks to be planted out from seed-beds on deep rich soil; on dry stony ground they should be put into well-manured trenches in the same style as celery, but on ordinary good soils it is better to plant them on the level, as they stand the winter better. A convenient mode for earthing up is to plant them in four-foot beds, six rows in a bed, the plants six inches apart.

PEAS.—To get good late crops it is advisable to sow in well-manured trenches six inches below the general level, as in case of drought the trenches can be filled with water quickly, and will keep all that is given them. The principal enemy of late-sown peas is mildew, the result of a starved condition of the plants. Peas advancing in growth should be staked in good time; if they once fall over, they can never be got up again to do as well as they should. Watering peas, as a rule, is objectionable, and if they are on ground deeply dug and liberally manured—and it is mere vexation to attempt to grow peas on poor ground, or ground badly prepared—they will not want water.

TURNSIPS must be sown now, as there will be a demand for them soon. Use abundance of manure; sow if possible just before rain occurs, or between flying showers.

ENDIVE to be sown on rich soil, and early sown to be planted out.

CUCUMBERS in frames often show a stubbornness in swelling off their fruit, though apparently full of health and vigour. Very often a good soaking at the root will cure all this. Cucumber plants may be and often are kept alive by the syringe merely, but they want soaking to be fruitful. Where the plants are still pushing, and are full of vigour, put on about two inches of fresh soil. In the case of cucumbers that have grown large, and there is likelihood of waste, half a fruit may be cut, and the other half left on the vine. The half left will continue to grow, and may be cut when wanted. This is a better way than waiting half a cucumber.

WINTER GREENS to be got out in plenty now, as peas, potatoes, and other crops are taken off. Collards, Brussels sprouts, and other quick-growing subjects that will mostly be used before Christmas, to be planted in manured ground; but those to stand till next spring, to furnish sprouts, not to be manured, as it renders them less able to withstand severe frosts. Continue to plant broccoli, Brussels sprouts, Scotch kale, and everything else of the kind from the seed-beds.

GARDEN VERMIN.—The rains have favoured slugs and snails, but of caterpillars there is happily a scarcity this season. The vermin that can be most successfully combated are snails, woodlice, and ants. The first two are destructive marauders; the last is rather troublesome than destructive, though they destroy sometimes—as, for example, when they construct a nest in a seed-bed, and bury the young plants in mounds of fine earth, or when they take possession of a frame in which a number of cuttings have been bedded out. Three years ago we lost four-fifths of a batch of rose cuttings by the mining operations of a colony of ants. The batch consisted of about 3,000 cuttings, and the operations of the ants commenced just when the roses were forming their first roots, and when we were beginning to leave them to take care of themselves, having removed the lights to expose them to the showers. Let us consider the snails and woodlice first, and add as a make-weight earwigs. The grand preventive of all these is active tillage of the ground. Neglect of any kind is favourable to their increase. They are sure to multiply where there are heaps of rubbish, rank crops of weeds, fences unclipped, and dirty holes and corners. The frequent use of the hoe, the immediate clearing off of crops that have had their day (whether vegetables or flowers), and the manuring and planting of the ground with successions, will do wonders to check the depredations.

tions of vermin. Every disturbance of the soil exposes them and their eggs and young to influences detrimental to their increase, not the least among those being the keen eyes of birds, kept vigilant by the calls of hunger. Frequent dressing of the surface soil with lime and soot will do wonders, both to kill the vermin and produce a healthy vegetation. We do indeed see lime used so freely sometimes that it must kill the plants as well as the snails; but we do not advise the wasteful and destructive use of so powerful an agent. A sprinkling which suffices to make a barely perceptible gray coating on the soil is as effectual as a heavy dressing, and the repetition of the thin dressing will in time bring the whole piece into so clean a state that vermin will be virtually unknown. We come next to consider special means of eradication, and these are many. Trapping should be followed up in a systematic manner wherever vermin abound. Small heaps of brewer's grains will draw snails together in a most convenient way for killing them. Lettuce-leaves placed under empty flower-pots will collect the woodlice in dozens or hundreds, and while they can get lettuce they will not care to eat anything else. Slices of potato, carrot, and apple are also good baits. Moreover, any dry and dark hiding places soon get filled with woodlice, and a dose of boiling water poured into such dens daily, without disturbing the materials of which the dens consist, will clear them off wholesale. The writer of this has waged war in all sorts of ways with these plagues for many years, having valuable collections of plants in a garden which is surrounded with breeding grounds for all sorts of vermin. Among other methods adopted, one is to put a few empty pots one inside the other, in cucumber frames, and every morning to pour boiling water into them. The water soaks into the bed, and does no harm if near the woodwork, and when the pots are shaken asunder dozens of dead woodlice are found. But another and more systematic plan is adopted, and, having proved eminently successful, we advise any of our readers who are situated as we are to proceed as follows: Procure a portable copper—that is to say, one of those “iron coppers” which are made for boiling water in the open air for tea-parties, and which are often used in out-houses by laundresses. Londoners can find such in Barbican and Old Street, and the prices range from thirty shillings to three or four pounds each. Suppose a border, in which asters, stocks, phloxes, and pentstemons are planted, and in the rear of the border an old privet hedge, out of which the vermin issue in swarms. Such, indeed, is the nature of our border on which the operation is conducted. In the front of this border a number of small flower-pots are plunged to the rim. Every evening these pots are filled with lettuce-leaves, pea-shells, slices of cucumber, or whatever tempting stuff is at hand. The pots are then covered with cabbage-leaves or tufts of moss, with, in short, anything through which woodlice can push or a snail eat its way. Every morning a fire is lighted with garden rubbish, such as *débris* of woodstack, &c., and a few gallons of water are obtained boiling hot. A dose of this is poured from a water-pot into each of the traps. In the evening the traps are cleared out and filled again, and so on for ever. This appears a tedious process, but without it we should have to relinquish horticulture under our present circumstances. We adopted the “iron copper” to make an end of the diurnal row between the gardener and the cook, the latter refusing the thermal element, or because of the demand made upon her putting the *cuisine hors de combat*. Now for the ants. If the nests are so situated that boiling water can be administered, why the remedy is easy enough. It is very seldom, however, that this can be done, for in the first place the water cannot be obtained, or the nests are in places where the destruction of vegetation by the process could not be borne. It is not generally known that fresh Peruvian guano will drive ants from any spot, however firm a hold they may have obtained upon it. Suppose a colony of ants to be commencing operations on a lawn, it is an easy matter to trap them all by placing a large empty flower-pot, with the hole stopped, over it. The ants will build up into the pots, and in a short time it may be lifted with a shovel and he carried away and dropped into a vessel of water, which will make an end of it. When they make a run up the stem of a fruit tree, a line of gas tar all round will put a stop to their progress, and do no harm to the tree. To poison them, mix arsenic with sugar and water, put the mixture in a saucer, and lay a slate over it, and on the slate a stone. This, of course, is a dangerous plan, and any one who thinks of adopting it must use their own judgment as to the safety of any larger animals. In Jones's “Gardener's Receipt Book” it is said that ants will avoid any tree which has a circle of chalk round it. Having never made use of chalk to check their movements, we cannot say if this be true. Lastly, as to earwigs, any dry dark trap will take them, such as stems of the elder-tree from which the pith has been removed, four-inch lengths of bean-stalks, or the dried stems of the great Heraclium, or bits of paper crumpled in the hand and tucked amongst the plants they infest.

Flower Garden.

HARDY BULBS, such as hyacinths, tulips, snowdrops, crocuses, &c., may be taken up and stored away. Where planted in a mixed arrangement, and the ground need not be disturbed, it is a good plan to allow all these bulbs to remain two or three years in the ground.

ASTERS AND STOCKS to be planted out from pots and seed-pans during moist weather.

DAHLIAS to be staked at once, if not already attended to, and the forwardest shoots to be carefully tied.

ROSES are in most districts infested by grub and fly. Heavy rains will do them more good than any kind of artificial watering. The removal of the grubs that curl the leaves and gnaw out the hearts of the buds is usually accomplished by hand-picking—that is, when accomplished at all; and it is such a tedious job, that nine-tenths of all the rose-growers leave the trees to fight it out. Probably the “Aphis-wash” of the City Soap Company, which is so immediately effectual in the destruction of fly, would be equally destructive of these grubs. We advise rosarians to give it a fair trial. Pot roses must have abundance of water now.

CHRYSANTHEMUMS must be made to grow freely now, or it is impossible they should bloom well. Give abundance of water. Where quantities are required for plunging or other rough purposes, it is a good plan to plant them out on an open sunny spot, and take them up early in October, and pot them for flowering. But genuine specimens cannot be obtained in this way: they must be grown in pots from the first. Chrysanthemums in the open ground to be topped again, and the soil between them lightly pricked over with a small fork, and some quite rotten dung worked in. It will be found that they always root near the surface, and a dressing of dung will greatly help them, and save the labour of watering.

LILIUMS to have abundance of water.

CALLA ÆTHIOPICA is an aquatic, but is usually grown as if it was un-

acquainted with water. We shall see everywhere, now especially, in nurseries and great gardens the plants standing on coal-ashes, and getting a daily drop of water in common with other things. By this treatment they flower once a year. We have some that were potted on in very rich unctuous loam, after their spring flowering was over, and then plunged in water, one inch deep, out of doors. They have grown prodigiously, and are now flowering profusely.

BEDDING GERANIUMS should be propagated at once for next year, and the best way is to use cuttings only two or three joints in length, and pot them singly in 60-sized pots. By being struck early, there is time for the plants to make ripe wood before winter, and instead of waiting till July for bloom, they will, if well managed, be in full bloom in May next, when first planted out.

TALL-GROWING BEDDERS need a little care now to protect them from high winds. A very effectual and expeditious method is to insert strong stakes, and run a few lengths of stout tarred string amongst them, so as to form a support to the back and front of every row. Small forked branches will serve the same purpose where the plants are not sufficiently regular to be supported with string.

Fruit Garden and Orchard House.

PLUM-TREES in orchard-houses are in many cases covered with fly. If this is not checked, the trees will be barren next season. Make a strong infusion of tobacco, and at the same time dissolve a little glue; mix them together, and add water in a large tub, and into the mixture dip the trees. Any that are too large to be dipped must be laid on their sides and well syringed. Those dipped must also be syringed the next day. If the labour can be found, it will be more effectual to paint with a soft brush every leaf, under and upper side, with a mixture of one pound of dissolved glue, one pound of tobacco, and four gallons of water. The leaves will appear after the operation as if varnished, but not a leaf will fall, and it will make an end of the vermin. After a few days, syringe them freely.

EGGS producing a second crop to be fed liberally, and have a top-dressing of quite rotten dung. The top growth must be pinched back.

Greenhouse and Conservatory.

CAMELLIAS showing their flower-buds at the points of the new shoots should have more air and less water. The syringe need not be used any more upon them, but they ought never to go dry at the root, for that is a sure way to cause the buds to fall.

PELARGONIUMS as they go out of bloom to be cut down, and placed in a warm, sheltered, and rather shady place for a week, then to be put in the full sun and kept rather dry at the root, with occasional sprinklings of the stems and leaves till they break, and then to be re-potted back into small pots with sound lumpy turf to make their new roots in.

CINERARIAS coming up in seed-pans to be pricked out as soon as large enough to lift, and have separate thumb-pots, with light rich compost, and be put in a frame to grow on. By securing a vigorous growth from the first, they will be less troubled with fly, and make fine specimens. Those who have not sown seed yet must do so at once, or it will be too late.

HARD-WOODED PLANTS requiring a shift this season must have it at once, or the time will go by for them to derive full benefit from the operation. The most important matter of all is to secure good drainage and to use the compost in as rough a state as possible consistent with the size and nature of the plant. Whenever the cultivator is in doubt about the best soil for any hard-wooded plant, he will be pretty safe in using half peat and half loam, both in a turfy and sweet condition—the more elastic the better.

FUCHSIAS must be syringed twice a day, and have moderate shade. Fine plants in comparatively small pots will be greatly benefited with weak liquid manure every three or four days. They should be propagated now in quantity for next year's supply. The smallest cuttings make the best plants, and there is no need to cut to a joint. A mild bottom-heat will hasten the formation of roots, but it is not needful, as if shut up in a cold frame, and shaded and regularly kept sprinkled, they will be well rooted in a fortnight. It is a saving of time in the end to put all cuttings singly in pots at this time of year, as they can be allowed to fill the first pots with roots, so as to grow strong from their first start. In preparing pots for the cuttings, use smallest sixties or thumbs; put a mixture of turf and old dung over the crocks, and fill up with half sand and half leaf, in which the cuttings will root as quickly as in sand alone at this season, and have something to live upon while filling the pots with roots. This is the best method for amateurs who are much away from home, as the single cuttings require less care than when dibbled into sand only in shallow pans.

ERICAS.—At this time of year it is usual to overhaul the heath house and make notes of losses and of desiderata, and to shift specimens and put in cuttings of choice kinds, as well as prepare composts for future use. The heath is a native of the Cape of Good Hope, where it clothes the sides and tops of mountains, and springs out of the crevices of rocks, growing in very sandy soil, such as, in this country, we call peat, and is found on our dry heaths, where our native ling grows. One of the first things, then, for the intending heath-grower to do is to select a stock of soil, and having looked out a spot where it is black and unctuous-looking, with a good sprinkling of clear bright sand sparkling in it, he may proceed to clear off the rough herbage that grows upon it—for the heath is generally found where the ling grows strongest; then to pare off the surface only a few inches thick, and avoid the poor, gray, hungry soil that lies beneath. The supply should be renewed every year or two, for if kept too long it loses its fibrous texture, and is then only fit for very small stock from the seed-pan or cutting-pot. For larger plants, soil somewhat fresh and lumpy is best. Some peat is wanting in due proportion of clear white sand. This may be corrected by the addition of silver sand, and this should be done upon the potting-bench, as some of the free-growing, soft varieties, such as *Bowieana*, *cruenta*, *exurgens*, *flammea*, *refulgens*, *Willmoriana*, *intermedia*, *metulæflora*, *verticillata*, *Bergiana*, *cupressina*, *gracilis*, *grandinosa*, *hyemalis*, *Linneana*, *pyramidalis*, *sulphurea*, &c., being the hardest and most suitable for beginners, will flourish best in a peat not very sandy; whilst the very hard-wooded, or delicate growing varieties, such as *Hartnelli*, *ampullacea*, *aristata*, *elegans*, *Massoni*, *Templeana*, *tricolor*, *vestita*, *Sprengelii*, *gemmifera*, &c., though very beautiful, are more difficult to cultivate, and require a larger proportion of silver sand in the soil. It may be necessary to caution the inexperienced against falling into an error we have known amateurs to commit, viz., the mistaking bog soil, met with in swamps and by river-sides, for the peat soil above described; for no composition, however carefully prepared, can enter into competition with

pure native peat soil for hesth-growing houses. As the heaths delight in a cool airy house, they must not be associated with such soft-wooded plants as pelargoniums, cinerarias, &c., but must either have a house to themselves or have for their associates other hard-wooded plants which will bear the treatment the heath requires. In the latter case, a low span-roof house, with side-lights to open, or with ventilators instead, and with slate benches or beds of gravel, upon which the plants stand cool, and are not so subject to alterations of temperature and moisture as they are upon spline stages, and in "pitched" or "lean-to" houses, is the kind of place in which the heath delights. Some cultivators manage them very successfully in houses with a northern aspect; and in such houses the hardier kinds of ferns may be cultivated with them, and will form a very pleasant accompaniment; but let the house be of what kind it may, above all things it is important that thorough ventilation should be provided; for when the weather is neither frosty nor foggy established plants can scarcely have too much air. The heating apparatus need not be powerful, its only use being to keep the temperature just above freezing point, and occasionally, in wet weather, to dry up damp, at which time the top ventilators should be sufficiently open for the moisture to escape; but where young stock are to be reared, a common garden frame or a low pit is necessary, or at least desirable, as in such places young plants may be made to grow more freely. Indeed, in such places alone thousands of nice little specimens, loaded with flowers, are annually produced for the London market.

Stove and Orchid House.

ORCHIDS.—The general collection may be kept in perfect health now without fire-heat, by shutting up early, and sprinkling the floor of the house to cause a humid atmosphere. Do not shade over-much—generally from ten till three will be quite sufficient from this time, till shading is dispensed with altogether. Small specimens of Stanhopeas should be now shifted into large baskets, in which they can push their flowers downwards. The best material to fill the baskets with is chopped moss, and the tough felt-like fibre of good peat, with all the soil removed. The baskets should be shallow. After shifting, keep them well supplied with atmospheric moisture, but only moderately moist at the root. Specimens that do not require a shift are to be encouraged to grow as soon as they have done flowering, in order to assist the completion of their pseudo-bulbs, and then they must be reduced to a state of rest by gradually withholding water, or to have but little until they again begin to grow. All the Stanhopeas will grow in either house.

Forcing Pit.

MELONS swelling fruit to have plenty of weak manure-water; those ripening their fruit to be kept tolerably dry, but if kept too dry will get infested with red spider, so endeavour to keep them in good health on the smallest possible supplies, and give plenty of air. Those that have borne good crops may be cut back, and set to work again with the help of linings to the beds. Keep these rather close after pruning in, and frequently sprinkle the sides of the frames and the surface of the bed, and give only moderate waterings at the root. Never allow water to fall on the main stems. If the plants cut in appear rather poor, let them break moderately, and then remove a portion of the soil from one side of the roots, and replace with fresh turfy loam. When the roots have run into the new stuff, do the same on the other side, and they will swell a second crop admirably.

PEACHES AND NECTARINES must be fully exposed to the atmosphere as soon as the fruit is gathered. Where the fruit is still hanging, give plenty of air, and every morning a light skiff with the syringe over the leaves. Stop the strongest shoots a few at a time, to swell the ripe buds. Trained trees are generally loaded with superfluous wood, through the prevalence of a delusion in favour of plenty to choose from at the winter pruning. Choose now, and remove all that will not be wanted, and what is left will ripen properly.

VINES now require air night and day from the time the grapes are gathered, unless they are in poor condition, and the wood very green. If so, shut up early, and in another eight or ten days the wood will be getting hard, and then there may be air on night and day. Grapes ripening not to be syringed, but to have a moderately moist atmosphere and plenty of air.

PINES.—The bottom-heat must be kept up, and there must be plenty of room between the plants for a free circulation of air. Do not shade. Maintain a moderate humidity among all advancing crops, and young stock, and in giving air guard against drying winds and draughts by keeping one side close while the other is open. Where the fruit is swelling nicely, sprinkle the surface of the paths and soil frequently; but where the fruit is changing colour, discontinue the sprinkling, and give only just enough moisture to keep the plants in health. After cutting fruit earth up the stools, and give a brisk bottom-heat and plenty of moisture. Beds in which pines are plunged must be kept constantly moist, as the heat will not rise through any dry material.

ON LANDSCAPE GARDENING.

I have been much amused in reading the works of some of our great authors on gardening, especially landscape gardeners; and my opinion is that we have not made much progress in the present century. Tasso and Milton have been considered as the heralds of this improvement. In the garden of Armida of the one, and in the Paradise of the other, some of the beautiful combinations of nature are described; but it really appears to me extravagant to imagine that either of them had an idea that he was giving a design for constructors of gardens to copy; and if not, they only admired what others had admired before them, they only described what others had previously described. Witness Cicero's description of his villa at Arpinum, or that of the villa of Lælius on the height of Misenum. Witness the grounds which Nero laid out, and Tacitus describes. These in some degree anticipated Addison, Pope, Bridgeman, and Kent, whom we consider the originators of landscape gardening in modern Europe, as they not only admired and described picturesque scenery, but they imitated it. There seems to have been almost a spontaneous effort of reformation in the style of gardening in France and England. Dufresnoy succeeded to Le Notre in 1700 as director of the French monarch's gardens. He constructed several gardens in which natural beauties were imitated; but his example was only admired by his countrymen and not followed. Dufresnoy was a man of taste and a poet of merit, and his designs, or similar ones, were executed

before such constructions appeared in England. Addison, in one of his excellent papers on Imagination, in the "Spectator" (No. 414), says English gardens are not so entertaining to the fancy as those in France and Italy, where we see a large extent of ground covered over with an agreeable mixture of garden and forest, which represents everywhere an artificial rudeness much more charming than that neatness and elegance which we meet with in those of our own country. Now Addison in the same essay was advocating landscape gardening, and attempted to exemplify it at his seat, Bitton, near Rugby. He had travelled in France but a few years previously. He was a contemporary of Dufresnoy, and therefore is one of the best authorities. The essay of Addison above cited is dated June, 1712, and is the first that ever appeared in which an imitation of nature is advocated as the basis of ornamental gardening. This was followed by another in the same work (No. 477). To this succeeded an essay by Pope, dated September, 1713, in the "Guardian" (No. 173). Two years afterwards he purchased his villa at Twickenham, and laid out the garden in the style which he admired. In 1732 he published his epistle to Richard Boyle, Earl of Burlington, the first work in which any precise rules for landscape gardening are laid down. The rules, from the shortness of the composition, are of course compendious, but they contain the fundamental principles of the art. Four-and-twenty lines include the whole. I conclude these remarks by quoting them:

To build, to plant, whatever you intend;
To rear the column, or the arch to bend;
To swell the terrace, or to sink the grot:
In all, let nature never be forgot,
But treat the goddess like a modest fair—
Not over-dress, nor leave her wholly bare;
Let not each beauty ev'rywhere be spy'd,
Where half the skill is decently to hide.
He gains all points who pleasingly confounds,
Surprises, varies, and conceals the bounds.
Consult the genius of the place in all:
That tells the waters or to rise or fall,
Or helps th' ambitious hill the heav'ns to scale,
Or scoops in circling theatres the vale;
Calls in the country, catches opening glades,
Joins willing woods, and varies shades from shades;
Now breaks, or now directs th' intending lines;
Paints as you plant, and, as you work, designs.
Still follow sense, of ev'ry art the soul;
Parts answering parts shall slide into a whole.
Spontaneous beauties all around advance.
Start e'en from difficulty, strike from chance.
Nature shall join you, time shall make it grow;
A work to wonder at—perhaps a Stow.

WILLIAM GILES.

Replies to Queries.

Asparagus Bed.—George.—As to the length of time an asparagus bed may be kept on depends very much on soil, climate, and management. We know some beds that are a quarter of a century old and in the finest condition, and we know some that are only seven years old, and that were never worth a farthing per linear yard. Preventing the ripening of seed by early removal of the berries will no doubt tend to conserve the vigour of the plants. Greenhouse plants for winter and spring are plentiful—Cytisus, Primula prænites, Cinerarias, Gauntlet Pelargoniums, White Ageratum, Thysacanthus rutilans, Justicia, Echeveria secunda, Erica hyemalis, and Daphne Indica are the principal subjects grown, but many more may be added to the list. The best plants for plunging in spring are Hyacinths, Tulips, and Crocuses for the first start, and Yellow Alyssum, perennial Iberis, and Arabis alpina to succeed them. If you can do Spirea Japonica well, you will find it one of the very best of plunging plants.

Royal Botanic Society's Last Show.—An error occurred in our report of this show in representing that the awards for Show Pelargoniums in the trade class were to Mr. Turner first, and Mr. Fraser second. The collections from these two exhibitors were considered so equal in merit that to each competitor was awarded a first prize.

Leyton, Walthamstow, Woodford, and Wanstead Floricultural Society.—The flower-show of this society took place at J. G. Barclay's, Esq., Knott's Green, Leyton, on the 11th. Two tickets for the show came into our hands on the 10th, and we had then too many engagements before us to make arrangements for reporting. We will never again report any show unless we have good notice, say a week at least. It is absurd for people who are preparing months beforehand to defer giving us notice till within a few hours of the event, and then expect it to be reported. We have put ourselves to many inconveniences to oblige, but will do so "never no more."

Herbaceous Plants.—J. W. B.—Two of the most beautiful flowers of the present month are Campanula alpina and Phlox amœna. Great sheets of these hardy plants are delightful if well placed, but they have very little beauty in a botanic garden, as they cannot there be associated with suitable relief agents. Let us know when you have obtained all the plants in your list. As to the best time to buy or plant, any time is best that you can do it most conveniently. The rule we follow is this: whenever we meet with a plant of which we desire a bit to begin with, is the best time to secure a bit and make a beginning. In other words, the best time for anything is when you can get it.

Acrophyllum venosum.—Senex.—The judgment was perfectly right. Yours was the largest plant, and was in every sense respectable, but your competitor brought a plant better grown, though a smaller specimen; it was round, dense, and bright, and above every bit of bloom was a red crown of young leaves, which in yours were wanting. We occasionally point out errors in judgment, but we take care to have reason on our side first. According to the canon you lay down, you would place the elephant in the first rank in the order of beauty and the antelope in the last, with the camel between them. When we are called upon to decide that case, if we are told to judge according to beauty, we shall give the antelope first prize, the camel second, and the elephant third.

Weigelia.—H. Watson.—We suppose all the species and varieties now in cultivation to be hardy. We cannot aver that they are so, for we have not tried them all in open borders; some of them, indeed, are scarce and dear, and are not likely to be much planted out until they are cheaper. But we should have no hesitation at all in planting out from pots any and every kind of Weigelia we could get, and this is as good a time as any for such a business.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.			Ochrids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain	5 Amp. avg. of 43 yrs. Grwh					
1867			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.				
23	S	1st Sunday after Trinity	3 45	8 19	11 35	p.m.	10	2 a.m.	30.10	30.07	81	46	63.5	0.0	69.4	Barkeria melanocaulon, n ... Costa Rica	147
24	M	Midsummer-day—Length of day, 16h. 35m.	3 46	8 19	11 59	..	11	10 ..	30.15	30.12	76	42	70.0	0.0	66.6	.. spectabilis, n ... Guatemala	24
25	T	Bristol, Clifton, and West Eng. Rose Show	3 4	8 19	n.m.	p.m.			30.11	29.96	76	50	63.0	0.0	60.8	Brassia Lawrenceana, n ... Demerara	25
26	W	Brighton & Sussex Summer Show, 26th, 27th	3 46	8 18	0 23	a.m.	1	30 p.m.	30.01	29.94	82	59	67.0	0.0	61.1	.. Wryw, n ... Guatemala	26
27	Th	Kingstown Rose Show.—Gard. Roy. Hone.	3 46	8 18	0 52	..	2	46 ..	29.90	29.86	86	55	70.5	0.2	61.3	Broughtonia sanguinea, t ... Jamaica	27
28	F	Queen Victoria crowned, 1838 (Ann. Dinner)	3 46	8 18	1 23	..	4	1 ..	29.85	29.81	87	54	70.5	0.0	61.5	Calanthe fureata, t ... India	28
29	S	Crystal Palace Rose Show	3 47	8 18	2 0	..	5	17 ..	29.6	29.81	89	50	65.0	0.0	61.5	.. Domini, t (hybrid)	29

The Gardener's Magazine.

SATURDAY, JUNE 22, 1867.

ARTIFICIAL STONE is one of the most important aids in the embellishment of gardens. It is true that real stone is to be preferred, but the cost is a serious impediment to its general adoption. The difference of cost of works of art in real and artificial stone is not due alone to the difference in the value of the material, for indeed, bulk for bulk, and regarded as to bulk merely, it is probable that stone would always and everywhere be found cheaper than any imitation of it. The advantage of adopting a composition is that it may be impressed with any desired form without the aid of the sculptor. To cast a mass of pasty material in a mould is a comparatively costless process, but to chisel a block of stone to produce a result equivalent to the taking of a cast of a good pattern must be under any circumstances an expensive proceeding; and the great interest attaching to stone manufacture arises out of the saving of the cost of skilled labour, and the case is analogous to that of printed pictures versus oil or water colour originals. Some fifteen years ago, we strongly recommended to public favour a material which subsequently became famous under the designation of RANSOME'S PATENT IMPERISHABLE SILICEOUS STONE. It was unquestionably the best substitute for stone at that time invented, and was alike remarkable for its hardness and durability, as for its bright crystalline texture, and the highly artistic character of the works—such as balustrades, jardinetts, statuary, fountains, and vases—that were produced in it. This stone was largely employed by architects, builders, and landscape gardeners, as it was soon discovered to be frost-proof, and its beautiful texture and hardness rendered it fit for any purpose to which the best marbles would be applied, provided only it could be modelled or cast in the required form, which was generally speaking a merely mechanical operation.

Very early in the history of the Imperishable Siliceous Stone it became apparent that the process was in some points defective. This stone is wholly composed of siliceous grit and a soda-flux. It is cast in the required forms, and then subjected for a considerable length of time to heat, the effect of which is to partially convert the mass into glass, or rather to form a glassy kind of cement throughout the whole bulk of the material, owing to the chemical combination of the silica and the alkali, in a manner very similar to that which takes place in the manufacture of glass. The necessity of subjecting the material to heat for a great length of time was always felt to be an impediment to its universal employment; for during the process of baking accidents would happen, and at the best there was a great outlay, so that a more simple process of manufacture was greatly to be desired. This has at last been attained, and we were present yesterday at a great demonstration made in the presence of a commission of scientific men at the works of the Patent Concrete Stone Company, East Greenwich, the object of which was to show that imperishable stone of admirable texture and appearance may be made at a cheap rate, and of a quality which renders it in many respects preferable to the best products of the quarry. Mr. Frederick Ransome, the inventor of the new process, was led to its discovery by an inductive process of thought, and it is in some sense a counterpart of his former invention; but the baking process is dispensed with, and there is no need for the employment of pure silica, or for any length of time to elapse between the casting in the mould and the transference of the finished work to the hands of the purchaser. It is an interesting fact that the patent concrete stone is in some part the result of Mr. Ransome's inquiries and experiments when acting as adviser in reference to the preservation of the new Houses of Parliament at Westminster, the facings of which are fast decaying, owing to the corrosive action of the sulphurous acid which always exists in appreciable quantity in an atmosphere charged with the products of the combustion of coal. Mr. Ransome's leading idea has been to take advantage of the readiness with which certain alkalies and silica combine together—in other words, to assimilate the manufacture of stone to that of glass, and to produce in stone, or rather in an imitation stone, all the qualities of glass minus its transparency and fragility, the last named of its properties being doubtless a result simply of the thinness of the plates in which it is manufactured. It is astonishing how simple are the solutions usually to puzzling problems, when we know them; at all events, it proves to be so in the present case.

No. 112, NEW SERIES.—VOL. X:

We saw yesterday some beautiful works of art in imitation stone, produced by a process which we may fairly pronounce to be instantaneous. Certain quantities of chalk and sand are mixed together with a due proportion of silicate of soda. The chemical combination of these ingredients is impossible, and therein lies the secret of success. The soda and the silica separate, and the silica combines with lime and forms a silicate which is of a hard imperishable nature. Thus is produced the patent concrete stone, at a price not greatly in advance of the raw materials of which it consists, and in artistic forms equal in beauty of design and finish to the best productions of the sculptor's chisel—that is, in respect of such works as edging curbs, finials, cornices, and other works of everyday usefulness, and which admit of endless repetition from one design.

The question arose amongst the persons assembled to witness the process yesterday, "How long will this stone last?" We can throw some light upon the question. When Mr. Ransome first discovered the new process, in the year 1863, he placed at our service, for trial at Stoke Newington, several examples of products adapted for garden use. We selected about fifty yards of an elegant edging curb, which was appropriated to form the front of the border in which the principal part of the display by the plunging system is carried out. That edging has been subjected to severe frosts on a cold clay soil, and it is in no way changed, except for the better, since it was originally put down. It is in fact harder than it was originally, and so exceedingly beautiful that we confess we have not yet met with its match in that respect. We cannot doubt, therefore, that the Patent Concrete Stone is destined to play an important part in the embellishment of gardens and buildings, and to serve many other purposes to which stone is usually applied, and at considerably less expense. The company engaged in carrying out Mr. Ransome's patent have judiciously employed able artists to design various useful works in the new material, and we anticipate for it a great and continually increasing demand. At all events, it merits the attention of all whose avocations render the cost of stone a matter of any consideration.

ROYAL BOTANIC SOCIETY.

SECOND GREAT EXHIBITION, WEDNESDAY, JUNE 19.

This exhibition was favoured with delightful weather, and a genial temperature, and the company assembled at an early hour in extra full force. As an exhibition it was quite equal to the average, that is to say, rich, full, tasteful in arrangement, and abounding in interest. Stove and greenhouse plants were largely represented, and formed the principal part of the display, Ixoras, Francisceas, and Pimelias, giving richness of colour, and amply compensating for the scarcity of azaleas and roses. The bank devoted to Pelargoniums was exceedingly rich with the grand groups from Mr. Turner, Mr. Fraser, Mr. Nye, and other exhibitors, and the display of colour here was gorgeous. On the bank immediately facing this were staged the new florists' flowers, of which there were many meritorious contributions. The orchid bank bounding the upper side of the central space was richly furnished, and the groups from the gardens of H. H. Gibbs, Esq., and W. Marshall, Esq., attracted, as they well deserved to do, continuous and unqualified admiration. The smaller banks lower down were filled with groups of fancy pelargoniums, ferns, and miscellanies; and beyond all, shining in the distance like a galaxy of stars upon the horizon, were the lovely flowers of a group of fifty plants of *Lilium auratum* from Mr. Bull, a splendid display of one of the most valuable acquisitions of modern times. That there should be a ridiculous group of the ridiculous *Raphanus caudatus*, or tailed radish, beside the *Lilium* was a misfortune; but probably the radish is not so ridiculous a thing considered commercially as horticulturally. Beyond, in the annex, fruits and flowers abounded, and as usual very few people could see them: it is an inconvenient narrow corridor, and sometimes a trap for the east wind. Farther on still, the tent of Mr. John Waterer, of Bagshot, glowed with the splendour of thousands of rhododendrons, azaleas, and kalmias, not wanting in admirers, for the tent was crowded from soon after two o'clock till dusk. It may be gathered from the foregoing, that people of all sorts had seasonable entertainment, and that this was in every sense a glorious exhibition, and a reunion alike for horticulturists and the seekers of pleasure. Let us now proceed to report in the usual way on the composition of the gathering in general and in particular.

PELARGONIUMS constituted the principal feature as respects a display of colour, and were extremely good. In the trade class for nine show varieties, Mr. C. Turner, of Slough, first, with fine fresh specimens of Royal Albert, Viola, Miss Burdett Coutts, Patroness, Lord Clyde, Guillaume Severeys, a splendid plant of this splendid variety; Regina forma-a, Jewess, Mary Hoyle, very fine, the petals as broad, and the flowers as round and smooth as when exhibited as a seedling. How well Mr. Hoyle's varieties wear! Mr. Fraser, of Lea Bridge Nurseries, second, with Amy, Fair Rosamond, Excelsior, Favourite, Lord Clyde, Princess of Prussia, one of the finest whites known; Inez, Ariel, Guillaume Severeys, the last extra fine. Messrs. Dobson and Son, of Isleworth, third, with Pasha,

Purity, Patrician, fine, the flowers large, smooth, and richly coloured; Léopard, Caractacus, splendid for colour; Constance, Regina formosa, Favourite, Bacchus.—In the class for nine plants from amateurs, Mr. Nye, gardener to J. B. Foster, Esq., Clewer Manor, Windsor, first, with Madlle. Patti, Conflagration, Pericles, Empress Eugénie, Lord Chancellor, International, Perdita, Lord Clyde, Fair Rosamond. Second, Mr. J. Ward, gardener to F. G. Wilkins, Esq., Leyton, with Diana, Viola, Bacchus, Empress Eugénie, Conflagration, Madame Furtado, Caliban, Fairst of the Fair, Lord Clyde. Third, Mr. Crawley, gardener to C. J. Houghton, Esq., Leyton: in this lot were nice examples of Landseer, The Charmer, Lucy, Mirabeau, and Rosy Gem. The tickets attached to Mr. Crawley's plants were very badly written; we hope he will be enabled to improve this part of his contribution in any future appearance as an exhibitor. Fourth, Mr. Windsor, gardener to R. Ravenhill, Esq., Essex, who had good examples of Pericles, Eugénie Lagraverre, a good white; Sir Colin Campbell, Caractacus, a small flower, wanting finish, but glorious for its lovely tinge of violet and its abundance of bloom; Conqueror, and Madlle. Patti.—In the trade class for six fancies, Mr. Fraser, of Lea Bridge Road, first, with the finest six Pelargoniums (of any class) in the show; they were of great size, most beautifully moulded to a watch-glass convexity, extravagantly flowery and fresh; in fact, verging towards the azalea extreme of colour and precise training; shall we say?—yes, we will say—the perfection of perfectness in every respect except one—they were too much alike; they wanted at least two very light kinds to make variety of colouring. The varieties in this group were Hebe, Ellen Beck, Miss in her Teens, Lady Craven, Arabella Goddard, Roi des Fantaisies. Second, Mr. C. Turner, with Sarah Turner, Delicium (passé), Anne Page, this turns out to be a first-rate exhibition variety, and justifies the place given it the other day as a seedling; Silver Mantle, Mrs. Dorling, Clemantbe, the last extra good. Third, Messrs. Dobson and Son, with very pretty, small, round-headed plants of Fairy, Arabella Goddard, Lucy, The Rover, Delicium, Acme, Roi des Fantaisies.—In the class for amateurs, first, Mr. Donald, gardener to J. G. Barclay, Esq., Leyton, with pretty round-headed plants, in an admirably managed and quite fresh state, of Ellen Beck, Hebe, Marionette, Cloth-of-Silver, Celestial, Roi des Fantaisies. Second, Mr. Bailey, gardener to T. T. Drake, Esq., Amersham, Bucks, with Clemantbe, Delicium, Zoe, Eleanor, Madame Dolby, Bridesmaid. Equal second, Mr. Windsor, with Miss in her Teens, Delicium, Mrs. Ford, good, and especially so for lively colour; Roi des Fantaisies, Arabella Goddard, Godfrey Turner. Third, Mr. S. Crawley, gardener to E. J. Houghton, Esq., Leyton, with Loveliness, Cloth-of-Silver, Arabella Goddard, Delight, Countess of Waldegrave, Mrs. Ford. This lot was so well done that we can consistently encourage Mr. Crawley to persevere; in a few years he may rise to the top of the tree, and when he is there we hope he will write plain legible tickets, as he will be farther off than now.

ORCHIDS.—In the great class for fifteen plants, Mr. C. Penny, gardener to H. H. Gibbs, Esq., of St. Dunstan's, Regent's Park, took first place most honourably with a splendid group, comprising a fine example of *Cypripedium grandiflorum*, with twenty flowers; *Cattleya mossiæ*, *Cattleya mossiæ superba*, *Cypripedium barbatum superbum*, extra fine; *Aerides crispum Lindleyana*, *Saccolabium guttatum*, *Anguloa Ruckeri*, *Oncidium crispum*, *Odontoglossum nævium major*, with eight spikes out and five coming, fine; *Vanda suavis*, *Cœlogyne pandurata*, *Odontoglossum cordatum*, with two spikes; *Dendrobium Dayanum*, with six spikes; *Aerides Larpentea*, *Lælia purpurata*. Second, Mr. Wilson, gardener to W. Marshall, Esq., Enfield, with a beautiful group, comprising a fine *Cypripedium Stonei*, with three flowers; *Cypripedium villosum*, admirably done, with eighteen fine flowers; the pretty *Orchis foliosa*, which lights up the grassy hollows of Madeira with its lovely spikes of purple; *Aerides odoratum*, *Dendrobium Dalhousianum*, very fine; *Dendrobium formosum giganteum*, *Cattleya mossiæ*, *Epidendrum vitellinum*, dirty and out of season; *Phalenopsis grandiflora*, *Cattleya Warneri*, with two flowers; *Odontoglossum hastatum*, *Selinipedium caudatum*, with tails over two feet long; *Lælia purpurata*, and *Calanthe veratrifolia*. Third, Mr. Gidney, gardener to Rev. W. Ellis, Hoddesdon, with good examples of *Aerides Lobbiana*, two spikes of rich purplish rose flowers; *Aerides Larpentea*, *Cattleya Aclandæ*, and others. Fourth, Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, with *Saccolabium præmorsum*, *Cypripedium Hookeri*, with seven flowers, a beautifully finished example; *Oncidium papilio*, with three of its peculiar butterfly-like flowers and leaves finely spotted; *Lælia purpurata*. Mr. Peed had a pretty group, in which we noticed a nice *Dendrobium densiflorum* and a good *Aerides odoratum*.—In the trade class for six, Messrs. Veitch and Son had first place, with *Cypripedium Veitchii*, in the way of *C. grandiflorum*; *Anguloa Clowesii*, *Aerides Lindleyana*, *Cypripedium barbatum major*, *Saccolabium guttatum*, *Lælia purpurata*. Second, Mr. B. S. Williams, with a fine *Cypripedium barbatum superbum*, *Phalenopsis grandiflora*, *Aerides odoratum purpureum*, *Dendrobium moschatum*, a fine example of this beautiful Dendrohe, which is always worth notice for its curious mixture of amber, brown, and pink colours; *Vanda suavis*, *Saccolabium guttatum superbum*. Third, Messrs. Jackson and Son, of Kingston, who had a pretty *Aerides Lobbiana* and a good *Lælia purpurata*, with others.

(To be concluded next week.)

FINAL GATHERINGS FROM THE MANCHESTER NATIONAL EXHIBITION.

As an inhabitant of the district, and as one deeply interested as an exhibitor in the success of this great undertaking, I beg you to accept the hearty thanks of myself and friends for your full, impartial, and most instructive report published in last week's Magazine. That you did not spare us when speaking of our failings is consistent with the plan on which the Magazine has always been conducted, and the only plan that should be tolerated; for what good use, I would ask, can be accomplished by reports that consist mainly of flatteries, ill or well bestowed, and which therefore do not furnish to faulty exhibitors a single hint of what is really required of them? Having made copious notes on the various subjects exhibited, I will, with your permission, make a supplementary report, taking up only those subjects on which you have not made any remark.

MR. JOSEPH NEWTON'S LANDSCAPE PLANS.—These were exhibited by Mr. Joseph Newton, the well-known landscape gardener and garden architect, of 74, Oxford Terrace, Edgeware Road, London, and were attractive on account of their great size and exceeding beauty. I was particularly

attracted by Mr. Newton's plans for Sefton Park, Liverpool, which I consider far preferable to those from Mr. Hornblower, the favoured competitor, because the main idea is a park—that is to say, the designs have what is termed "breadth," and are calculated to produce spacious and dignified landscape effects; whereas Mr. Hornblower's are broken up into a number of separate gardens, into so many separate blocks and partitions in fact, that "breadth" is lost entirely, and there is no chance for the eye to range over an ample space, and enjoy the sense of liberty which belongs to a scene the boundaries of which are nowhere clearly defined. But passing from this topic, which is in a measure controversial, let me speak of Mr. Newton's plans as spirited, original, grand in purpose, and, in respect of mechanical getting up, perfect. I was much pleased with a plan for a great hotel with still greater conservatory, the whole being intended as a sanatorium for invalids, who would walk from their chambers into a winter garden, richly furnished with trees, flowers, and birds, without once breathing the chilly atmosphere outside—a capital subject this for some of those speculative spirits who love the Limited Liability Act, and are ever on the look-out for occasions to start companies. Probably an invalid's winter residence would be a better idea for a speculation than a railway to go nowhere, or the self-acting salt-box working by a chronometer movement. Mr. Newton also exhibited plans of works he has accomplished in various parts of the country. His style appears to be English in its essentials, but enriched with Italian features in parts where high keeping and finish are desired.

MR. CARR'S BEEHIVES.—These were placed on the summit of the mound whence a view of the largest tent was obtained, and they were exhibited by Mr. Carr, of Claydon Bridge, Newton Heath. In one square box-hive with glass sides a colony of Ligurian bees presented a very attractive appearance, being in full work, and the combs as regularly constructed as the bars from which they were suspended. I did not ask Mr. Carr whether guide combs had been employed to produce this regularity; but I found much to interest me in Mr. Carr's little lecture, delivered every three minutes, and still more in the ridiculous questions asked him by people who by their appearance and manner one would credit with at least a superficial knowledge of the history of the honey-bee. By patiently listening to what took place during a quarter of an hour, I learnt that the people generally (on the first days of the show, when the upper ten were present) are ignorant of the relations of the queen to the community, and of the fact that only one queen can reign at a time; that they know nothing of the sexual peculiarities of the three divisions of the community, or of the transformations through which every bee passes in common with all other insects, or of the manner in which honey and bread are collected, or of the respective uses of these two aliments in the economy of the hive. Our Editor is an old bee-keeper, and an ardent investigator in this department of natural history. He gives the public the benefit of his researches occasionally in some expensive work, such as the "Intellectual Observer," but not a word on the subject does he ever favour us with in the pages of the Magazine. If he does not cut this out of my copy, I shall hope to see something come of it. Mr. Carr had a pretty Unicomb Hive—that is to say, a glass hive admitting only one comb, and this exposed to view in every part and on both sides, so that it is an easy matter at any time to find the queen and observe her movements. In this unicomb the bees were Ligurians, or black bees, which Mr. Carr avers to be far superior to our old friends the brown bees in working power, fecundity, and homeliness. By the last term I understand that when swarming they never go far away from their owner's apiary.

FERNS.—Mr. Shaw had the courage to show a fine plant of *Trichomanes radicans*, the Killarney filmy fern, without a bell-glass. It must have been well prepared for the trial, for it stood it well, and on the last day of the show it was looking nearly as fresh as on the first. Mrs. Hampson showed *Adiantum pedatum* nicely done; this is a fern best of all adapted for exhibition by amateurs who cannot keep costly collections, as it has the grace and character of a Maidenhair, and grows most luxuriantly with shade, shelter, and moisture, and in winter will bear ten degrees of frost without harm. Mr. B. S. Williams brought a new *Gleichenia*, which I should like to know more about, for it appears to have a habit well calculated for specimen cultivation. Messrs. Veitch had in their trophy a fern called *Athyrium goringianum pictum*. I have no doubt this is an *Athyrium*, but it has much the appearance of *Pteris tricolor*, and I think will be far preferable to that generally disappointing fern; for it not only has some nice shades of purplish rose and silvery gray, but these are harmonised with a blackish tinge of just the kind that in tricolor-leaved geraniums add so much to the effect of the other colours.

THE JUDGING.—Whatever individual exhibitors might sometimes have felt—and we know that the only way to satisfy some men is to give them first prizes, whether they deserve them or not—there can be no question that the judging was a masterly performance. I, in common with other exhibitors, left the show about noon, and by about one we were allowed to enter again, for the judging was finished. Very different this to the slow and hesitating work we have long been accustomed to, seeing the judges potter about for hours after the admission of visitors, and not give satisfaction to any one after all. I suppose the actual work of judging did not occupy three quarters of an hour, and this the second greatest and grandest exhibition of modern times. But we need not wonder, for the best men from all parts were selected for the work; even Mr. Warner came up to join with Mr. Anderson and other great authorities in judging the orchids; Mr. Moore, of the *Gardener's Chronicle*, was a judge in one department, and Mr. Hibberd, of the *Gardener's Magazine*, in another; and to such names may be added those of Mr. Mitchell, head gardener to the Duke of Hamilton, at Hamilton Palace; Mr. Bullen, the once famous orchid grower, of Leicester; Mr. McKenzie, of Alexandra Park; Mr. Richards, of Grimston Park, Tadcaster, and so on, and so on; men whose characters are as good guarantees as their knowledge, and whose much experience fits them for quick and just decisions in great undertakings. And I shall add, as an exhibitor, that Mr. Findlay was equally just and considerate; he not only gave us no cause to complain, but every reason to thank him for his readiness to oblige, and his anxiety at all times to consult our interests. I am sorry that some exhibitors took away their plants before the show was over; it was too bad; but never mind, the entire thing was a success, and we have every reason to rejoice. I trust I have been impartial in making these few notes; I have at least endeavoured to be so, and by my eurd (which I enclose) you will see that I have not referred in any way to anything I exhibited, or to anything in which I have the least possible interest. What I say is, as it professes to be, *pro bono publico*.

AN EXHIBITOR.

NATIONAL TULIP SHOW.

The annual moveable exhibition of tulips, grown by florists from all parts of England, was held at the Mechanics' Institution, Stockport, under the superintendence of the South Lancashire Tulip Society, from the Red Lion, Heaton Lane, their operations having been protected by a guarantee fund sufficiently large to give the greatest encouragement to exhibitors. The arrangements were entrusted to Mr. Woolley and Mr. Wm. Longson; and the result, both financially and experimentally, has been perfectly satisfactory, and is highly creditable to the locality. The entries, which were 52 in number, included growers from Birmingham, Gloucester, Whitley, Leeds, Sheffield, Derby, Warrington, Stockport, and other parts of Lancashire; and the prizes offered varied from £4 to 1s., divided into eleven sections. The blooms, about 2,000 in number, were classed in the lecture-hall by eleven o'clock, when the judges proceeded to make their awards of the successful exhibitors in the various classes. The disinterestedness of the awards may be assured from the fact that the gentlemen engaged for that delicate and difficult service came from various localities, and were conspicuous for their extensive knowledge of the recognised standards required to constitute prize tulips. They concluded their labours a little before three o'clock; and their decisions, we believe, are admitted on all hands to be sound and tenable in floral law. The successful exhibitors, with the names of the winning flowers, are as follows:—

First Pan of Twelve, Mr. Wm. Lea: Mrs. Lea, Heroine, Violet Amiable, Mrs. Pickerill, Curion, Masterpiece, Sans Joe, Ajax, Duchess of Sutherland, Bacchus, Sarah Hedley, Triomphe Royal.—Second Pan of Twelve, Mr. John Turner: Apelles, Charles, Mrs. Pickerill, Violet Amiable, Heroine, Mrs. Lea, Sans Joe, Polyphemus, Alex. Magnus, Denman, Aglaia, Triomphe Royal.—Third Pan of Twelve, Mr. Wm. Longson: Waterloo, Lord Lilford, Violet Amiable, George Glenny, Heroine, Lady Crew, Sans Joe, Paxton, Denman, Queen Charlotte, Aglaia, Lavandicken.—Fourth Pan of Twelve, Mr. George Mort: Colbert, John Wilkinson, Seedling, Amiable, Compte, Heroine, Captain White, Slater's Telemachus, Charlotte, Denman, Aglaia, Bion.

First Pan of Six, Mr. Wm. Lea: Masterpiece, Violet Amiable, Heroine, Ajax, Bacchus, Triomphe Royal.—Second Pan of Six, Mr. Peter Swindells: Charles, Beauty, Andromeda, Sans Joe, Denman, Aglaia.—Third Pan of Six, Mr. John Turner: Charles, Adonis, Heroine, Sans Joe, Denman, Aglaia.—Fourth Pan of Six, Mr. H. Travis: Charles, Violet Amiable, Heroine, Sans Joe, Atlas, Aglaia.—Fifth Pan of Six, Dr. Hardy: Garibaldi, Queen of North, Heroine, Sir J. Paxton, Lord Denman, Lady C. Gordon.—Sixth Pan of Six, Mr. Sharpe: Masterpiece, Violet Amiable, Heroine, Storer's Seedling, Duchess of Sutherland, Aglaia.

First Pan of Three Feathered, Mr. Wm. Lea: Heroine, Paxton, Violet Amiable.—Second Pan of Three Feathered, Mr. Haynes: Lord Sydney, Seedling, Heroine.—Third Pan of Three Feathered, Mr. John Morris: Devonshire, Bienfait, Aglaia.—Fourth Pan of Three Feathered, Mr. Millar: Masterpiece, Heroine, Edgar.—Fifth Stand of Three Feathered, Mr. Haynes: Royal Sovereign, Seedling, Aglaia.—Sixth Stand of Three Feathered, Mr. Parkinson: Willison's King, Victoria Regina, Heroine.

First Stand of Three Flamed, Mr. Haynes: Paxton, Denman, Triomphe Royal.—Second Stand of Three Flamed, Mr. T. Mellor: Masterpiece, Bacchus, Aglaia.—Third Stand of Three Flamed, Mr. J. Moores: Polly, Denman, Aglaia.—Fourth Stand of Three Flamed, Mr. Haynes: Triomphe Royal, Duchess of Sutherland, Lord Sydney.—Fifth Stand of Three Flamed, Mr. Thurston: Sir J. Paxton, Lord Denman, Aglaia.—Sixth Stand of Three Flamed, Mr. Wm. Lea: Sans Joe, Duchess of Sutherland, Aglaia.

First Stand of Two, Feathered and Flamed, Mr. T. Mellor: Charles, Sans Joe.—Second Stand of Two, do., Mr. J. Moores: Heroine, Denman.—Third Stand of Two, do., Mr. Wm. Lea: Heroine, Devonshire.—Fourth Stand of Two, do., Mr. Wm. Longson: Heroine, Denman.—Fifth Stand of Two, do., Mr. W. Davenport: Charles, Polyphemus.

The Best Feathered Tulip in the whole Exhibition, Mr. John Turner: Apelles.

The Best Flamed, do., Mr. H. Travis: Atlas.

FEATHERED BIZARRES.—1, Apelles, John Turner; 2, Charles, Thomas Mellor; 3, Paxton, Wm. Lea; 4, Devonshire, Wm. Lea; 5, Magnus, John Hart; 6, Lord Lilford, Luke Ashmole; 7, Robert Guest, John Morris; 8, Masterpiece, T. Mellor; 9, Surpass Catalaque, John Knott; 10, Lord Byron, R. Keyzey.

FEATHERED BYBLEMENS.—1, Adonis, Wm. Lea; 2, Lancashire Hero, G. Mort; 3, Seedling, G. Mort; 4, Queen of North, Wm. Lea; 5, Violet Amiable, Wm. Lea; 6, Cotterill's Purity, Wm. Lea; 7, Seedling, David Jackson; 8, Bessie, Wm. Lea; 9, British Queen, W. Willison; 10, Seedling, — Haynes.

FEATHERED ROSES.—1, Heroine, R. Keyzey; 2, Aglaia, Wm. Lea; 3, Kate Connor, Dr. Hardy; 4, Beauty of Home, G. Mort; 5, Julia Farnese, R. Keyzey; 6, Lady Crew, John Knott; 7, Cerise primo Superb, J. P. Sharp; 8, Inimitable, J. Hart; 9, Madame St. Arnaud, J. Morris; 10, Andromeda, John Knott.

FLAMED BIZARRES.—1, Paxton, John Hart; 2, Sans Joe, T. Mellor; 3, Merit, Wm. Hart; 4, Polyphemus, J. Thurston; 5, Mr. Hextall, — Haynes; 6, Emperor Nicholas, Dr. Hardy; 7, Dr. Hardy, — Haynes; 8, Paxton, J. Thurston; 9, Saxton, W. Hart; 10, Lord Palmerston, — Haynes.

FLAMED BYBLEMENS.—1, Lord Denman, W. Davenport; 2, Surpassant, J. Hart; 3, Princess Royal, D. Woolley; 4, Alexander Magnus, Hugh Housley; 5, Gavazzi, J. Hart; 6, Duchess of Sutherland, Dr. Hardy; 7, Wallers, G. Mort; 8, Bienfait, W. Davenport; 9, Salvator Rosa, Joshua Hague; 10, Queen of North, H. Steward.

FLAMED ROSES.—1, Triomphe Royal, Wm. Hart; 2, Aglaia, J. Thurston; 3, Mabel, T. Mellor; 4, Juliet, W. Willison; 5, Lavandicken, W. Davenport; 6, Rose Guerre, G. Mort; 7, Camillas, G. Mort; 8, Madame St. Arnaud, T. Mellor; 9, Village Maid, G. Mort; 10, Lady C. Gordon, J. Thurston.

BREEDERS.—First Stand of Six, Wm. Longson: Dr. Hardy, Sarah, Annie Hathaway, Paxton, Sutherland, Mabel.—Second Stand of Six, Wm. Lea: Nicholas, Adonis, Olivia, Seedling, Miss Atherton, Queen of England.—Third Stand of Six, G. Mort: Unknown, Lady Atherton, Queen of England, Paxton, Seedling, Juliet.—Fourth Stand of Six, T. Mellor: Storer's Seedling, Duke of Manchester, Annie McGregor, Sir Colin Campbell, Sarah Sophia, Queen of England.

BREEDERS.—First Stand of Three, Wm. Lea: Ariosta, Miss Atherton, Queen of England.—Second Stand of Three, J. Moores: Paxton, Earl Warwick, Seedling.—Third Stand of Three, Jno. Warren: Paxton, Seed-

ling, Seedling.—Fourth Stand of Three, Wm. Longson: Paxton, Adonis, Miss Boot.—Fifth Stand of Three, T. Mellor: Storer's Seedling, Wm. Bentley, Queen of England.—Sixth Stand of Three, P. Swindolls: Duke of Ifamilton, Unknown, Unknown.

BIZARRE BREEDERS.—1, Seedling, Wm. Lea; 2, Nicholas, W. Longson; 3, Paxton, J. Hall; 4, Seedling, W. Lea; 5, Ashmole No. 1, Luke Ashmole; 6, Seedling, W. Lea.

BYBLEMEN BREEDERS.—1, Adonis, J. Hart; 2, Delicata, J. Moores; 3, Miss Whitaker, G. Mort; 4, Duchess of Sutherland, W. Longson; 5, Seedling, J. Thurston; 6, Miss Forrest, J. Peacock.

ROSE BREEDERS.—1, Queen of England, Wm. Lea; 2, Juliet, Wm. Lea; 3, Martin's Seedling, John Hart; 4, John Waterson, T. Mellor; 5, Mabel, Wm. Longson; 6, Veritas, R. Keyzey.

The Best Breeder in the whole Exhibition, T. Mellor: Storer's Seedling. Dr. Hardy, of Warrington, no mean authority on the subject of tulips, pronounced the show, as a whole, to be the best exhibition of the kind he had ever seen. The winner of the highest premium—twelve dissimilar tulips in section 1—was Mr. Wm. Lea, of Leigh, Lancashire, who also carried away seventeen other prizes, a most successful exhibitor in this part of the country. The best flower in that pan, raised by himself, was named "Mrs. Lea," as a compliment to his mother, and was a remarkably fine bloom, as were the feathered specimens, "Masterpiece," "Triomphe Royal," and the flamed "Bacchus." The second and third pans, in the same section, were highly creditable to the growers, Mr. John Turner and Mr. Wm. Longson, and were also greatly admired by the visitors, who were admitted from three to six o'clock, on the payment of 1s. each towards the general fund. It is worthy of remark that, notwithstanding that this was an assemblage of the first tulip growers in England, the best feathered flower in the whole exhibition was cultivated in the northern provinces, by Mr. John Turner, of Stockport; the best flamed came from Mr. Travis's garden, Royton; and the best breeder was shown by Mr. T. Mellor, of Staleybridge. The sum expended in prizes will be about £50. The sight of 2,000 tulips, with their bright or delicate tints, was very pretty and pleasing to the senses, but the effect was increased by the display of a number of herbaceous and greenhouse plants in flower, from the Vernon Park Conservatory, including some splendid caladiums, fuchsias, geraniums, and balsams, relieved by tastefully-arranged bouquets and baskets of cut flowers. The exhibition, which terminated at six o'clock, has been a decided success; and, we believe, wherever the "National" may be held next year, our southern growers will have some difficulty, whether for purity, or clean bloom, in beating the flowers cultivated in the northern provinces of England. The lovers of tulips are much indebted to the honorary secretaries and the committee for their efforts to make the National Tulip Show a successful exhibition.

Besides the well-known old varieties, which were mostly shown in fine style, the seedlings of Messrs. Haynes, Mort, and Jackson were very promising. Dr. Hardy's Ajax was very fine, both in the first stand of twelve and the first stand of six. Storer's Dr. Hardy is a splendid flamed bizarre of the red class, but unsurpassed in the richness of its colours.

It will gratify all lovers of the tulip to know that the show was a success financially. After paying all the prizes and expenses, there is a small balance to hand over to the Stockport Mechanics' Institution. B.

CHICHESTER HORTICULTURAL SOCIETY.

The summer exhibition in connexion with this society took place in the gardens attached to the Episcopal Palace, on the 13th inst. The weather was unpropitious, but the attendance proved to be better than could have reasonably been expected, and the beautiful grounds presented a very lively appearance in the afternoon. The plants were decidedly more numerous and better grown than in former years. In vegetables and fruit there was not much competition, and nothing worthy of note. The bridal bouquets exhibited by Messrs. A. Scott and Son, North Gate Nursery, were designed with exquisite taste. Mr. J. M'Ronald, West Gate Nursery, sent a well-selected score of varieties of the British ferns, some specimens of the new radish (*Raphanus caudatus*), and a few seedling gloxineas delicately margined. From Mr. S. Evans, of North Street, came a seedling *Tropaeolum*, which for its free flowering properties promises to extinguish the Ball of Fire. He had also some very good seedling scarlet geraniums. The orchids were numerous and well grown: they were sent by Mr. Cameron, gardener to his Grace the Duke of Richmond; Mr. Young, gardener to W. H. Stone, Esq., M.P., of Leigh Park; Mr. Carter, gardener to Mr. Kent, of Goodwood; Mr. Dover, gardener to H. Clarke, Esq., Fareham; and Mr. Wilson, gardener to J. E. Fletcher, Esq., of Dale Park. The latter sent a *Saccolabium guttatum*, with four fine spikes fully expanded; Mr. Cameron had a splendid variety of *Cattleya*. Foliage plants were represented by plants which have more than once carried off metropolitan prizes: there was, for instance, that marvellous plant of *Stangeria paradoxa*, which nobody has been able to grow so well as Mr. Young, and which has this season produced a cone more than a foot long. The geraniums, though numerous exhibited, were by no means fine. Of stove and greenhouse plants there was a good display; *Clerodendron Balfourii* and a well-flowered *Bougainvillea glabra* were the most noteworthy plants. Some very good fuchsias were shown by Mr. Vickery, gardener to J. C. Couper, Esq., of Felpham. The Achimeres, Balsams, Gloxineas, and Calceolarias were better than last year. On the whole, this was a show such as can seldom be seen in so small a town.

NATIONAL SCHOOL FLOWER-SHOW AT HAMPSTEAD.

The annual summer show of wild flowers, window plants, &c., took place on Wednesday, the 12th, at the Infant Schoolroom, Bradley's Buildings, Hampstead. By the rules anyone was allowed to exhibit, but only children of the Parochial or West-End Day or Sunday Schools were permitted to receive prizes, and, consequently, they were the principal exhibitors. Though not so extensive as last year, owing to Whitsuntide coming later, and also to the changeable weather, the show was a very satisfactory and creditable one, the tasty arrangement of many of the specimens evincing much patient labour on the part of the youthful exhibitors, who, in some instances, were assisted by their parents. One boy, exhibiting in Division C, had formed, with the assistance of his father, a representation of a somewhat monstrous donkey (in dried laurel leaves), bearing a very portly man, whose scarlet jacket was made of geranium leaves, the whole being surrounded by a very pretty leaf-border. This design, though we know

not for what reason, was said to be emblematical of Reform, and gained, as it well deserved, a second prize for its exhibitor, George Payno. Perhaps the most commendable of all the specimens was one shown in Division B, consisting of a cottage—appropriately named “Wood Cottage”—built, in a neat and proportionate style, with something like eighty different kinds of wood, each being correctly named, by Frederick Palmer, to whom a first prize was awarded, viz., a box of geological specimens, accompanied by a catalogue of the objects, written by Mrs. Frederick Hill, the donor of this and other prizes. From two to five o'clock, the charge for admission was sixpence, and a sum of £2 13s. was taken at the door. From seven to nine o'clock, the charge was twopence, and £1 7s. 2d. was taken. The children of the Parochial and West-End Schools were admitted, without payment, from half-past five to half-past six o'clock. The prizes were distributed by the Rev. C. M. Harvey, M.A., and the Rev. G. A. Herklots, M.A., the incumbent being unable to attend. A large number of the prizes were kindly given by Mrs. F. Hill and the Rev. C. M. Harvey, the remainder being purchased out of the proceeds of the exhibition; they consisted of work-boxes, writing-cases, money-boxes, vases, and other elegant and useful articles.

During the day the proceedings were enlivened by the performances of the School Band, under the direction of Mr. Loader, and we embrace this opportunity of informing our readers that a sum of £15 would be a great service to the band, as the youths composing it require new uniforms, and there are no funds with which to provide them. Some subscriptions for this purpose have already been received, and any further amounts would be gladly accepted by the Revs. C. M. Harvey, G. A. Herklots, or Mr. Loader.—From the *Hampstead Local Paper*.

PLANTS FOR ROOM DECORATION.

We will commence with *Aralia Sieboldii*, a native of Japan. This is a plant of great value for several reasons. It is nearly, if not perfectly, hardy. It is the finest of all plants for growing indoors at all seasons, and it is one of the best things that can possibly be used in what is called the sub-tropical garden. We have seen it during the present winter in sitting-rooms make fresh green leaves such as no other plant we know of would make in a like position, and it stands the drying air of the drawing-room with perfect impunity at all times. Large, bold, and handsome in leaf at the same time, it is therefore highly to be recommended to all who cultivate plants in the house. For that purpose it is better purchased in a comparatively young, or at all events simple-stemmed state, as in such conditions most “foliage plants” look better than when branched. If had in a fresh state, and with plenty of room for the roots in the pot, it will require no attention beyond watering for a long time. Dust may settle on it, to be sure; but being a large and smooth-leaved subject, that may be removed in a few moments with a moist sponge. For the flower-garden it is fine for grouping with the other plants lately recommended for such, and, when plentiful enough, may be tried out all the winter. We have lately seen plants of it that have stood out all the past very severe and nasty winter, and that had made fine fresh green shoots before the end of May. Till plentiful enough, it had better be protected in winter in a cold pit or greenhouse. It is also one of those things that may be utilized for the conservatory in winter and the flower-garden in summer; and if it prove as hardy as we believe it to be, it must become one of the most popular plants in the country. There are two or three variegated varieties.

It is very likely that other plants closely allied to this are equally good for room decoration, and we have had recently a great number of its relatives of handsome habit, introduced from a very high altitude in South America; but we had better confine ourselves to such things as have been proved to be good. The foregoing is not at all known in England for the purpose named; but the Indiarubber plant (*Ficus elastica*) has been used a good deal with us—not, however, so much as it deserves to be. When in a young and simple-stemmed condition, there is nothing to surpass it for doing well in a living room. We have seen it flourish greenly for years in a house, without either potting or any other attention beyond watering. Its leaves are so large and smooth that when they become dusty they may be cleaned in a few moments with a moist sponge. It, too, should be first placed in the house when in a comparatively dwarf state, and always with a simple or unbranched stem. When once it breaks into several stems and becomes tall and branched, it is no longer so handsome, and should be cut down and propagated, or exchanged for dwarf young plants. But if we begin with a strong dwarf plant, say at about a foot or fifteen inches high, it will be a long time before it grows out of its very comely habit. When first placed in the house, it should have what gardeners call plenty of pot-room, so that it may require no fresh “shift” for a couple of years. When it does require potting, it should be given a few weeks in the hothouse afterwards, so that it may become firmly rooted in the new soil; at least, this is the best plan, though it may be by no means necessary. So much for the Indiarubber plant. Doubtless there are others of this genus which would do equally well in the house, but it is the best we know of at present.

There are no plants more suited for this purpose than the best of the dwarf palms, but they are as yet so scarce in England that we feel it would be little more than a waste of space to describe them. Seen, however, we hope to find them grown freely by our nurserymen. In Paris they are grown in many houses; but the French are far before us as regards the culture of handsome and graceful plants for the house. A nurseryman who lives at Versailles lately told us that he annually sells in the Paris market 5,000 plants of one species for this purpose alone, and that by no means a cheap plant—*Dracena terminalis*. The myrtle in its various forms is one of the best plants for house culture. It should be grown in a dwarf, neat condition, and not allowed to grow up tall and straggling, as is usually the case. Instead of disliking the dry air of a house, the myrtle seems to enjoy it. The finest flowering plant for the house is *Vallota purpurea*—or the Scarborough Lily, as it is sometimes called. It seems to enjoy the window almost as much as the myrtle, and is a fine showy thing when in flower. Among the most graceful of all for our purpose are some of the dwarf green kinds of *Dracena*. We should scarcely advise the introduction of the crimson-leaved kinds, except to those who can afford to run the risk of losing them. Of course they may be introduced for a short time with impunity. Many of the *Yuccas* enjoy the air of a house very well, and as some, like *Stokesii*, are very prettily marked, they will be found very desirable. Not having mentioned half the plants which we know to be useful in this way, we shall continue the subject at a future day, and add a few remarks as to their culture and treatment.—*The Field*.

THE MOST BEAUTIFUL WILD FLOWERS: WHERE TO GATHER AND HOW TO CULTIVATE THEM.

Now we come to the Heath family, and that it is likely to afford beauty and interest I need hardly remind any person who has seen the wide spread of beauty on our heaths and mountains in summer or autumn. But of the variety of loveliness to be had from even our national heaths few people have any idea; not even the sportsman or botanist who continually wanders over their fragrant wilds, or the plant collector, with a quick eye for everything beautiful or noble in the way of a plant. The species themselves are of course very beautiful; but from time to time sports have appeared amongst them which nurserymen have preserved; and thus, where you see a good collection of these, the variety of charming colour is quite amazing. Though I knew all the species and admired them, I had no idea of the beauty of colour afforded by the *varieties* till I visited the Comely Bank Nurseries at Edinburgh a couple of years ago, and there found a large piece of ground covered with their exquisite tints, and looking a most refined flower garden. But if all this beauty did not exist, the charms of the usual forms of the species, as spread out on our sunny heaths, should suffice to warrant their culture on the rockwork or among dwarf shrubs; and nearly allied to them we have the interesting bog *Vacciniums*, which may be cultivated in marshy or peaty ground. To these belong the cranberry, bilberry, and whortleberry; and for some of these and the American kind people have ere now made artificial bogs in their gardens. The little creeping evergreen *Arbutus uva-ursi*, or bearberry, is very neat in the garden or on rockwork. Found in hilly districts in Scotland, northern England, and Ireland, and may be had from the nurserymen. Then the Marsh Andromeda (*A. polifolia*), found chiefly in central and northern England, bears very pretty pink flowers, and grows freely in a bog or peat-bed. The very small English *Azalea procumbens* is also an interesting native, which some people try to cultivate, and where they succeed nothing can be more satisfactory, for the plant forms a cushiony bush not more than a couple of inches high. In Britain, it is found only in the Scotch Highlands. I have only seen this firmly established in cultivation once. Few people who admire what are called American shrubs can have failed to notice from time to time the beautiful St. Daboe's Heath (*Menziesia polifolia*), a plant found rather abundantly on the heathy wastes of the Asturias and in south-western France, and also in some abundance in Connemara, in Ireland. It is usually associated with American plants in our nurseries and gardens, preferring peat soil and the treatment usually given to such. It is an elegant and beautiful plant in every way, and should be in every garden. The flowers are usually of a rich pinkish colour, but there is a pure white variety equally beautiful, while quite distinct from the commoner. Grown in every nursery, from its great beauty, and therefore to be had without trouble. The very rare blue *Menziesia* of the Sow of Athol, in Perthshire, is also very desirable if you can get it, and I think it is sold in the Edinburgh nurseries. As for the Heaths, all are worthy of a place, beginning with the varieties of the common ling (*Erica vulgaris*)—the commonest of all heaths. It has “sported” into a great number of varieties, many of which are preserved in nurseries, and these are the kinds we should cultivate. Some of them are better, brighter, and different in colour; others differ remarkably in habit, some sitting close to the ground in dense, green, tiny bushes, others forming fairy shrubs of more pyramidal character, and all most interesting and pretty. These tiny shrubs and their allies in size might form a sort of edging or marginal line round a bed of choice shrubs planted in peat, as they frequently are and must be in gardens. I will merely mention the varieties *pygmaea*, *pumila*, and *coccinea*. Then we have the “Scotch heather” (*Erica cinerea*), the reddish purple showy flowers of which are very attractive, but far surpassed in beauty of colour by a variety of the same plant called *coecinea*; and there is also a white variety, as there is of *Erica tetralix*, to which is also closely related the Irish *E. Mackayana*, a plant named after Dr. Mackay of Dublin, who found so many of the plants in Ireland that connect its flora with that of south-western Europe. Next we have the ciliated Heath (*E. ciliaris*), a very handsome species, with flowers as large as those of St. Daboe's heath and Mediterranean heath (*E. carnea*), one of the most valuable of all hardy plants, in consequence of its blushing into masses of rosy red in our gardens in early spring. It is found in some of the western counties of Ireland, and of course after it had been discovered in other European countries. This forms a neat, low-lying shrub; grows on almost any soil, and is without exception the most valuable dwarf spring shrub that I am acquainted with; admirable for making an edging round a bed of choice shrubs, or anything else, for the rockwork or for the mixed border. It is now somewhat common to have ivy edgings round beds and borders; occasionally a desirable variety might be produced by making an edging of this plant, which, while it would form a dense evergreen margin at all times, would have the additional charm of flowering

beautifully in spring. There are several varieties, but the ordinary garden or nursery one is as good as any I have seen. Finally, we have among these interesting things the Cornish Heath (*E. vagans*), and from what has been said of the family it will be perceived that a very interesting bed or group might be made from these alone. Indeed, they would be most desirable to introduce everywhere that the soil is peaty or not over arid, and might be grown anywhere by excavating a bed and filling it with peat; but our great object should be to make the most of natural advantages, and as many readers of the GARDENER'S MAGAZINE must have gardens favourable to what are called American plants, they would find it worth while to devote a spot to the British Heaths and their varieties.

The *Pyrolas*, or Winter-greens, are charming native plants, some of them deliciously fragrant, and all interesting, but they are difficult to cultivate. *P. rotundifolia* and *uniflora* are among the best, and both are rare. Should any reader attempt their culture, it will be well to bear in mind that light free leaf-mould, with sand and a little good loam, are necessary: a light spongy sort of soil they delight in, with good drainage, abundant moisture, and shade. *Vinca minor* and *V. major* are too well known to need recommendation; there are now some finely variegated forms of the larger periwinkle, and a white-flowered kind of the smaller one is not uncommon.

One of the most precious gems in the British flora is the vernal Gentian (*G. verna*), which grows in Teesdale and in a few places on the western shores of Ireland. The blue of this flower is of the most vivid and brilliant description; it is in fact the bluest of the blue, and one of the most charming of all alpine flowers. Should be in every garden of hardy plants. May be grown well in sandy loam mixed with broken limestone or gravel, and indeed is not very particular as to soil, provided that it be kept moist, is mixed with sharp sand or grit, and well drained. A very important point in the cultivation of this plant is to leave it for several years undisturbed. It is best suited for a snug spot or rockwork, where, however, it should not be placed except where there is a good body of soil into which its roots may descend and find moisture at all times. It cannot be too well known that rockworks as generally made are delusions—ugly, unnatural, and quite unfit for a plant to grow upon. The stones or "rocks" are piled up, and no sufficient quantity of soil or any preparation made for the plants, so that all really beautiful rock-plants refuse to grow upon them, and they are taken possession of by weeds and rubbish, which indeed often refuse to grow upon the "rockwork," because they cannot lay hold of it, so to speak. They are generally made either too perpendicular or too ambitiously even in the best gardens in England—masses of rock used merely to produce an effect, or masses of stone piled up without any of those crevices or deep chinks of soil into which rock-plants delight to root in a native state. The right way is to have more soil than "rock," to let the latter suggest itself rather than expose its uncovered sides, and to make them very much flatter than is the rule, so that the moisture may percolate in every direction, and that the rockwork may more resemble a jutting forth of stony or rocky ground than the ridiculous half-wall-like structures which pass as rockworks in this country. I have grown this *Gentiana verna* very well in well-drained pots, with plenty of water in summer, and also in the open border in fine sandy soil, the surface being studded here and there with small stones, among and around which this lovely plant made its way and flowered "deeply, darkly, beautifully blue" every season. It is abundant in mountain pastures in central and southern Europe; it is, in fact, a true alpine, and may be had in nurseries, particularly in Backhouse's Nurseries at York, which contain the most interesting and beautiful arrangement of plants I have ever seen in any garden, public or private—a noble and naturally-arranged rockwork, exhibiting in good health most of the rarest and beautiful alpine plants yet discovered. It is better worth a visit in spring or early summer than any other garden scene I am acquainted with. The Marsh Gentian (*G. pneumonanthe*) is also a lovely plant, more so perhaps than many would think this dull climate capable of producing. It should have a moist spot in a border, and is not difficult to find in the north of England, and also grows, though less plentifully, in central or southern England. The Brighton Horticultural Society is in the habit of giving prizes for collections of wild plants, and thereby doing much harm by causing a few rude collectors anxious to win a few shillings to gather bunches of the rarest wild flowers, and perhaps exterminate them from their only habitats. When at one of its meetings two or three years ago, I observed among the collections competing for a paltry prize large bunches of this beautiful gentian, which had been pulled up by the roots, to form one of one hundred or more bunches of wild flowers, by some wretched Goth who happened to know wild flowers. To exhibit our wild flowers at a "flower show," where they are contrasted with hosts of geraniums and loudly coloured flowers, is a very doubtful way of attracting people to study them; but to so arrange matters that the rarest plants of a locality are pulled up, and perhaps exterminated, to form one of a

collection of this kind, is the "unkindest cut" that can be given to our choice woodland children. Indeed, in such positions the flowers are not likely to be admired except by those who know them, and they must be pained to see them in such a position. Therefore the system is bad, root and branch, and should be discouraged by every lover of wild flowers, as well as any other plan that would cause quantities of the rarest to be pulled up or otherwise exterminated.

CYPRIPEDIUM CALCEOLUS.

ON HAYMAKING.

Paper read by A. H. GRIFFITH, Esq., at the monthly meeting of the Ballymahon Farmers' Club, on the 7th of June.

The animal world is in a continual state of change, and the relative proportion of the substances of which it is composed is variable, and new combinations are continually being produced. Hence, animals may at one time be fit for a certain use, for which, before and after, they were unfit. Every object in nature has a beginning, a middle, and end; and in human beings this beginning, middle, and end become youth, puberty, and old age. In youth, the muscles, bones, and sinews of animals are soft and pliable; in middle age, less strong and firm; and in old age they become tough and hard, and lose that suppleness and elasticity which they possessed in youth. The flesh of young animals, therefore, is tender and sweet, and is in general so in proportion to the delicacy of the materials upon which it is reared. Human milk, for instance, is of richer ingredients than that of any of the lower animals; and hence a New-Zealand savage prefers the flesh of her offspring to anything old or tough. We ourselves have a similar predilection for young beef, which is tender, firm, and strengthening, whilst we know old beef to be manifestly the reverse. In fact, old age or natural decay is in mankind caused by a gradual ossification of the system—that is, by the sinews and muscles losing that pliancy and elasticity which they possessed in youth, and becoming tough and hard. Modern investigations in vegetable physiology show also that the several tribes of grasses are likewise to be recognized as living beings. These also have their stages—they have their "exit and their entrance;" and the analogy between the animal and vegetable creation is every day shown to be more close. If the flesh of old cows and sheep be distasteful, as they certainly are, to us mankind, most assuredly so are old grasses to the grazing animals. The rule, therefore, is—*young food is good and nutritious, old food bad and unwholesome.*

The question, then, to be determined is, What is young food and what is old food? Where is the discriminating point at which the various sorts of food are in their best and most prime condition? This point of time would appear to be that at which the vital energies are fully developed for the propagation of the species. This is the point at which I consider animal food to be in its prime; and from the same point vegetables and the various tribes of grasses begin to decline in nutritive value. When vegetables are required for food, therefore, they are universally used before propagation commences; so are, generally, the grasses (and unquestionably it is at this stage that grasses are most relished by animals); for in every pasture cattle most eagerly devour the younger grasses, and leave the older patches behind them; and the great point to which I would direct attention is, that in cutting grass for hay the same rule should be remembered, and that should *food* be the principal object in view, the grass should be cut down *before* the time of the full development of the seed, as the grass is then in its most perfect state, and flowing with milk and nourishing juices. After that period future efforts will be directed, not to its own preservation, but to transfer all these, its constituted principles, into seed, for the propagation of its species, which, when done, the stalk consists chiefly of woody matter. For instance, the stalk of wheat in youth is soft and pulpy, and flowing with a sweet saccharine matter; after the period of ripeness—that is, in old age—this stalk becomes again hard and dry, and turns principally into wood, which is the principle in plants analogous to bone in animals. It is commonly but erroneously supposed that plants when perfecting their seeds draw a great deal of the richest material, such as phosphate of lime and phosphoric acid, from the soil: they do no such thing; but their own life being now perfected, their energies are directed to transmute their own juices and substances into these ingredients in the seed for the propagation of the species, and this being done, their work is finished, and they die after the operation. The seed also itself becomes deteriorated as an article of food when allowed to become over ripe. Take the grain of corn, for instance—when come to its perfect size it is then at maturity, and is pulpy, soft, and milky; but when it is allowed to be over ripe, so as to fall, through old age, from the stalk, as in shedding, this pulpy soft substance becomes changed into a hard and bony one—in other words, the fine flour of the grain is transformed into the hard rind which constitutes the rough substance of bran. From this reasoning and philosophy of the question, therefore, I would induce the following practical rule:—When any of the various tribes of grasses are intended as food, they should be cut before the ripening of the seeds, and even before the seeds are fully developed. As to the mowing and saving hay, the routine is pretty well understood; I may observe, however, that the meadow should be cut close, for one inch of the bottom will weigh more than two at the top; and there is a still greater advantage by so doing in the aftermath, for the portion that remains quickly dries up and decays. As to the saving of hay, it requires frequent turning and exposure to the sun and air, which can be well performed by the hay tedders now generally in use. Before the dew falls, the hay should be gathered into windrows and cleanly raked, and on the second and third days these operations, with some slight variations, should be repeated. Should the weather permit, if carried to the hay-yard and ricked without tramping in the field, it would add much to the nutritious qualities of the hay, and save considerable expense and waste; but to effect this it will be necessary to be provided with a good rick cover, and the necessary apparatus for elevating the canvas sufficiently high to allow the free escape of any moisture arising from the slight fermentation that must necessarily ensue from even the best saved hay. The expense of making into field-cocks, the loss from exposure, and rotten tops and bottoms, would be thus saved; and this loss, though in general not much thought of, makes a considerable item in the farmer's profits and losses. Having now got the hay into the hay-yard, my task is nearly accomplished, but it still has to be put together with care, slightly salted, and well preserved from the weather by thatch. Our present experience should teach us the value of well saved hay in large quantities, and prove the correctness of the adage—that old hay is old gold.

NOTES FROM A TOUR THROUGH KENT.

THE SEAT OF COLONEL LOYD AT HAWKHURST.

Hawkhurst is a decayed market-town, most pleasantly situated about fifteen miles from Tunbridge Wells, and is surrounded by many charming seats of the nobility and gentry, and not the least interesting amongst them is the one above named. In fact, when looked upon from a gardening point of view, it is far superior to any I have yet seen in the same county; but then it must be understood there are many which I have not seen, and the comparison is therefore partial. But the superior condition of everything in this place speaks not only in decisive language in the highest praise of the worthy proprietor's liberality in all that pertains to gardening, but every step we take increases the force of the original conviction that all the details are managed by a master mind. More I need not say on that head, as Mr. Record, the able gardener, is too well known in the horticultural world to need any further eulogium from me; so I shall proceed to furnish my notes from this place in the order they were taken. In the first place, we enter a range of three vineries, ninety feet long; in the earliest was a magnificent crop just on the point of colouring, the crop was very evenly distributed, the bunches of extraordinary size and well shouldered, and the strength and vigour of the growth was all that could be desired. Indeed, such another display of grapes, combining all the essential features of health, strength, and vigour, I have not seen in any other house this season; and whatever may be the conditions under which they were grown, their appearance fully justifies me in saying they were evidently managed with skill and judgment. Unfortunately, some men will not be benefited by the experience of others, and so they continue on in their old track, always meeting with disappointments, and wondering why they fail under circumstances similar to others who succeed so well. As an instance of the self-will of some men, I will refer to the common practice of covering the whole roof of a house with a mass of leaves and wood, so that neither sun nor air can exercise its beneficial influence upon the vines as it should do. I have seen so many instances of this, not this season only, but in previous years, that when I have the good fortune to meet with such an able cultivator as Mr. Record, I feel that when inspecting his noble crops, grown on the one rod to a rafter system, that I can breathe freely, and can converse with him without feeling I shall offend my friend by advocating space, to secure light and air for the full development of all parts of the vine. As above stated, the vines are grown with one rod to a rafter, so that the single rod has the whole space of a four-foot light to expand itself upon. How different is this from those houses where we find the fruiting rods placed only at a distance of eighteen inches to two feet apart, and when they develop their leaves the whole aspect of the house is dark and shaded, rendering it more fit for ferns than grapes! Such is the condition of many, yet the success of others who adopt the more liberal view of what constitutes first-class culture, is not enough to convince the advocates of the close-rod system that they would secure a finer quality, and an equal quantity, if they were to allow their vines sufficient space for the proper development of all their parts. The above remarks respecting the early vinery here will apply with equal force to the second and third, for they were alike vigorous and abundantly fruitful. In the second vinery was that useful grape the Marchioness of Hastings. The others consisted of Royal Muscat, Black Hamburg, and Muscadine. In the second vinery I noticed a magnificent show of late strawberries, and standing in a 20-inch pot was a fig-tree with no less than 350 fruit fast swelling off. In one of these houses I also noted a choice collection of the best varieties of camellias just completing their growth.

The admirable system of ventilation of these houses is worthy of a special notice, as it is one of the most complete of all the contrivances I have yet seen; the whole top lights of a house being all moved up or down at one time simply by the turning of a small cog-wheel, which is worked by a winch about three feet from the floor of the house. The main features of the plan consist of two cog-wheels working in the manner they usually do, one within the other; the smaller one is revolved by the turning of the winch or handle, and as this revolves it works within one a size larger, which has connected with it a perpendicular iron rod from the roof of the house. As this rod also revolves from the same action, as also does another running lengthways of the house, some small chains which encircle this rod are fixed to the lights, and as these chains are gathered up or let out by the revolutions of these rods, air is admitted to any extent the whole length of the structure. I believe this is simply called "Weeks's cog-wheel system;" but by whatever appellation it may be known, it is a commendable piece of ingenuity that ought to be extensively patronized. To show, too, the superior fitting-up of these houses, and the convenience with which they can be adapted to many useful purposes during that portion of the year when more room is required, and when the houses full of plants would do no harm to the crop of grapes, I must allude to the temporary stages that can be put up or taken down at pleasure. These stages consist of breadths of wood trellis-work, well made and painted; they are made in breadths from three to four feet wide, and these are placed during the winter season upon trestles, so that the body of the houses can be filled with plants, these plants enjoying at the same time a full exposure to light. When the time comes that these stages must be removed the trestles are taken away, and the trellises laid down upon the floor of the house, thus securing a comfortable footing, and allowing at the same time plenty of space for those operations which are necessary in all cases of grape culture. We have long since had an objection to fixing permanent stages in vineries, because they always hold out an inducement to use them when, strictly speaking, the vines ought to have the benefit of the whole house, but we never saw a better means of getting over the difficulty than this now alluded to.

It is now a pleasing task to refer to an excellent set of pot vines, twelve in number; these were bright examples of horticultural skill. They were trained to a flat circular surface about three feet over, many of them bearing handsome bunches of delicious ripe fruit, and considering the early season of the year (as previous to my visit Mr. Record had been cutting some eight or ten days) they were very beautifully coloured. The sorts were chiefly the Black Hamburg, the Sweetwater, and a magnificent example of the Mill Hill Hamburg. This last is a noble subject either for pots or for borders, and, as probably some of my readers will remember, a special favourite of mine. The talented gardener here had done it full justice, for both the bunches and berries were remarkable for size and finish. Our friend had also amongst them one plant of the Muscat Hamburg, and although slightly given to shanking, in this instance I am compelled to acknowledge that it was exceedingly well done; for we are not

accustomed to see this grape in fine condition, although when well done it is a valuable variety. There was also a very promising lot of young pot vines for next year's crop. This range of houses and some adjacent pits are heated by one of Weeks's tubular boilers. In these pits we noticed a batch of Beaton's geraniums; they are intended to be grown as standard and half-standard specimens for conservatory decoration. I have no doubt, from the vigorous habit of some of them, they will prove suitable subjects for such work. In the same range was also a fine batch of chrysanthemums already in an advanced stage of growth, and if the same liberal culture is carried out as hitherto, they will make monster plants by the autumn. Near here we saw a fine crop of melons, very healthy and clean; the variety was the Conqueror of Europe, an especial favourite with the family.

We come next to the cucumber house and stove, forty feet long; these are span-roofed buildings, of excellent make and admirably arranged. In the stove we found a good selection of choice plants for dinner-table decoration, and many other useful subjects, including a fine plant of *Oncidium flexuosum*, with two spikes of flowers just beginning to expand, and another with one spike. Of caladiums there were some useful varieties, with a charming plant of the *Cyperus alternifolius variegata*, and also the green form of the same *Cyperus*. One of the most vigorous stove plants I saw here was the *Allamanda Schottii*; it had made a vigorous growth quite six feet long. Then there were numbers of that useful winter-flowering plant the *Sericographis Gbiesbreghtiana*, and some healthy well grown exotic ferns.

In the cucumber-house the only varieties were Monroe's Rabley, an excellent bearer, considered by Mr. Record to be the best, and Stanley's Prolific. Both were good, and in a thriving condition. We next enter a large span-roofed plant-house, 50 feet long and 20 feet wide; this is but a short distance from the stove, so that these are all heated by a 42-inch saddle boiler. The first thing that attracted my attention here was a splendid lot of specimen fuchsias for late summer display. These were exceedingly well done, as also were some specimen plants of the show-class of pelargoniums. Many of these would measure more than 3 feet through; they were in the finest possible health, and the first batch just coming into flower, while the successional lots were equally clean and healthy as the preceding. Beside these there were huge pans of *Achimenes* in great variety, and bearing unmistakable signs of superior culture. It is many years since I have seen the *achimenes* so well done as they are here, and it is evident they are well understood; for instead of being drawn up in the confined atmosphere of a stove, as they often are, they enjoy a full current of air in this cool house, and their condition at the time I saw them (May 11th) was such that no one could gainsay the correctness of the treatment they were receiving. In close conjunction with these were six noble plants of the tree mignonette, with clean straight stems 4 feet high, and heads, not trained out, 18 inches through. The seed was sown in the second week of August last year, in small pots, and they were repeatedly shifted into every successive size pot until a few days before my visit, when they were potted into No. 10 pots for next winter's flowering. This is an admirable plan for growing mignonette where any quantity is required for cuttings from; the plants under notice were trained to neat single sticks, with all laterals pinched off as they appeared on the stem.

Amongst great numbers of bedding plants, I noticed a fine lot of the *Centaurea argentea*, that beautiful white-leaved plant so much used for bedding. In making inquiries as to how so great a stock had been got up, Mr. Record told me he had struck them chiefly from leaves; in this way they will, he says, strike readily if well watered when put in, but they should receive no more until they are rooted. Of Mrs. Pollock geranium there were some 300 strong plants to go out; and of such things as *Verbenas*, *Heliotropes*, &c., there were vast quantities, in a fine hardy condition. Before I leave this portion of the grounds, it will be a pleasing duty to refer to the cottage specially built for the young men's bothy. I have the greater pleasure in doing so, because this is one of the very few instances where the comfort of the young men is at all studied; but, thanks to the liberal owner of this beautiful spot, for once in our lifetime we are able to say this is an instance where not only comfort has been aimed at and attained, but a corresponding amount of anxiety is manifested that it should continue to be what it professes to be—a comfortable home for the men; and, if I may judge from the clean well-furnished apartments of this pleasantly-situated cottage, I should say both the worthy owner and his gardener have been equally anxious that every needful comfort should be supplied. Without having any pretensions to elaborateness, the whole thing is so complete that many an industrious mechanic may be pardoned if he should feel a spice of envy against those who occupy such a home. What makes this still more valuable to the young men is the fact that they are not called upon to act as cooks and housemaids for themselves, as a woman is engaged to do all the necessary work of the house. How different are these clean well-ordered rooms from those too often met with in those back lean-to places where the sun never shines! for it is a notorious fact that in many other well-arranged gardens the young men's rooms are by no means habitable, much less are they healthy; for we generally find them crowded into some odd corner under the shade of a north wall or some other building, or next to a dusty sulphurous stoker, where the rays of the welcome sunshine can never find their way. By whose suggestion this excellent provision was secured in the place under notice it was no part of my business to inquire; it was sufficient for my purpose to see that it was really provided; and here I will leave the matter, with a sincere wish that those who profess to do so much for their young men will not be less liberal than the worthy owner of these beautiful grounds.

I must now proceed to notice the more ornamental portion of the grounds. The position is a delightful one, with a noble mansion standing upon a slightly elevated position, commanding extensive views over one of the most fertile parts of the county of Kent. Standing at the extreme limits on one portion of the estate, there is a fine stretch of country extending, I should judge, to many hundreds of acres of the same property, and this beautifully wooded, and an undulating surface that always adds charms to the scene. The mansion is approached by a neat entrance-gate from the main road leading from Hawkhurst to Hastings; the carriage drive is of ample width, and there are many fine belts of shrubs and trees that give a character and richness as the visitor wends his way to the principal entrance of the house. In passing on thither I noticed a fine *Wellingtonia gigantea*, 16 feet high, and beautifully furnished to the bottom; also noble examples of the *Deodara* and other conifers. It was in passing here that we saw in the distance, in a lovely valley in the park, a fine sheet of water of several acres in extent. This proved, as we became

better acquainted with the place, to be a grand feature, as it added change and variety to what was already a delightful view across a wide expanse of country.

Surrounding the more private apartments of the mansion is a noble terrace and a tastefully-designed flower garden, with a fine conservatory looking down upon the whole. The conservatory we found well furnished with a miscellaneous collection of plants, and amongst the many fine creepers I noticed that grand old subject the *Acacia grandis*, and several varieties of *Passifloras*, with their graceful pendulous branches; but still more attractive were some exquisite small specimens of *Azaleas*; they were perfect models of perfection in every way, being literally covered with flowers from the rims of the pots to the very tops of the plants. Amongst them was a very pure white; the name of this variety was Louise Margottin. *R. inc. des Doubles* was another fine flower, of good substance, a semi-double flower, in the way of *Rubens* as to colour. There were also some well-grown and handsome *Pelargoniums* of the fancy class.

In the flower garden, upon the terrace previously alluded to, there were some cheerful effects of spring gardening, which is carried out here to a considerable extent, as there were beds of the blue and white *Forget-me-nots* (*Myosoti-*) in full flower, also the yellow *Alyssum saxatile* and the white perennial *Candytuft* (*Iberis sempervirena*). Besides these, a great variety of small hardy shrubs were brought into use, as also were all the *Cliveden* pansies, and several varieties of daisies, as well as hyacinths and crocuses, and other spring-flowering bulbs. The effect of this was that ever since the first week in April the garden had been gay with brilliant colours. The next striking feature which arrested our attention was a group of twelve pyramid *Laurestinus*, standing in slate tubs by the side of one of the main walks, as we were coming down from the terrace into the pleasure grounds below. These had stood the late winter unharmed; but I should remark, that, by a clever piece of ingenuity of the able gardener, these slate tubs were sunk into the earth up to their rims during winter; and by having neatly out slabs a little larger than the holes required for the tubs, the tubs are lifted out in the spring and then the stones placed over the holes, thereby securing a foundation or bottom for the tubs to stand upon during summer. This is far more convenient than having to dig out fresh holes every winter, and to fill up the same again in spring. Our next movement is to inspect the grounds more distant from the mansion. The extent of the whole of the pleasure grounds is about twelve acres. There are many delightful walks and shady bowers, and as our steps are directed to the south-west extremity of the grounds, we come quite unexpectedly upon a lovely dell or wilderness, which we find rich in subjects adapted to such a quiet corner of repose. Peeping out amidst a perfect thicket of foliage, upon a yonder bank, is the yellow wild broom in all its glory, and here and there a *rhododendron* lighting up the scene where we least expected to find it; still farther on, dipping gracefully down to the water's edge, are to be seen various forms of the vegetable world, that give to the place a rural and retiring character. By another path we are brought in full view of a rose-garden and an American garden combined. But I must not stay here longer than to say that the collection of roses consists of no less than three hundred and twenty varieties. From this spot we are taken to inspect the orchard and kitchen garden, both of which are new. The former we found well stocked with trees grown in the pyramid fashion, and the kitchen garden well and judiciously occupied with such crops as are always in great request for a first-class table. As a closing paragraph to these notes, I would wish to remark on the neatness and the order which prevailed throughout the whole place; and the least I can do is to thank Mr. Record for the courtesy shown me, and to assure him I shall cherish for many years to come, if I am spared, the remembrance of my visit to Hawkhurst.

J. C. CLARKE.

GARDENERS' ASSOCIATIONS AND THEIR OBJECTS.

I am induced to occupy a space in the pages of this Magazine on a subject which has for many years past engrossed my attention on every opportunity that has presented itself. A few months ago I was solicited by some of my brother gardeners to assist in the re-formation of a society which should have for its object the mutual interest of our fraternity, by endeavouring to secure a fair remuneration for our labour and skill equally with other operatives and artisans. Combined with this was to be mutual edification, by exchange of opinions on subjects connected with our daily practice.

Well, this society was formed at a public meeting, over which our worthy editor presided, and the attendance was on the occasion very good, and upwards of twenty gardeners and employes paid their first quarterly subscription the same evening; the scale of contribution being fixed at as low a charge as it possibly could be compatible with the solvent working of the society. Of course there was the usual clique of discontents, who could see no good resulting from such an association unless it directly aimed at a combination for the advancement of wages. They could not perceive that any other benefit was to be derived; or rather they affected to treat with contempt anything that approached mutual instruction. To this latter remark allow me to add a word, and that is, that there is no class of artisans that are more indebted to local influences for their daily success, practically speaking, than gardeners. Let us only cite one illustration among the many we could recite confirming its truth. Let a man acquire a knowledge of his profession in the south of Devonshire, and then afterwards be called on to exercise it in the northern districts of the same county, and what would be the consequences? Why, he would find himself beset with difficulties which never occurred to him when residing in the southern part of the county; and why? Because the climate in the north of Devon is as different to the south as if there were many degrees of latitude between them. Now here is a proof of one of the most material advantages that must result from mutual intercourse on gardening. We are often, owing to circumstances over which we may not have immediate control, called, after a long continuation of practice in one locality, from that to another far distant. There is also another favourable circumstance, which should not be overlooked by those who feign to despise mutual associations, and that is, many of our difficulties in gardening operations are greatly lightened by meeting with employers who are ever ready to open their purse, either to purchase plants or to afford us every desirable requisite for promoting their cultivation. Having myself experienced both sides of the question, I am prepared to say that gardeners should cautiously avoid a crying evil which unfortunately prevails to a great extent in our profession, and that is, of being too apt to condemn the practice of others without any consideration as to the demands on their time, and the extra efforts they have to make to comply with the tastes and gratify the desires

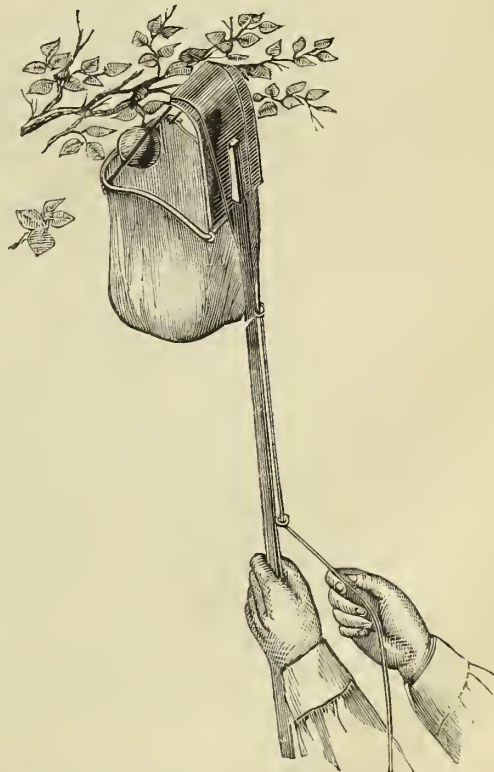
of those by whom they are employed. Again, the criterion of a good gardener is not to be measured by what he exhibits, or the number of prizes he may gain at a horticultural exhibition, but by a neat and well-kept garden, and a constant but regular supply of all kinds of floral and horticultural products, indoors and out. This, then, brings me to the after-part of my subject, in relation to gardeners' associations for mutual advancement. Now all those combinations may do much to assist, or rather to help us on to the gaining of those wages which we are fairly entitled to, yet they should not form the medium by which intimidation is to be held out to employers; for we must not forget that in a degree we are not a necessity, but a luxury. Although we are somewhat an indispensable appendage to an establishment, yet we can, in many instances, be dispensed with. If we are aiming to exalt ourselves, with the view of obtaining a better remuneration for our services, it must be by a careful study of our habits, avoiding everything that has a vicious tendency, valuing the time of our employers at all reasonable seasons; and then the more intelligent we become by seeking to expand the mind in acquiring every information in connection with our profession, depend upon it, the more thoroughly shall we be appreciated, and the more liberally rewarded. It is a lamentable fact that very many of our young men seek, as a stepping-stone to their advancement in the profession, the notoriety of having served in a titled gentleman's establishment. There can be no greater fallacy attached to a young gardener's ambition. If the mind be cultivated, the rest may follow as you can best obtain it. Lately, in the course of my conversation with the head-gardener to a nobleman near London, I asked, "What gardening literature do you subscribe to, or, rather, read?" "None," was his reply. Well, I cannot say that I despised his contracted opinion, but I felt it a pity that he should be devoid of that ennobling ambition which leads a man to acquire a thirst for a knowledge of all that is daily occurring in connexion with his means of subsistence.

Having said this much on the mutual benefit of gardeners' associations, a word to those who readily take office, or who are anxious for their formation. Let them not forget that when they have undertaken their part in guiding the helm of its affairs, that they have incurred an individual responsibility, though it may be voluntary. The fulfilment of such duties they should not shrink from by mere off-hand excuses. They must not expect the secretary to maintain its attraction if they are not at their posts to give him a helping hand. The downfall of all societies in connexion with gardening may be traced to the apathy felt towards its workings by those who expect great things of others, but little of themselves beyond applause. Let us one and all, in the promotion of any good object, be actuated by the same desire that influences our great commercial community,—a scrupulous regard for time and the fulfilling of our engagements. Then may our gardeners' societies become, as they ought to be in every town and village where horticulture is patronised, integral parts of the permanent institutions of our land.

JOHN F. McELROY.

BROWN'S FRUIT GATHERER.

In picking fruit-trees the danger of climbing and of ascending ladders detracts much from the pleasure. To be sure, "when the pear is ripe it will fall into our hands," if our hands are in the proper position. But in the engraving is shown a very simple fruit gatherer, by which one may stand on *terra firma* and exploit the denizens of the orchard. It is merely a bag for the reception of the fruit secured to a pivoted frame of wire, which, when the cord is pulled, closes against the edge of a curved plate. The operator holds the staff to which the apparatus is fixed in one hand, and pulls the cord which operates it with the other.



Placing the aperture so as to envelop the fruit, he merely pulls the cord, when the fruit is separated from the branch and drops in the bag. For the picking of fruit designed to keep, much care is required, and those which fall to the ground by the force of the wind or the violent shaking of the tree are almost always more or less injured. In raising fruit for market these injuries are elements of deterioration, and the fruit—whether apples, pears, peaches, or high growing and lasting fruits—should be presented to purchasers in the best possible state. To secure these results is the design of the inventor, Mr. Wm. Brown, of Worcester, Massachusetts, who patented his invention Feb. 5, 1867.—*Scientific American*.

THE STAPLEFORD TULIPS.

On the occasion of the last exhibition at Cambridge, I accepted an invitation from Richard Heady, Esq., of Stapleford, to pay him a visit and have a day amongst the tulips. I accepted the invitation, of course, and I never in my life had a more agreeable time of it in a visit to a garden anywhere. None of our readers need be told that Mr. Heady is the most experienced, most successful, and most eminent florist in Britain; for his name is on the roll of those who have attained to honours by talent, perseverance, faithfulness, and the constant exercise of a gentlemanly generosity and an unflinching public spirit. His name is in all the catalogues, in all the pedigrees, and all the canons of the florists; and so long as floriculture shall be pursued the evidences of the influence of his work in its promotion will be seen in the characters of flowers and the principles of judging them, and possibly also in their nomenclature. I met at Stapleford Mr. George Lightbody of Falkirk, a veteran most of all worthy to be spoken of on the same day as Mr. Heady, and Mr. Sharp, of Birmingham, an amateur possessed of a truly catholic taste in all that relates to flowers, colours, pictures, and art generally. If a man pretends to understand flowers, and avows that he does not care about pictures, or shows an indifference to art, I never believe in him; I feel certain he will break down somewhere, so I should never ask such a man for an opinion of a flower which I could not see and judge for myself. One of our best pleasures during our stay at Stapleford was that of criticising Mr. Heady's pictures, and finding that the same rule holds within as without this charming residence,—the rule that whatever is tolerated must be of its kind good. To see Mr. Heady drag out a tulip that he does not like, and "stamp it out" there and then, is something to remember. If he came to the conclusion that any of his pictures were bad, I believe he would have a fire lighted on purpose to pile them on it and make an end of them for ever. The rule that everything must be good is illustrated in every part of the establishment; you see nothing but what of its kind is perfect; and Mrs. Heady follows the rule religiously, and ministers to her guests a splendid hospitality. The first hint I obtained of the interest attaching to Stapleford was when dressing for breakfast on the morrow of my arrival. I looked out of window upon a pretty breadth of lawn towards a half-weeping copper-leaved beech-tree of the most beautiful proportions, and intensely rich in colour. Glancing round, I was presently startled to see Moutan pæonies a yard high and two yards through, leafy enough to hide every particle of stem, and appear like mounds of vegetation, and covered all over with gorgeous flowers of various colours, those which took my attention most particularly being of a soft lilac rose or pink with shades of purple. A considerable time elapsed ere we got a peep at the tulips, and we seemed to be in no hurry; for on every hand, as we roamed about the garden, we found something to admire, something to inquire about, something to illustrate theories and doctrines in which we have a common interest. The tree pæonies we found to be a special feature of the garden, and our host, the passion of whose life is and has been the raising of new varieties of flowers susceptible of improvement, has been a careful breeder of these things, and has originated some that in due time will no doubt become famous. There is one, at least, amongst his seedlings that is as novel as it is beautiful. It bore no flowers and needed none, for its leaves are margined with red, buff, and orange-yellow lines, and at a moderate distance its appearance is most beautiful and novel, calculated to prove an object of attraction and admiration to the most careless rambler in a garden. Florists' flowers are Mr. Heady's chief delight; but we find here beautiful coniferous trees, such as Wellingtonias, *Picea amabilis*, *nobilis*, and *nordmanniana*, with trees and shrubs of all kinds, and a considerable variety of the best hardy bulbs and herbaceous plants. There are vineries, peach-houses, a pine stove, and a range of plant-houses containing collections of geraniums, *calceolarias*, and, in fact, hard and soft wooded plants of all kinds. Whatever admits of improvement as a subject for the hybridist and cross-breeder meets with especial attention, and hence many of the finest specimen plants we meet with in the houses are seedlings belonging to the place, and mark the point Mr. Heady has attained in the improvement of that particular subject. Mr. Heady usually contributes from six to twelve van-loads of plants to the Cambridge shows, and is quite hardened to the sensation of taking first prizes; so it would be superfluous to say that specimen growing is carried out with spirit, and that if we had time and space we might occupy it profitably in a description of the place and all its belongings. But we must hurry on. When we quit the pleasure-garden, we come upon various plantations and frame grounds. We find a bank of potatoes—they are of course seedlings of Mr. Heady's; and we fully believe him when he says he has amongst them some of the finest ever raised. He wanted some good *Gladioli*, and bought the best that were to be had. But none of them were good enough; so he set to work in cross-breeding and originated a new race, and here are the seedlings in quantity, growing into money, and destined no doubt to make a figure in our lists hereafter. Next, we came across a great batch of Pinks, Carnations, and Picotees. Next, a collection of Auriculas; at another turn, *Ranunculuses* and *Anemones*; and so we go on, and so we go on, until we gather together in a tiffany-house, and find the ground covered with an immense assortment of the best bedding plants, all in an enviable state of health and vigour. As tiffany-houses are not everywhere a success, we are bound to say that this one is about 40 feet long and 16 feet wide, as sound as if built and covered in but yesterday, yet bearing the marks of many years' wear and tear; without question one of the cheapest and most useful structures in the place, and especially adapted, in the cold climate of Cambridge, for hardening bedding plants prior to planting out. At last we got amongst the tulips, the best two beds being side by side, under canvas of course, the edges of the beds being formed of *Spergula pilifera*, in place of the usual plank-on-edge support, and plenty of room in the walks between and around for a party of connoisseurs to move freely and compare notes on the flowers. I cannot hope to convey any idea of the magnificent spectacle which these two beds presented on the 24th of May when I saw them for the first time, though they were then a few days past their best. Here and there a showy breeder had got in—rogues are to be found in the best of company—and these appeared to serve just the same purpose as judiciously managed discards in music, that of heightening the general effect. We made about six separate inspections of these beds, at each time instituting a few comparisons, or assisting in the bestowal of names on flowers that were considered entitled to such an honour, and at every opportunity making notes to keep all worthy matters in remembrance. Mr. Lightbody and Mr. Sharp became more and more enraptured, and at last appeared to be afflicted with a solemn frenzy; for they had not a word to say, but were going from flower to flower, not, like bees, with a merry hum, and in the conviction that sweet stuff is the alpha and omega of existence, but with signs and motions indicative of surprise, delight, wonder, and curiosity. At this juncture Mr.

Heady pulled me by the sleeve, as if very anxious I should be kept from participating in the fanaticism of which we saw the slow but sure beginning, and said, "Come down to the orchard." So to the orchard we went, and found it a very nice orchard, but somewhat hurt by the cutting close by of the Great Eastern Railway, which has so drained the moisture from the soil that many kinds of fruit-trees that used to thrive on the ground have ceased to be capable even of keeping a few green leaves upon them. Here we found the kidney beans and the potatoes cut off by frost, and other things more or less the worse for it. A strip of *Bromus schraderi* had a very thrifty look; it had been cut once already, and on the 24th of May was nearly ready to afford a second cut. Mr. Heady says his horses eat it greedily, and he has great faith in its feeding properties. But the best sight here was a bed of breeder tulips, about 250 long and five feet wide, all of them in batches of one colour, as, for example, fifteen to twenty feet of bright rose, next a similar extent of purple or brown, next yellow, and so on throughout, the effect being that of a most gorgeous example of bedding: and why late tulips are not used for splendour in May, and in composite groups, so as to produce bedding effects, without reference to the rules of the florists, appears to me to be one of those negative facts that a positive philosophy is quite incapable of resolving into its primal elements. To say that these breeders are good, is to talk as absurdly as the man who avers that the sun is bright, and will swear to it if he be needful. The truth is, these breeders are as far beyond all ordinary tulips in quality as ordinary tulips of the florists' section are in advance, in respect of beauty, of the wild tulips from which they have been bred. For size, symmetry of form, and substance and purity, I believe they cannot be matched in England; and it would be absurd to talk of Holland, for the simple truth is, the Dutch know nothing at all about tulips. Many and wondrous as are the named varieties in the Stapleford collection, no one competent to form an opinion on the subject can doubt that as many fine flowers may be broken from these breeders as the collection comprises already; and it is but proper to add that Mr. Heady grows very few indeed except varieties of his own raising. Mr. Lightbody told me he had been accustomed to see a bed of breeders here about 400 feet long, and containing nearly 18,000 bulbs. Of course we found many of them breaking, that is, changing from the self or breeder state to the variegations of colours which are denominated flames and feathers, but we made no search for select breaks; that is a task for Mr. Heady in his quiet hours, when he can exercise his rare and ripe judgment without bias. I will now gather together the notes I made during a series of inspections of the best beds, feeling quite sure that, though the subject may be destitute of interest to many of our readers, the few faithful florists that remain to illuminate the world will be pleased to have a record of the state of things at Stapleford in 1867, the more especially as the Magazine is now the only medium for such communications, the exclusively floral periodicals having all perished.

DESCRIPTIVE LIST OF A FEW OF MR. HEADLY'S TULIPS.

R. Rose, Bi. Bizarre, By. *Dyblemen*. The figures denote the row to which the variety properly belongs.

Adonis, By. 4.—This is pretty well known as a splendid and most constant feathered *dyblemen*, and it is frequently described as from the same breeder as John Linton, which is sometimes flamed, and sometimes feathered and flamed, whereas *Adonis* never flames, but has an elegant pencilled feather. John Linton opens creamy, but soon becomes pure; *Adonis* is pure from the first. It is quite likely that if not from the same breeder, they are from the same pod of seed; this appears to be the opinion of both Mr. Heady and Mr. Lightbody.

Alma, By. 1.—Medium size and perfect shape, grand purple flame; sometimes the flame is quite black. Purity *sans reproche*.

Apollo, Bi. 4.—Rather short cup, but bold and finely finished; rich crimson flame.

Arethusa, R. 4.—Large, superb shape, stout, pure; narrow lake feather and flame of rich crimson. A most beautiful flower.

Blind Bonny, R. 2.—In form and purity unsurpassable, and the substance extraordinary. If there is one quality more than any other that distinguishes the Stapleford tulips, it is a leathery thickness of petal; but they are wonderful in quality every way. This flower has a narrow dark carmine feather.

Captain Hodson, Bi. 3.—Fine form and stout petals, brilliant gold yellow, feather and flame of fine dark brown, the marking very regular.

Cedo Nulli, R. 1.—Fine form, rosy scarlet feather.

Circe, R. 1.—Splendid flame and feather of deep crimson; a gem of the first water.

Comet, R. 2.—An enormous flower, with broad crimson flame; fine.

Commodore, Bi. 3.—Fine form, broad petals, ample purple beam and narrow feather. Quatering out of the question.

Delight, Bi. 2.—The form is first-rate, and the substance remarkable. Ground colour bright yellow, with fine black feather; in purity perfect.

Demosthenes, Bi. 3.—Fine form and substance, quite pure, fine dense feather, quite surpassing Platoff and George Hayward.

Duke of Leeds, Bi. 3.—Short neat cup, fine flame; constant and fine.

Endymion, By. 1.—Short cup, lilac flame, good.

Fanny Kemble, By. 2.—Fine large cup, purple flame on a pure white ground. Mr. Groom gave £75 for this not many years since.

Garibaldi, Bi. 2.—Short stout cup, fine base, clear lemon-yellow; fine.

General Havelock, Bi. 3.—Large, fine form, rich red feather finely laid on.

George Lightbody, Bi. 2.—This flower cannot be excelled in any quality required in a tulip; it is rather large, the shape that of Catafalque, very stout, with broad petals, in purity perfect; the yellow is a shade deeper than the best state of *Polyphemus*, and the black feather is equal or superior to that of *Lueifer* or *Paragon*.

Glory of Stapleford, R. 2.—Short cup, stout broad petals; narrow flame of soft rose, and rich cherry-red feather; a most beautiful flower.

Harriet Hepworth, R. 2.—A fine, stout, heavily-feathered flower, with every good quality.

Horatio, Bi. 4.—Fine form and strong stem, quite pure; deep rich yellow, dark bronze and crimson flame and feather; the pencilling precise and brilliant.

Indispensable, By. 2.—A wide goblet-shaped flower, standing finely on a stout pillar, the form, carriage, and substance grand; nearly black flame and feather of the very finest proportions.

Inkerman, By. 2.—Brilliant white, with broad jet black feather, fine form and substance. Good for a twelve, or even six.

Iris, By. 4.—Form good, petals broad and stout, broad beam and narrow feather of intense purple.

Jason, Bi. 1.—Large, grand form, beautiful feather; early.

John Bright, Bi. 4.—An enormous flower borne on a stout pillar; splendid crimson flame and feather.

John Linton, By. 4.—A bold strong flower, perfect in shape and purity, never known to quarter; medium black feather.

John Thornley, By. 3.—Large, finely turned at the base, from whence the cup contracts upwards; the petals of great breadth and quite thick, perfectly pure and transparent white; the feather finely drawn and shining black.

Kossuth, Bi. 2.—Shape perfect and fine substance, pure circular base of deep yellow, broad beam of red from which proceed rays to the margin. Scarcely a show flower, but in the bed admirable.

Leopora, R. 4.—A fine stout flower, with deep carmine flame and feather; a pleasing flower for the uninitiated and a gem for the faney.

Lucifer, Bi. 2.—In the description of George Lightbody we speak of that flower having a finer feather than Lucifer; nevertheless, Lucifer is one of the best bizarre varieties in the collection, and when at its best the contrast between its jet-black pencilling and its clear gold ground is delightful.

Mahomet, By. 3.—Shape, substance, and purity perfect; sharp narrow feather of black and broad flame of darkest violet.

Mary Headly, R. 3.—Fine form, beautiful flame, surpassing Cameux de Craix.

Mary Thornley, R. 2.—Extraordinary fine form, the petals broad and stout, finely rounded at the base, and curving inward at the summit; purity unsurpassable; the marking is a medium feather of bright carmine on a brilliant flame of the same colour.

Neptune, Bi. 4.—Petals rather loose at the base, but stout, pure, and pleasing; broad purple beam.

Nestor, Bi. 3.—Very large, petals rather pointed, pure; brown feather and reddish brown flame.

Nonpareil, Bi. 3.—A fine cup, very stout, and quite pure; deep yellow with dark brown feather. In the way of Polyphemus, but of course better.

Oscar, Bi. 2.—Large, perfect shape, pure; deep yellow with narrow red feather.

Othello, By. 2.—Extra fine black flame and feather; first-rate.

Pallas, R. 4.—Very large, fine shape; broad flame of carmine, narrow feather of purplish rose.

Pandanus, Bi. 1.—Short cup, pleasing narrow feather.

Paragon, Bi. 3.—Rather below medium size, cup finely turned at the base, in every quality good; deep yellow, with narrow feather of lustrous black. A truly splendid flower.

Princess of Wales, R. 2.—Short cup, fine base, petals thick and broad, marking a brilliant rosy feather on a snow-white ground; a flower of peerless beauty.

Proserpine, By. 2.—Fine form, richly feathered; first-rate.

Regalia, R. 4.—Fine short cup, the marking a flame of rosy scarlet interspersed with narrow stripes of blood colour.

Regina, R. 1.—Another of the choice gems of this collection; the form is most beautiful, and the whiteness pure as new-fallen snow; the marking is a brilliant flame.

Richard Cobden, Bi. 3.—Medium size, clear yellow ground, dark flame and feather; superb pencilling and perfect purity.

Richard Headly, Bi. 2.—One of the most perfect cups ever seen, and of course quite pure; ground rich orange-yellow, the marking a finely-pencilled black feather. This well deserves its name; for as a type of perfect form and marking, it will carry Mr. Headly's name to a far posterity of tulip-growers.

Rosalind, R. 3.—Beautiful form and exquisitely pure; feather and flame of deep scarlet.

Rose Abigail, R. 2.—Superbly flamed, quite pure, and a pleasing flower.

Rose Adeline, R. 3.—Small goblet-shaped cup, stout petals; narrow feather and broad flame of vivid scarlet.

Rose Exquisite, R. 1.—A very pleasing feathered flower.

Rose Incomparable, R. 2.—First-rate in form and substance, medium size, pure, and finely finished; flame and feather of dark carmine. Surpasses the very best Triomphe Royal or Heroine.

Rozana, R. 4.—Fine form, stout tall stem, colours curious and beautiful, varying from richest rose to intense scarlet; the feather and flame equally proportioned and quite precise. One of the most *recherché* gems of the collection.

Sappho, R. 4.—Large, perfect shape, extra stout pillar; broad scarlet feather; anthers large; the flower perfectly pure, and exceedingly showy.

Sarah Headly, R. 3.—Short cup expanding to a beautiful goblet form, great breadth and substance of petal, never quartering; the marking is a deep solid crimson feather on a pure white ground. It is equally remarkable for its symmetrical form and colouring as for its constancy; it is never flamed. It is quite distinct from Circe, though like it.

Semiramis, R. 3.—A grand heavily-flamed flower; good for a six.

Shirley Hibberd, By. 2.—Large and stout, the cup nobly turned, rose purple flame, and dark purple feather on a ground of the purest white. Mr. Headly has conferred a compliment which I shall esteem all my days in naming after me this exquisitely perfect flower, which Mr. Lightbody considers the very best of its class. It is in the way of Adonia, but larger; the white more sparkling, and the flame and feather heavier and more elaborately pencilled.

Sir Alexander Cockburn.—Large bold cup, dark blackish maroon feather; a splendid flower. I much regret I have no note of its class and height. It took the premier place at the last Cambridge Show.

Sir Charles Napier, By. 4.—Large, fine form, broad feather of lustrous black. Not pure when it first opens, but becomes quite pure after a few days.

Sir Colin Campbell, Bi. 2.—Large, fine form, broadest at the base, perfectly feathered in the style of Everard, without interior marking. Long-lasting and sure to please. Fit for the choicest twenty-four.

Siren, R. 2.—First-rate in form and substance, broad at the base, showing a finely turned shoulder; narrow and precise feather of light carmine. One of the noblest tulips known.

Sir John Lawrence, By. 3.—A charmingly turned cup of medium size, the feather broad, intense black and glossy as if varnished. Refined and highly finished.

Sir William Peel, Bi. 4.—Tremendously large, extra stout, on a stem like a walking-stick, the form perfect; yellow, with broad dark brown feather and beam, and rays of crimson and brown running into the feather. A remarkable flower in every way.

Statira, R. 4.—Very large and stout, rather long, pure; broad feather of rich carmine; a striking flower.

Thomas Allestree, Bi. 1.—Rather small, but neat and good; the marking a decided flame; rather late.

Titian, Bi. 3.—Finely flamed and fiery red; surpassing Strong's Titian.

William Tell, Bi. 1.—Short cup, with fine shoulder and stout petal; rich black flame and feather.

Those of our readers who have long been familiar with Mr. Headly's tulips will be rejoiced to hear that the infamous practice of poisoning, pursued by some unknown hand, has ceased. Mr. Headly's losses for many years in succession, through the devilish spite of an unknown enemy, would have driven any man of ordinary temperament out of floriculture in despair. The results of the poisoning were not only losses of plants of all kinds in immense quantities, but the utter extinction of several of the finest varieties of tulips broken at Stapleford. S. H.

SCUFFLE-HOE.

Mr. George P. Allen, of Woodbury, Connecticut, is the inventor and patentee of this little implement. It is a scuffle-hoe, consisting of a thin steel blade, with two cutting edges, which consist of a series of acute teeth, sharpened from the under side. Held naturally, by a man standing erect, the blade lies perfectly flat upon the ground, and raising or lowering the handle gives it a tendency to enter, if shoved or drawn. The common straight-bladed scuffle-hoe, though sharp, often meets with considerable resistance from roots of grass and weeds, and frequently slips over them; even hard lumps of soil obstruct its movement. This hoe readily passes through the clods, and cuts any kind of roots with ease. It is especially adapted to hoeing among garden vegetables, carrots, onions, and roots in the field.—*American Agriculturist*.



AN INTERNATIONAL ROSE SHOW.

Would not all rose-lovers like to know where Gulistan is? Alas! they will answer us, Gulistan is no more. Saadi's sweet country of rose-gardens and nightingales is that which Italy was—a "geographical expression!" As easy to find the bones of Majnun and Lailce, or the cup of gold and amethysts buried with Hafiz, or the flask of solid amber full of the water of Heaven which King Giamshid bought of the Peri, as to discover Gulistan. The nearest thing to it may be Cashmere, where, for half the year at least, the shawl-goats graze among thickets of pink roses, where the gazelles munch their hlossoms and huds, and the bears feed upon the scarlet berries of the great clusters, when the petals have fallen and made the grass like the Lake of Srinugger with its red lilies, all green and crimson. There, truly, in the rosy season—as the Cashmere singers say—the breeze is "as tho' the gate of God were set ajar a little;" and when travellers are entering into the beautiful valley, they know it by the odour and the far-off flush of colour on the uplands—as if the sunset light upon the snow had come down in a rosy avalanche—and by the troops of girls laden with rose-blossoms for the makers of attar. But even Cashmere is not what Gulistan would have been for those who serve and love the Queen of Flowers with the passion due to her perfect grace and beauty. It was in Gulistan that the first rose appeared, as the poet Jami has explained to rose-lovers, because the flowers demanded a sovereign from Allah, and the lotus would not keep awake o' nights. She was white at first, and the thorns were given to guard her; but the nightingales fell into such raptures of passion about her charms, and pressed their lovesick and musical hearts so recklessly against the rose-thorns, that their blood turned half the Bostan roses crimson, as far into the blossoms as it could trickle. Are not all rose-petals, as the poet justly says, white at the extremity, where the nightingales' hood could not reach? If in this hard age we disbelieve Jami Lesish, we cannot forget Gulistan is the place where so many roses were grown that it was a five days' camel ride through the great garden. Thence came the attar of the Shah, and there the fresh leaves were daily plucked for the bed of his Sultana, who could not sleep if the rose-leaves were too much crumpled. In Gulistan they found out how to make "rose-wine" with honey, apricots, new grapes, and the middle leaves of rose-huds—liquor which would render a king merciful or a sick man sleep amid any pain; and in Gulistan they all knew what were those "five secrets of Allah," which the five petals of the first rose signified. Well, we don't remember exactly where this pleasant land was, or is, but we can tell the faithful votaries of roses into whose souls the nightingales of Saadi and Hafiz have migrated, where there is still a Gulistan even in this prosaic and practical age. Not far off either, which makes it better than that Persian paradise of nightingales and blossoms; for our Gulistan of to-day is in the department of the Seine et Marne, at Brie Comte Rohert—return tickets from Dover or Folkestone at one fare and a half. There they grow roses quite in the ancient, splendid, wholesome, odoriferous, and overwhelming style of the "gardens of Gul;" two million bushes are planted round this rosy French oasis; rivers of rose-water are manufactured from its harvest of hlossoms; zephyrs, breezes, hurricanes, tornados, nay, cyclones of delicious roseate aroma hourly sweep the distinguished nostrils of the fortunate Brie-Comte-Rohertois; and here, this very next month, they are going to hold a rose show, a gathering of the kings and queens of the flower world, a Field of the Cloth of Crimson and Gold among the thousand aspirants to the first place in the glorious descendants of the white rose of Gulistan. The tidings ought to set all rose-lovers on the *qui vive*, disturb the newest and proudest flowers of our English gardens, to render Celine herself paler, and to make the white imperial cheek of Juno blush deeper with pride and ambition.

Brie Comte Robert does not do things by halves! Brie Comte Robert believes in roses heart and soul; and when the rivalry is between two million plants, it is useless going to the tournament of delicious fragrance and dazzling hues with anything save splendid and gently specimens. Last year Brie Comte Robert exhibited to all the *rosicristes* who attended no fewer than seventy-eight thousand examples and varieties of hlossom. What glorious forms there must have been! what pure colours! what celestial perfection of those odours, the inner essence of which—"the attar of the attar"—the Persian poets call the "breath of the angels!" How well might the true votary of the rose, the lineal descendant by Mr. Darwin's pedigrees of the Bulbul of Bosrah, have sighed his soul out

against the thorn of three or four of these blossom queens, and "died of a rose, in aromatic pain." If our rosarians have faith in their favourites, let them throw down the glove—a fox-glove, say—to the champions of the assembled loveliness of Franco, and challenge them to produce the Crown of Beauty. Nay, why should there not be next year, if not this season, a prodigious concourse and competition of all the roses of all the world at Brie Comte Robert, or somewhere else? To that array might come, not merely the named flowers of this or that great show—the "St. Joseph," the "Souvenir d'un Ami," and the baptised and Christian blossoms—but their beautiful pagan and heathen sisters, the infidel blooms, the heretic buds, the Turk moss-roses from the Caucasus and Circassia, tea-scented China roses from their own hill-sides, the Bourbon rose from the palm thickets of Mauritius, and the true damask, which grows wild at Damascus among the oleanders and white lilies of the swift, cold Abana. Ay, and that compound householder of roses should be there too—the *rosa arvensis*, the wild dog-rose, which, like the poor, has no state nor show, but gold in its heart and a true gift of the fragrance of faith and love.

The idea might well seize upon the enthusiast in floriculture with a fascination like that of the roses which Catharine of Medicis drugged for her deliciously enchanted victims. The international and universal show might include representatives from the gardens and green places of the whole world, with prizes worthy of the wonderful loveliness of the Queen Flower, and an exposition of the minor blossoms to do becoming and loyal honour to the occasion. The fair judges might wear robes of crimson, white, rose-pink, scarlet, blood-red, sulphur, yellow, saffron, and blush colour; and they should be ladies above every suspicion of partiality, save that suggested by kindred complexion. The visitors might give the final vote by ballot with roses of the respective colours, and the grower of the elected and consecrated flower should be made a peer of the realm, or a bishop, or anything most agreeable.—*Daily Telegraph*.

DESTRUCTION OF BRITISH BIRDS.

The author of "British Birds' Eggs and Nests Popularly Described" writes to the *Yorkshire Gazette* regarding the destruction of British birds in the following terms:—

There are several things which church-goers pray against, many people are guilty of, and nobody defends. Like these in the latter points I had fancied rock-bird shooting had been, until a correspondent of yours, with a logic and orthography equally remarkable, lifted up his voice in its favour. I had always thought it fit to be characterized—stigmatized, if you like to print it so—as cold-blooded barbarity in the act, flavoured with wanton cruelty in the accompaniments. Perhaps I am wrong; and there is a difference between sparrows and willocks in the sight of One who, we are told, notices the fall of the former. Not unlike to rock-bird shooting is rook shooting in many respects, almost all those involving cruelty included. Surely it is defended; and the defence in both its parts is enough to amaze a man in his senses. But my object now is not to expose a fallacy so much as to point out a folly. This is the time of year for slaughtering young rooks in the sight of their parents, and for shooting the old ones if they can be come upon on the fields. One such, which was shot a few days since, I wish to make mention of. My informant, a respectable farmer, had noticed it following his plough very closely, and not idly. Unluckily, as he turned his horses at the top of the field, it not only flew a few yards out of his way, but into the way of a gunner on the other side of the hedge. The poor bird was shot at, of course, and sorely wounded. Flying with difficulty across the field, it was seen by a third man, vomiting, with the sickness of death upon it. Going to the place, he found it had thrown up forty-nine wire-worms, and a large number besides of the fatter white grub, such as the plough so often turns up at this season. My informant's subject of discourse had been that "the corn was sairly grubbed" in this neighbourhood; his reflection, "I think the craws ower mich shot;" and his illustration, what I have just now given an account of. As a pendant to the above, let me record that one of the ablest living English ornithologists told me a year or two since that, seeing a gamekeeper carrying a kestrel he had just shot, and being unable to convince him in any other way that it might be as well sometimes to allow a little inquiry to precede "giving the dog a bad name" and summarily "hanging him," he requested him to allow the crow of the bird, evidently well packed, to be opened. The gamekeeper assented, and the ornithologist himself took out a compact ball filling the entire cavity of the craw. On being resolved into its component parts by a little gentle manipulation, the ball was found to consist of 119 wire-worms, and no other article of food whatever. So much for the "mischievous" done by the rook and the kestrel.

May I add, as a hint to any who, in the coming fruit season, may be desirous to save their strawberries and currants, and yet spare the blackbirds and thrushes, that many years ago I knew a large garden in Essex, situate almost close under the walls of a park in which blackbirds and thrushes lived utterly unmolested, and consequently greatly abounded, kept utterly free from these plunderers throughout the fruit season. The "dodge" was a very simple one. A cat, which had two or three kittens, about one-third grown, belonging to her, was provided with a box to live in, placed in the garden, a collar round her neck with a short light chain attached, and terminating in a small ring. The ring traversed on a long stout wire fixed between low posts some thirty or forty yards apart, and so the oat, when disposed for exercise, padded herself a path along the wire, and the kittens frisked about all over the garden. All of them looked as happy and sleek and jolly as possible, but the blackbirds and the thrushes unanimously voted the fruit in that garden "sour." They never came near it.

THIS IS AN AGE OF WONDERS. It is reported that a Mr. Firminger has discovered a process of growing peaches, plums, and cherries without stones. He splits a branch and removes the pith; the split halves are then brought together and bandaged until they unite. The next step in the process is to inarch this pithless branch on a suitable stock. When the inarched branch has made a season's growth, a portion of it is selected and denuded of pith, and this is inarched as before. After successive repetitions of this process, the fruits become stoneless; but whether they contain more pulp, or have any better flavour than fruits containing stones, we are not informed. Another story is current of a gardener in Ghent, who gives to any fruit the flavour he desires by puncturing it while growing, and then immersing it in a liquid flavoured for the purpose. We should feel that our duty was but half discharged, in placing these things on record, if we did not add that we regard them as absurd inventions, calculated at the best only to provoke a smile at the expense of all who believe in them.

Calendar.

WORK FOR WEEK COMMENCING JUNE 22.

Kitchen Garden and Frame Grounds.

BROCCOLI from late sowings to be pricked out, and young plants in a forward state to be planted out, where they are to remain in soil deeply dug and liberally manured.

BAUSSELS SPROUTS to be planted out as fast as possible. Previous to the late rains we got out a large quantity in rows, between potatoes, and they are now looking remarkably well. The soil must be in good condition for these, for if they are not fine, they are scarcely worth having.

COLLARDS should be planted in quantity, as ground can be obtained for them. Plant them rather thick.

CELERY to be planted at every opportunity. Deep trenches may be used now, but in another few weeks it will be advisable to make the trenches shallow, because the late planted crops will have to stand out the winter. Any remaining in seed-pans or boxes may now be pricked out in beds in the open ground.

SPINACH.—If requisite to sow now, give the preference to the prickly seeded variety, which is used for winter spinach, as it is less likely to bolt in case of hot dry weather.

TOMATOES to be trained and stopped. If not frequently stopped a good crop cannot be expected.

ROOT CROPS, such as parsnip and beet, require now a final thinning; there is no gain from crowded beds. Potatoes to be frequently hoed between; we have no great faith in the practice of moulding up the rows, but it is everywhere practised, and is evidently not seriously detrimental to the crop. If children can be employed to pick off the blossoms, the weight of the crop will be increased, but the difference will scarcely pay for any other kind of labour.

Sow, for succession, Mazagan beans, York, Rosette Colewort, and Collard cabbage, cucumbers (Highland Mary is one of the best to start now), endive, French beans, onions, parsley, peas, turnip radish.

Flower Garden.

RHODODENDRONS, KALMIAS, AND ANDROMEDAS may now be layered for increase; it is the simplest and surest method of propagation, though slow; nevertheless they are always better on their own roots than grafted, and though many kinds sow themselves in plenty, and produce thickets of seedlings if allowed, there is no dependence to be placed on them for character when at last they come into bloom. Old beds of American plants may be benefited now by top-dressings of cow-dung quite rotten. Recently formed beds should not have it; nevertheless a mulching of some kind, especially amongst Kalmias, will be beneficial. Where moss is plentiful, there is nothing better to strew three or four inches thick over the whole of the soil; it soon sinks to a close peaty layer, and preserves a moist condition of the roots.

CARNATIONS AND PICOTEES have been terribly afflicted with fly of late, but the recent rains have pretty well cleansed them. The buds must be thinned, and all other needful preparations made to prepare for a good bloom.

DAHLIAS must be safely staked, or the first gale will lay them low.

HOLLYHOCKS must be securely staked.

ROSES are looking well since the cool rains, and all lights and maggots have disappeared. Heavy rains do more for roses in a few hours than artificial aids can do in a whole season. Look over the stock of briars intended for budding, and cut away all superfluous shoots to the base, and slightly shorten those that are so placed as to be suitable for budding. By the time the general budding season arrives the shoots thus shortened will be in full growth again, and will take the buds more readily. In some places, however, thousands of briars have been budded already, and if the work can be well done, the early doing it is a great advantage, because of the growth that can be got during the present season. Therefore, we say, make ready to work the strongest briars at once, and as soon as plump buds can be obtained of the choicest varieties. Buds that remain dormant till the next spring do not generally make such good plants as buds that start away soon after being entered, and make ripe hard shoots before winter. We have found that when the shoots from the buds of the season were very sappy, a gentle lift of the stock by means of a four-tined fork, early in October, gave a check that hastened the ripening, and prevented loss in winter. We mention this now because some propagators prefer dormant buds, because of the risk in winter, whereas pushing buds can be used with equal safety if means are resorted to to check the growth in time. Another matter worthy of mention is that the wild wood should not be cut away severely before entering the buds, as a loss of it checks the flow of sap, and defers the complete junction of the two barks.

BULBS in pots, that flowered in spring and have now finished their growth, will be better worth keeping if the pots are placed on a shelf in a hot lean-to. This is the way we are now dealing with our stock; the object is to roast them before shaking them out of the pots. Cape bulbs require much the same sort of treatment, but care must be taken to keep them growing a reasonable time after flowering, till, in fact, they have "made themselves" for the next season. It is because we do not ripen bulbs sufficiently that so few are of any value after having once flowered.

CHRYSANTHEMUMS to have plenty of water, and to be assiduously trained. Cuttings struck now, and carefully grown, will make very pretty small specimen plants.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Apple-trees are now recovering from the devastation of caterpillar, and need a careful inspection, pruning-knife in hand, to remove spurs and branches that have perished through loss of sap when they were covered with vermin during the drought. Tie in espaliers at once, before the shoots get set in a bent position. Use the engine smartly to wall trees and bushes; nail in the wood to be kept on wall trees, and remove, but not too much at a time, all superfluous wood. We must again object to the too common practice of laying in all the wood that can be got, till the walls are literally felted with young shoots; one-half of these can never ripen so as to be of any use, and the keeping of an excessive amount of spray defers its object—the general remark that "we don't know what we may want" being founded in a misapprehension of the subject altogether. We have seen walls lately covered with at least three layers of shoots one over the other, and we have no longer been in a mystery that, though the trees grew well, they

produced but little fruit. Wall trees trimmed up now will have time to ripen their wood; if neglected much longer, it will be too late to do justice to them.

ORCHARD HOUSE TREES require very little attention now beyond abundant watering, and the use of strong liquid manure. No more pinching to be done. Shoots badly placed may be removed now without fear of causing the buds at the base to break.

AMERICAN BLIGHT is now making its appearance on apple trees. We find the aphid wash a cheap and effectual settler for it. A hard-brush plied upon the parts affected, without any medicament, has a very decisive effect. It is not safe to use brine now, but when the leaves are off brine is one of the best of purifiers for apple-trees.

PINCHING must be practised with assiduity in fruit gardens where pyramids and bushes are grown. There is one thing to be said about pinching, namely, that once commenced it must be continued, for if neglected the shorter growth, clothed with spurs, is soon buried under a forest of spray, which breaks out on all sides, and very soon alters the character of the trees entirely.

Greenhouse and Conservatory.

CONSERVATORY plants require abundance of water and a free circulation of air amongst them. Climbers must never be neglected, or the growth will become so confused that to restore anything like order much of it must be cut away. Moisten all walls, borders, and stone-work the last thing in the evening, to create a humid atmosphere.

BEAUCARNEAS and their allies are generally very badly treated, hence the rarity of good specimens. One of the greatest secrets of success is to give them abundance of water at this season; it is scarcely possible to overdo it.

FUCHSIAS should be propagated now in quantity. Specimen plants will require abundance of water, and once a week liquid manure. Fuchsias in the open ground are generally disfigured with a superabundance of sticks, whereas in a good turfy soil, with a moderate amount of rotten dung, they ought to need but little artificial support, and a certain easy drooping habit is proper to their character. Most of the light fuchsias require to be well shaded, or the points of the calyx acquire a green tinge.

AZALEAS and CAMELIAS, if still under glass, must have air night and day, and the floors kept damp. Use the syringe regularly till the flower-buds show at the points of the shoots, and then discontinue the use of the syringe.

SOFT-WOODED PLANTS, such as Cinerarias, herbaceous Calceolarias, Chinese Primulas, Pansies, Pyrethrums, &c., should be raised from seed now in quantity. If Primulas were sown in April for early bloom, it will be as well to sow again for a successional batch. Remember that to grow bad seed is just as much trouble as the best, so that the question of cost of seed should not be considered too closely. Procure the best that can be had from houses known to be above the shabby practice of mixing or misdescribing, and grow them in a good compost from the first. Soft-wooded plants rarely do any good if grown slowly; they need abundant nourishment, and if kept stout and strong rarely suffer from vermin. It is the bad practice of starving seedlings in the seed pans that creates the principal trouble of getting them clean afterwards.

HARD-WOODED PLANTS that have flowered will require to be pruned in and set in a shady place to rest awhile, and repotted if needful when they have started into a new growth.

CINERARIAS are now very forward in the seed-bed, and the largest must be potted off and put in a frame. A bed of spent hops answers admirably for them.

Stove and Orchid House.

ACHIMENES need help from liquid manure to prolong their beauty and develop the foliage and flowers fully. The best contrivances now in use for displaying them are the open wire baskets humorously designated "crinoline pots;" in these they grow to perfection, probably because of the access of air to the roots.

IXORAS.—These cannot be kept in order as specimens without careful treatment. As soon as the bloom is nearly past cut them back rather sharply, and put them in a good heat to start again. When freely in growth, shift any that require it; or if not, remove a portion of the soil and replace it with fresh.

Forcing Pit.

VINES that have ripened their fruit must be carefully brought into a resting condition by gradually withholding water, and exposing the wood to the weather night and day, except during rain. Crops ripening to have the help of fire-heat in case of a prolonged term of cloudy or cold weather, as any delay in ripening will bring on mildew. Where the grapes are just stoning, attention should be paid for the last time to thinning and tying in, but do not cut away every apparently superfluous shoot; very often a few random growths help to sustain the vigour of the vine, and are in fact the signs of vigour; but of course these should not overlap the old wood, or shade the leaves that have bunches to take care of. Where ripe grapes are to hang, keep the house dry; and, to prevent red spider, paint some tiles with sulphur vivum, and lay about in the full sun.

FINES must have air pretty freely, and abundance of water both to the roots of the plants and to all parts of the pit, to promote a humid atmosphere.

STRAWBERRIES making runners freely are best rooted at once into the fruiting pots if intended for forcing. It will be found that they soon fill the pots with roots and form good crowns; and there is a great saving of labour. Let the soil be sound loam, with a liberal allowance of manure; and in filling the pots, press it in as firm as possible.

Correspondence.

MANURE FOR GRASS PLOTS.—Having read your article on the "Restoration of Grass Plots," in your number of the 8th instant, I think it may interest your correspondent J. V. to know that an article which has lately made its appearance is highly adapted for the object he wishes to attain. In the early part of the year I bought a packet, which cost me one shilling, of the "Paxton Manure for Gardens" and grass-lawns, and mixing it with a small quantity of fine earth, in order to test its value, I wrote my name with it on my lawn at the back of my house. In less than three weeks I could distinctly read my name in grass, which was not only of a darker green, but considerably higher than the rest of the lawn. I have since used the same manure for cucumbers with great success. I enclose my card.

CONSTANT READER.

CULTIVATION OF CERTAIN BRITISH FERNS.

Aspleniums require thorough drainage. They grow freely when planted in light loam (enriched, if need be, by the addition of well decayed leaf-mould and fine sand), with a fair quantity of broken limestone or old lime rubbish interspersed.

Athyriums—The most important requirements of the *Lady Fern* and its numerous varieties are abundance of moisture in the growing season and partial shade. When grown in pots they should have, at the above season, abundance of pot room. Thorough drainage is of less importance. Plant in a compost of fibrous peat, loam, leaf-mould, and sand. The *Athyrium filix-femina* and its varieties are all of them deciduous; they are perfectly hardy, and make beautiful objects for the out-door fernery.

Cystopteris fragilis and varieties do well in a compost of fibrous peat and loam, with a little thoroughly decayed leaf-mould and fine sand added, and a small amount of old crumbled mortar. They are especially eligible for situations a little moist in the rockery. It is important to drain well.

Lastrea thelypteris.—This beautiful deciduous fern requires a peaty soil, continuously moist. Its delicate-looking yellowish green fronds make a charming variation from the darker green of other ferns. Does finely in a hog.

Polypodium vulgare is a fine evergreen, and the most beautiful varieties, such as *cambriacum*, *omilacrum*, and *pulcherrimum* are, perhaps, the freest growing. Plant in a compost of fibrous peat, leaf-mould, and silver-sand, taking care to give ample drainage, and to place the rhizomes on the surface of the soil, securing them there with wooden pins until the plant is well established.

Polypodium dryopteris.—Plant in a moist shady nook of the rockery, using a compost of fibrous peat, leaf-mould, and silver-sand; it is important to drain well.

Polystichum angulare.—It is a mistake to plant this in peat, as is so frequently done. No doubt it may be made to grow in peat enriched with decayed leaf-mould, but the plant's natural aliment and consequent requirement is loam—a rich loam. Silver-sand should form an element in the compost; and pieces of grit, and also small pieces of lime-rock, may with advantage be introduced; the drainage should be ample.

Scelopendrium vulgare.—Grown in the shade and given abundance of moisture, this is one of the most beautiful of evergreens. When an attempt to cultivate it has failed, it has generally been through neglect to give the plants the necessary amount of water. Most variable of all ferns, its named forms or varieties are now counted by hundreds. Plant in sandy loam, in a moist, shady, sheltered nook. Tenderer subjects may be planted in a compost of loam, fibry peat, and silver-sand. In either case a small quantity of well decayed leaf-mould may be added, and in all cases the plant is benefited by bits of limestone (or a small quantity of old crumbled mortar, or broken oyster-shells) being interspersed through the compost, the Hart's Tongue fern being a true limestone plant. Provided the drainage be perfect, too much water can hardly be given during the season of growth, though, of course, it is not well to subject the plants to a constant deluge.

Woodsias.—Stagnant water and stagnant air are alike hurtful to these beautiful little ferns; ample drainage and thorough ventilation are therefore essential conditions in cultivation. But though well drained, the soil should not be allowed to get too dry. A cool airy situation, with a moist soil, is the one in which the plants are most at home. For compost use mainly fibrous peat, with a fair amount of silver-sand, a little thoroughly decomposed leaf-mould, and a small proportion of loam. As the *Woodsias* require a cool situation, one with a northern aspect is obviously the best.

Killarney Fern (*Trichomanes radicans*).—Though it is best, as a rule, to grow the bristle fern in a close glazed case, it frequently makes most luxuriant growths without such confinement, and planted merely in a shady corner of a cool house. But a uniformly moist atmosphere is essential, and when this condition cannot be insured in the place where the fern is to be grown, then a glazed case becomes necessary. What moisture the plants receive should be in the form of exhalation; avoid casting water directly upon the fronds. It will be seen that the lovely bristle fern in cultivation is essentially a greenhouse or quasi-greenhouse species.—*Descriptive Catalogue of British Ferns*. A. Stansfield, Todmorden, Lancashire.

SCOTCH AND ENGLISH SHEEP-DOGS.

We now come to our own beautiful and beloved colley, looked up to for centuries as the most ancient strain and purest breed of sheep-dog, and from whom have doubtless sprung a variety of other most serviceable and intelligent guardians of our flocks and herds. A cross, indeed, from this most esteemed animal is perhaps better suited for general purposes than a true or thorough-bred one, as, taken from his native hills and natural habits, there is a downcast air and melancholy pervading him which apparently interferes with his exquisite sagacity; he works as it were with a weight about him; there is wanting that joyous action and light-heartedness of expression for which at home he is so famed and admired. This most interesting of all the species has been, of late years, familiarized to all of us through the inimitable pencil of Sir Edwin Landseer, who has taken every opportunity of presenting him before us, accompanied with some charming or touching sentiment, his refined appearance adding immensely to the delightful impression. The shepherds throughout Scotland, and also the north of England, take especial care to preserve unmixed with "baser matter" their breed of these valuable dogs, and a very high price is set upon them, according to their pureness and pedigree. We have seen £50 almost indignantly refused in more than one instance. Nor is this surprising when their accomplishments are considered, and the saving in labour and time thereby gained. On the Grampians it would be impossible to find a substitute for the faithful and intelligent colley, for thereabouts, in the valleys and glens, reside many shepherds, and the pastures over which their flocks are permitted to range extend for many miles in every direction; indeed, the owner has no possibility of viewing his whole flock at once, excepting collected for some particular purpose, such as for sale, or for shearing; and thus, as he can only visit them partly at a time, it becomes the duty of his dog to keep the sheep within bounds, and prevent them mixing with his neighbours', and also to drive back all intruders, a task requiring considerable discrimination, and one of no trifling labour.

Of the English sheep-dog there are two or three varieties, although in many respects closely resembling each other, and doubtless they are all

newly related. The tailless species is, we believe, a Yorkshire dog, and, strange as it may appear, this deficiency in nature's fair proportions has become quite hereditary amongst a certain strain, although probably it had an accidental origin; for I have repeatedly seen a litter of puppies one-half of whom possessed tails, whilst the other half had none. This sort of dog is a strong, wiry-coated, generally curly, and particularly muscular animal, especially about the loins and hind-quarters; he is often of a savage disposition, and given to fighting; he is mostly seen with drovers, and is used chiefly for cattle; he is extremely courageous, and will face, without flinching, the most desperate beast; being generally what is termed hard-mouthed, his lower fangs are frequently filed down to prevent his injuring the herd whilst at work; he is wonderfully active, full of intelligence, and delights in his calling, to which may be added that he is true and faithful to his master. The dog most familiar to all of us, and seen daily on our farms and downs patiently tending his gentle care, is a very handsome and picturesque animal. He is ordinarily of a blue gray colour, with white breast and patch on the face, and either curly or flowing coat. Of a most enduring and amiable nature, he devotes himself entirely to his duties, is seldom or ever seen astray, and follows the heel of the shepherd or reposes on his coat with that serious air and undeviating attention which prove how much at heart he has the welfare of the flock, and the interests of those whose will he obeys. There are many very entertaining stories illustrative of his intelligence and faithful disposition; but, for fear I might repeat an oft-told tale, I will merely relate one or two incidents that have come under my own observation.

Having occasion to call on a friend a few miles from Winchester, I descended at that station, and proceeded on foot across the country; during my walk I had to pass through a very large field, one half of which I observed was seed-crop, the other being pasture, on which were feeding some hundred or more of Southdowns. My attention was shortly attracted to the faithful dog, who was walking, with sentinel-like punctuality, up and down the boundary line of the two crops, close to which some of his trust were browsing. Upon the slightest attempt of any of them to infringe on the seed, he immediately drove them back; but the extent of his beat being very long, he was sometimes sorely put to it, and had to hurry backwards and forwards in rather a laughable manner. Collecting his energy, he finished by driving the whole flock to the extremity of the pasture; then, satisfied with the altered position of affairs, he returned to the boundary line, and lay down with the assurance that they must now feed up to him. Four hours afterwards, on recrossing the field, all was as it should be, and the guardian of the limited liability still reposed undisturbed *in media res*. I was greatly gratified at such an admirable display of canine sagacity.

The following is even more extraordinary. Mr. Scott, a farmer near Bishopstoke, in Hampshire, possesses a remarkably intelligent sheep-dog of the English breed. Not long since he accompanied him to Appleshaw Fair, where he purchased a lot of sheep, upwards of two hundred and fifty. At night, in bringing them home, they were turned into some meadow land with several other droves; they consequently soon all became mixed together. The next morning, without making a single mistake, the dog picked out the whole of his master's sheep from amongst the others, almost unaided, and although he had been so short a time acquainted with them, after which he drove them to their destination single-handed. This feat Mr. Scott may well be proud of repeating, as it has seldom or ever been equalled, never surpassed, for brilliant intelligence and canine observation.

There are certain peculiarities of character belonging to the sheep-dog well worthy of note. He is a remarkably small eater, and is the least greedy of all the entire race—in fact, it is quite astonishing how many hours he will remain true to his post without indulging his appetite; he apparently suffers but little from hunger or thirst. He is of a pensive, melancholy disposition, and rarely condescends to join in a romp, or enjoy that playful dalliance which belongs to other animals. At the same time his affections are true and unalterable to his master, and his faithfulness under the most trying circumstances is staunch even to death; and if we should seek in the canine family for talents and qualities especially human, our convictions unhesitatingly point towards the sheep-dog.—*Land and Water.*

THE PLANTING OF COUNTRY CHURCHYARDS.

As great and well-deserved attention is now being paid to these sacred places, by neatly enclosing and beautifying them with ornamental planting, I beg a little space in your excellent paper for a few remarks on the shrubs and trees most suitable for such a sacred purpose. Church decorations and restorations are often beyond the means of a rural population, but the planting and keeping of our old churchyards can always be effected where there are willing hands and hearts. If those who wish to show regard for departed friends or relations would direct their attention to the planting and adorning of the graves where their bodies repose, instead of disfiguring the walls of our sacred fances with marble tablets and unmeaning busts, which can interest none but those who put them there, and cause disinterested admirers of our fine old churches to view them with regret and disgust, it would be much better.

In adorning these sacred resting places of our departed friends we are rather opposed to flowers, and would rather see the old sepulchral yew, whose gloomy foliage, as a fitting emblem in such a spot, has stood the test of centuries. But to make our plan and purpose clear it is necessary to draw a picture. There stands the sacred edifice surrounded with its graves and grave monuments levelled with the well kept grass. The venerable pile runs east and west; the western door opens into the centre of the churchyard, so that a wall running north and south forms the grand promenade. The north entrance is therefore the spot from which the best effect can be produced, be the other paths as they may. In laying out the ground we would make a gravel walk wide enough for three persons to walk comfortably abreast upon, and running north and south parallel with the edifice. This should be as it were the midrib, and take in the church and its surroundings on one side. The margin of the ground only should be planted with large growing trees, avoiding that egregious blunder we see almost everywhere of planting tall-growing and wide-spreading trees near buildings which in time they must bury beneath their shade. Two kinds of plants should decorate the interior of the ground—bushes or tufts and ornamental shrubs. Next to the sacred yew, we should be careful to find a conspicuous place for the Deodand, or "Tree of God," as a tree well suited for the decoration of consecrated ground. Let these be planted at all the extreme points near the walls of the churchyard, at not less than a chain length apart. Although the latter is a

large growing tree, its beautiful drooping habit and evergreen hue will make it ever a pleasing ornament to a churchyard. The cedar of Lebanon is another tree equally, if not more, deserving than the Deodora of a prominent place. Its gloomy grandeur and venerable appearance when old give it a more awe-inspiring aspect than either of the former, and we should plant, or rather scatter, two or three in open spaces. In planting churchyards, we should avoid all conformity to wood or even shrubby planting, for although the tombs should be shaded like a good picture, still the "summer sun should shine sweetly on the graves."

Then comes the yew, and when we speak of yews we mean the English yew, and not the garden variety, for there is a great deal in a name. In the days when bows and arrows were used as weapons of war they were made of yew; hence the yew-tree was a material of war. The triumphant entry into the Holy City was celebrated annually on Palm Sunday by the distribution of small twigs of the yew and willow; and the honoured dead were borne through the lych gate, and under the churchyard yew-trees, to their last resting place. The yew, therefore, has important claims to our regard, for it gave the palm to gladness, a brand to warfare, and a canopy to death. It is extremely suitable for such decoration, being a tree of evergreen habit, long lived, and hardy in the highest degree, bearing the most inclement weather without flinching. It will stand more ill usage than any other tree we know, and may be pruned, clipped, and mutilated without bounds or discrimination with impunity. Next to the cedars the ground should be well studded with English yew-trees. The tree commonly called the Irish yew should be especially excluded, being far too stiff and club-shaped for so sacred a purpose.

Next comes the juniper family (not Cypress) of scriptural interest, as giving shelter to Elijah in the wilderness of Beersheba. These will grow in any soil or any situation, but they prefer a sandy loam. They can be had of all sizes from a mere dot to a small flame-shaped tree, and the creeping and dwarf or bushy kinds are invaluable for covering the ground like a thick carpet.

There is another valuable plant that might be used for the same purpose, or even for walls, namely, the Cotoneaster. It will hang over banks gracefully, and its blue and golden associates, the "Periwinkle" and "St. John's Wort," may be used for the same purpose for the sake of variety.

Tufts of box may dot the ground, and this being a very slow growing plant, and unobscure, might occupy waste places near the eye. Some ornamental features should be introduced, and we know of nothing better and more suitable than the double flowered English gorse or whin, and the rose family. The gorse to be scattered in small groups, so as to produce in its season gold amongst the green. When this plant is not in flower it is always green and neat, and wears no varnish on its foliage like the holly. It is, therefore, easily kept in harmony with the small leaves of the cedar, juniper, and the yew. Also a few deciduous trees might with propriety be introduced at discretion, as space would admit, such as the weeping elm (being by far the most appropriate); and we should plant grafted elms between the cedars on the margin, as it is a time-honoured practice to have these tall elms, and even the weeping willow, in churchyards. The weeping willows are handsome and appropriate through the year; the Kilmarnock variety is the best.

The Ayrshire rose will be a great addition, and will be found useful to run up against walls to any height, or to cover any eyesore. It is a climbing shrub of rapid growth. Other rambling roses on stems, never to be cut back till they become almost as large as haycocks, may be planted here and there in open spots. The rose, a universal favourite, harmonises and blends with all other shades of colour, and the ground strewn with rose leaves, while some blossoms are still perfect and others in bud, will be well suited to the place and its associations, so as to bear us harmlessly through against excess of love in recommending the introduction of this queen of flowers amongst the abodes of the departed.

ALEXANDER BARCLAY, in the "Teesdale Mercury."

Replies to Queries.

W. J. B. Spoor.—A pansy sent between blotting paper in a letter at this time of year is not a pansy when it comes into our hands. If it came fresh we could not name it; we make it a rule never to try to name florists' flowers. Judging by the outline of the smashed and dessicated flower, we should consider it top-heavy and second-rate.

Stocks for Roses.—C. H. Bentley.—As you live near a great smoky town, you have no business with stocks of any kind, for the best roses for you are those on their own roots. But if you must have worked roses, like many other people who love delusions, give the preference to the Manetti over the brier, and to the Maiden's Blush over all other stocks. The last named is not much known or appreciated, but it is a good stock for gardens near towns. If urban amateurs would give the same attention to the practice of striking cuttings and eyes as they do to budding on the brier, they would have roses in reality; but as they for the most part prefer bad roses to good ones, the brier is generally in high flavour amongst them.

THE PLEASURE-GARDEN.

A fresher, brighter spot of earth, wherever you may travel,
Is seldom, very seldom, I can tell you, to be seen.
Well kept, well swept and tended are its paths of tawny gravel,
And velvet is the simile that answers to its green.

I fancy of a garden that the "lily is a lady;"
The queen, there's not a question for one moment, is the rose.
I'd like to call a nosegay from these bowers cool and shady;
But nobody's allowed to pluck the flowers, I suppose.

No weeds are here. No weeds—egad! With slightly altered meaning,
Their lack I am inclined to mourn, as, underneath this oak,
I loiter along the mossy turf, and, on my elbow leaning,
Peruse the notice, "Perseus are requested not to smoke."

My attitude recumbent is for once deserving credit,
My laziness a virtue, which it seldom is, alas!
For there's a rule most stringent—as I sanctioned here I read it—
Forbidding any visitor "to walk upon the grass."

I'll take another turn, though, for the air is getting chilly.
Ah, had I some companion, guide, philosopher, or pup,
My faithful Skye—descendant of the celebrated Billy—
But "Dogs are not admitted," so I give the notion up.

It's growing late; there'll be a storm. I'll go. What's this? By heaven!
I see the wolds, and spell them in an irreligious light,
"The gates are shut at ten." It's now a quarter to eleven;
And I'm locked in, a prisoner, this rainy summer night.—*Fun.*

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun		Moon		WEATHER NEAR LONDON 1866.						Orchids that may be in bloom.		M D
			Flour.	sets.	rises.	sets.	Barometer.		Thermometer.		Rain & Growth		I, Indian House; II, Mexican House; O, Greenhouse.		
1867			b. m.	b. m.	b. m.	b. m.	MX.	MR.	MX.	MR.	MX.	MR.			1867
30	S	2nd Sunday after Trinity [bath St. Greenwich Link Show, Orchard Hill, Cold-	3 47	8 18	2 45 a.m.	6 30 p.m.	29 80	29 67	85 52	68 5	00	61 5	Ca'tleya Adalindæ, M. Brazil	30	
1	M	R. H. S. Rose Show, South Kensington	3 48	8 18	3 39	7 32	29 51	29 46	72 45	58 5	13	61 4	Epidendrum alatum, M. Mexico	1	
2	T	Royal Botanic Society's 3rd Great Show	3 49	8 17	4 45	8 27	29 48	29 32	70 43	57 5	04	61 4	" maculatum, M. "	2	
3	W	Birmingham Rose Show, 4th and 5th	3 50	8 17	5 51	9 12	29 36	29 35	66 46	50 0	11	61 5	" phonicium, M. Cuba	3	
4	Th	Tringbridge Wells Hort. Soc. Annual Exhib.	3 51	8 16	7 13	10 7	29 51	29 38	60 47	58 0	13	61 0	" verrucosum, M. Mexico	4	
5	F	Sir W. J. Hooker born, 1785.	3 52	8 16	8 31	10 22	29 53	29 45	70 43	58 5	03	61 7	Calanthe maruca, I. India	5	
6	S		3 53	8 15	9 46	10 21	29 67	29 53	73 40	53 5	19	6 8	Aerides affinis, I. "	6	

The Gardener's Magazine.

SATURDAY, JUNE 29, 1867.

CLASSES FOR COLLECTIONS OF WILD FLOWERS are to be found in the schedules of provincial exhibitions almost invariably, and we may conclude therefore that they are in general favour as aids and stimulants to the study of botany by the young. There can be no doubt that in some cases they really accomplish what they are intended for, and by awakening inquiry and promoting the searching of the woods and hedgerows, they may occasionally be the means of laying the foundation of a taste for botanical studies, and of furnishing that taste with appropriate gratification at a season of life when impressions are made of a lasting nature. But it is a question which we consider by no means hard to answer, if upon the whole these competitions do not result in more harm than good; and, admitting that good does result from them, whether that good might not be obtained in some other way without any accompanying evil. Our correspondent "Cypripedium calceolus" referred to the subject in his valuable communication to last week's Magazine, and it appears to us of quite sufficient importance to merit special remark in this place; for whatever conclusions we may arrive at must bear directly on certain points requiring consideration in the preparation of a schedule.

Let us look at the facts as usually presented to us. There is a competition for so many "bunches of wild flowers," and a certain number of contributors present their gatherings. As to knowledge of botany, it scarcely needs to be said that to attach correct names to a score or so of summer wild flowers is no very satisfactory proof of mere technical acquirements, much less those higher departments of botany which are of the most practical service to the traveller, the cultivator, or the artist. But how often do we find the names correct? We speak from observation when we say that to find one collection in fifty correctly named, and with the names correctly written, is as rare as meeting with a collection that possesses one particle of interest for any except the collectors who have entered into competition. In many cases the competitors are indebted to local botanists for the names; and when these have been written and affixed to the bunches, the "study of botany" in that particular case is at an end. We admit most gladly that there are exceptions to what we are now describing as the rule, but they are few and far between; and for one mind that is awakened to a perception of analogies and relationships, and thereby led to some higher pursuit than preparing wild flowers for an exhibition, thousands are simply deluded or repulsed—deluded in the first instance by the supposition that writing names they cannot understand is equivalent to the gain of actual knowledge, and repulsed by those names and by all the apparent dryness and uselessness of scientific terminology. The system has been in operation long enough to furnish out of its own history arguments in its own defence, if it is really defensible on solid grounds; but if we ask for the names of the able botanists, or even of the persons tolerably skilled in botany, who can trace their success to the encouragement afforded by such competitions, we suspect we shall wait long for a reply. We venture to ask, indeed, if any one can tell us, not in general terms, but with the illustration of particular instances, if these competitions have ever proved of service in promoting scientific study or the love of rural pursuits, or increased attachment to the soil and to the laws and customs of our native land? To ramble through the woods, to explore the hedgerows, to notice the differences in structure, and to make comparisons of the forms and colours of wild flowers, are pursuits directly beneficial to all who engage in them, whether young or old; we might as reasonably declaim against naturalists' field clubs as object to the gathering of woodland posies, and the learning of the names of the plants composing a wilding wreath. It is the competition in such things as part of a flower show we are speaking of; and that competition we venture to pronounce of small value in an educative sense, and, if we are right in that, there is not left a single argument why these competitions should be encouraged.

Let us for a moment, in imagination, go round the tent. We see stove and greenhouse plants, pelargoniums, ericas, fruits, bouquets, all in their several degrees and styles beautiful and attractive. In due time we reach the "wild flowers," and here it seems as if the design in introducing them must be to prove that there is not a British plant in existence worth a moment's notice on account of

its beauty. We see tufts of *Lychnis*, *Lysimachia*, *Silene*, *Geranium*, *Campanula*, and less interesting and attractive subjects, grouped without taste either for contrast or harmony, frequently in a state which can scarcely be called clean, and usually as if solely intended to disgust the few who will deign to look upon them, both with the faded flowers and the names appended to them. Even the best examples are lost amid the brilliant colours and noble forms which constitute the principal features of a horticultural display; and it may be truthfully said that where this feature is carried out with the fullest spirit and integrity, it adds so little to the attractions as to be comparatively worthless, while, by the unfavourable contrasts to which the weeds, however pretty, are subjected, it is probable that many are deterred from the study of British botany who would otherwise find it to be an agreeable and healthful pursuit. We repeat that, considered in respect of the success of an exhibition, this feature is, as a rule, worthless, sometimes injurious, and in no case calculated to inspire a love for the subject in behalf of which it is instituted.

But there is another evil attending these competitions. They lead to the ruthless destruction of rare plants, to the extinction of habitats, and even to the extinction of species. The few who now know of the whereabouts of the true Maidenhair or of *Trichomanes radicans*, and some other of the loveliest British wildings, dare not divulge, through the reasonable fear of botanical Goths and Vandals, who go about hungrily seeking what they may devour in the way of a rare plant, and which, when they have devoured it, will do them no good either intellectually, morally, or materially. We noticed in Messrs. Brown's collection of hardy plants at the Manchester Exhibition (see page 254) the rare and beautiful *Maianthemum bifolium*, a plant which merits a place in every choice collection of hardy plants, and were assured by Professor Williamson that it was necessary to keep profoundly secret the name of the spot where the plant had been found growing wild; for if it became known, the whole of it would be snatched up, and the species probably be blotted out from the British Flora, and this not in the interests of science nor for the promotion of botanical studies, but to gratify an idle curiosity and the prevalent love for a rarity, no matter whether useful or not to the possessor. We occasionally meet with rare orchids, and with other plants that have not half a dozen stations in the island, in the "bunches" that for a few hours make a dingy appearance at a flower show; and the exhibitors obtain prizes on account of the rarity of their findings, and are thereby rewarded for the mischief they inflict in helping to "stamp out" some "gem of ray serene" that *Cybele* should keep for her own chaplet and for the joy of those who are her faithful followers.

It is not at all necessary to frown down the young aspirant to botanical distinctions in order to preserve the rarities of our native Flora. We should much prefer to offer substantial encouragement, accompanied with conservative teachings respecting the claims that certain plants have upon our care for their preservation. Instead of competitions at horticultural exhibitions, where they are out of place, village clubs and classes would be far preferable; and competitions might be instituted of a kind calculated to prove directly beneficial to the young without starting them on absurd errands to tear up rare plants, and make hideous bunches that are neither instructive to themselves nor gratifying to any who take notice of them. Professor Henslow gave his valuable hours and his ripe manly intellect in such a cause, and there might be found many another guiding spirit who would foster the ambition and curiosity of the young in the study of field botany; but the school-house appears to be the proper centre for the work, not the tent of the horticultural exhibition, and it is a work that needs to be pursued continuously "all the year round," not at long intervals; and moreover it needs personal supervision and direction by those who already exercise a moral influence, in preference to the verdicts of judges who are rarely competent to make awards on the ground of true merit, either in respect of the plants brought forward or the taste displayed in grouping them.

IS *LILIUM AURATUM* HARDY?—This question has been put to us on many occasions by correspondents, and it has been answered in the affirmative. Our replies have been founded on the fact of this liliun having been stored away in pots, in frames, and in beds, with only an inch or two of covering throughout the winter, without harm or loss, and from many observations of its habits and requirements we never entertained a doubt of its hardiness. But we are enabled now to bring forward a fact in corroboration of the con-

clusion. Messrs. Paul and Son, of the Cheshunt Nurseries, left out all last winter in an open border 300 bulbs, and every one of these is now growing freely and presenting fine flower-buds. Such a winter must be considered a satisfactory test, and this glorious lily may surely be added without fear to the long list of hardy plants adapted for beds and borders in gardens where there is no glass, or where it is desired to enrich the summer display with subjects requiring the least possible amount of care. Nor is this liliun particular about soil, though undoubtedly it thrives best in good lumpy peat or silky loam, such as the common brake delights in. Either of these materials is to be preferred before all composts containing stimulants.

THE SCARCITY OF VEGETABLES has been severely felt by poor people. A large quantity of the commonest kinds of vegetables has been exported from France to England, which is an unusual circumstance. A few days ago 1,400 sugar-loaf cabbages were landed at Guernsey from France; some of them weighed 14lb. They were rapidly sold at 3d. and 4d. each.

CURIOUS USES OF AN OVEN.—The *South London Press* states that an oven situate at 65, Richardson Street, Bermondsey, is used, according to the report of the inspector of nuisances, on Sundays to cook the dinners of the poor around, and on week-days to haking hair, and destroying gregarine germs before its conversion into fashionable chignons.

THE SCOTTISH PANSY SOCIETY.—This society held its twenty-third annual exhibition in the Music Hall, Edinburgh, on Friday the 14th of June, and was largely patronized by visitors. The blooms shown were excellent, both as regards the old varieties and the new sorts; and it was generally considered that the average quality rather excelled that of former years. Messrs. Downie, Laird, and Laing were as usual the chief prizetakers in the nurserymen's classes. Messrs. Dickson and Co. received a first-class certificate for some new and meritorious seedlings, named respectively Highland Mary, Robert Burns, and Fire-eater. Mr. Young, South Bridge, was awarded a certificate of merit for a final zonal geranium. Messrs. P. Lawson and Sons, Messrs. Downie, Laird, and Laing, and Messrs. Dickson and Co., sent attractive and interesting collections of plants for exhibition only.

NEW RECREATION GROUND AT DERBY.—Mr. Bass, M.P., who has been one of the Parliamentary representatives of Derby for about twenty years, has just presented a public recreation ground to the inhabitants of that town. The ground is situated within five hundred yards of the market-place, and is on the banks of the Derwent, on the east side of the town. It is six acres in extent. Mr. Bass bought it from the corporation at a cost of £3,000, and has spent nearly £1,000 more in fencing and in other ways preparing it for a recreation ground. The town authorities undertake to keep it in order, to embank the river round the ground, and to make a promenade on the river side, shaded by limes, elms, and beeches. The ceremony of presentation was gone through on Saturday last at a special meeting of the town council. Afterwards a procession was formed, and after parading the streets, which were crowded at all points, reached the ground, where at least twenty thousand persons had assembled. The mayor and Mr. Bass addressed the multitude, and afterwards there were amusements, including gymnastic performances, foot-races, &c. In the evening the mayor gave a grand banquet to the members for the county and borough, the corporation, and the magistrates.

ELDER VER-S GRAPE.—Jerrold's joke about the old port and the elder port will be unpleasantly recalled to "crusty" drinkers by the following paragraph on the manufacture of Portuguese wine, from a note by our Secretary of Legation at Lisbon: "All port wine hitherto exported for the English market is largely mixed with brandy, and is composed as much of elder-berries as of grapes. The way in which what in England is called port wine has hitherto been manufactured for the London market is this: The Paiz de Venhaterio abounds in elder-trees; the berries of these trees are dried in the sun or in kilns. The wine is then thrown on them, and the berries are trodden (as previously the grapes) till it is thoroughly saturated with the colouring matter of the berries. Brandy is then added in the proportion of from three to sixteen gallons to every pipe of 115 gallons. This is the composition of all the port wine hitherto drunk in England. No pure wine, no wine not thus specially adulterated for the English taste, was allowed by the Government Committee of Tasters to pass the bar of Douro before the year 1865." The writer of the above note is, we may mention, Mr. Robert Bulwer, son of Lord Lytton, but better known to the public as Mr. Owen Meredith, under which name he has published several volumes of graceful poetry.

ROYAL BOTANIC SOCIETY.

SECOND GREAT EXHIBITION, WEDNESDAY, JUNE 19.

(Concluded from p. 264.)

STOVE AND GREENHOUSE PLANTS comprised a considerable number of fine-foliage subjects, and the usual profusion of everlastings, ericas, ixoras, and statices. The principal contributors in the class for ten stove and greenhouse plants were Messrs. Peed, J. Wheeler, and W. Kemp, who were placed in this order of their names. Mr. Peed, gardener to Mrs. Tiedwell, brought a fine example of the somewhat scarce *Ixora Griffii* hii, making a brilliant effect with its finely developed orange-coloured flowers. Mr. Wheeler, gardener to J. Phillpot, Esq., presented a good *Bougainvillea glabra*, admirably done and the best plant we have seen this season of *Clerodendron Balfourii*, which sparkled all over with its creamy white and intensely crimson flowers. Mr. Kemp, gardener to Earl Percy, embellished his fine group with a plant of the lovely *Leschenaultia biloba* major, the finest blue-flowering plant known for greenhouse cultivation. In the class for eight, Mr. Donald, gardener to J. G. Barclay, Esq., Leyton, took first place with noble plants, his *Dipladenia splendens* being a model of clever cultivation. Mr. Wilkie followed close with the rather new and most beautiful *Dipladenia amabilis*, and just such a grand *Ixora javanica* as was worthy to match his *Medemilla* at the previous show. In the trade classes, Messrs. Lee, B. S. Williams, Rhodes, Baxendine, and Glendinning, were the principal exhibitors. The competition in the class for six was equally spirited; Mr. Ward, gardener to J. F. Wilkins, Esq., Leyton, and

Mr. Smith, gardener to C. Anderson, Esq., Norwood, being the winners in the order of their names. Glancing through our notes, in which we have the names of nearly all the plants shown, we find that the following were the most important in these several classes, in addition to the few above mentioned:—*Ixora coccinea*, *amboynensis*, *aurantiaca*, and *alcofolia*; *Allamanda grandiflora*, *Schottii*, and *nerifolia*; *Dracophyllum gracile*, *Hoya bella* and *carnea*, *Phaenocoma prolifera* Barnesii, *Statice profusa*, *macrophylla*, and *Holfordii*; *Pleroma elegans*, *Acrophyllum venosum*, *Aphelexis humilis* and *purpurea*; *Prostanthera lasiantha*, *Bignonia grandiflora*, *Hedera tulipiferum*, *Polygala cordifolia*. In the trade classes for fine-foliaged plants, Mr. B. S. Williams distanced all competitors with magnificent groups, comprising the graceful and richly coloured *Croton angustifolium*, *Anthurium magnificum*, *Dasyliroton acrotrichum*, *Alocasia Lowii*, and other fine subjects. Messrs. Glendinning and Son took the next place. Mr. Williams was again in the first place with exotic ferns, and in the amateurs' class Mr. Taylor, gardener to J. Yates, Esq., Highgate, was the first exhibitor. In these classes there were fine examples of palms, pandanads, yuccas, aloes, cycads, and caladiums. The following selected from the whole appear to be especially worthy of mention:—*Theophrasta imperialis*, *Pandanus utilis*, *Cissus discolor*, *Alocasia macrorhiza variegata*, *A. metallica*, and *A. zebrina*; *Caladiums Chantinii*, *Bellemei*, *Wightii*, *Houlettii*, and *marmoratum*; *Cibotium princeps*, *Gleichenia semivestita*, *spelunca*, and *dichotoma*; *Lomaria gibba*, *Woodwardia radicans*, *Todea africana*, *Marattia elegans*, *Davallia bullata* and *dissecta*; *Adiantum formosum*, *pedatum*, *cuneatum*, *Farleyense*, and *tenerum*; *Phlebodium aureum*, *Platycaerium alcorni*, *Microlepia strigosa*, *Pteris argyrea*, *tricolor*, and *albo-lineata*. One of the finest ferns in the entire exhibition was a *Nephrodium molle corymbiferum*, shown by Mr. Carr, gardener to P. L. Hinds, Esq., Blythe. Messrs. Ivery and Son showed a good group of hardy ferns, as did also Messrs. Edwards and Son and Messrs. Kemp and Carr.

MISCELLANEOUS.—*Fuchsias* were fine; we have not for a long time past seen the equals of Mr. Brockwell's pyramidal plants, to which the first place was awarded. Mr. Weston presented beautifully finished plants of smaller size, and Mr. August made a respectable appearance. Mr. Brockwell has taken a position which we hope will tend to revive an interest in the fuchsia, for there has been somewhat of a falling off in competitions of late years; and we remember that we were indebted to Mr. Weston for beautiful specimens when few else appeared anxious to do the subject justice. Mr. Brockwell's varieties were *Sensation*, *Wiltshire Lass*, *Madame Cornelissen*, *Puritani*, *Lord Elcho*, *Fair Oriana*. *Roses* were shown in pots in a beautiful condition of freshness and finish by Messrs. Paul and Son, of Cheshunt, and Mr. Terry, gardener to A. Puller, Esq., Ware. Cut blooms were shown by Mr. Mitchell, of Pittdown, Messrs. Paul and Son, Mr. Fraser, Mr. Cranston, Messrs. Ingle, Marcham, Hollingworth, and others. A few azaleas still full of bloom were shown by Messrs. Peed, G. Wheeler, and Ivery. Mr. Bull put up fifty plants of *Lilium auratum*, showing not only the full splendour of its glorious flowers, but how admirably it may be grown in small pots. We may properly conclude this paragraph by mention of a pretty group of plants displayed by Messrs. E. G. Henderson and Son, combining new varieties and presenting them in a novel manner. The group was arranged in the form of a bed with an edging of small centaureas with blocks of the Golden Feather *Pyrethrum*, and of various kinds of tricolor geraniums. This was carried out in much the way we suggested at page 303 of last year's volume (July 7, 1866), but without staging of any kind, as a grass bank was made use of for the purpose.

NEW PELARGONIUMS.—From Messrs. Dohson and Son, Isleworth, a series of fancy varieties, all worthy of notice for their beautifully formed flowers and decisive colours. *Achievement*, one of the best-formed fancies, far in advance of the average best in cultivation; top petals lively magenta rose, lower petals blush with rosy veins; first-rate. *Silver Star*, like *Silver Mantle*, but without the spots on the bottom petals. *Homer*, small flowers, rich reddish magenta, in the way of *Sarah Turner*. *Number 1*, in the way of *Sarah Turner*, but a very highly-finished flower, with clear white throat; first-rate. From the same, a series of show varieties: *Lord Derby*, top dark, bottom rich lake; large and rough. *Prince Imperial*, lower petals a mixture of pinky red and salmon, top maroon, the flower large, smooth; every way first-rate. *Standard Bearer*, large, with curly petals, bottom rich lake, top dark, heavily veined. *Silver Queen*, white, with pretty carmine blotch on top petals; not round enough or smooth enough for the present day. *Hippia*, lower petals white, top pinky flesh, with small maroon spot shading to lake; likely to prove a valuable exhibition variety—at all events, very promising as shown.—From E. B. Foster, Esq., Clewer Manor, near Windsor, a series of show varieties: *Orion*, orange-scarlet, with dark blotch on top petals; very showy for conservatory decoration. *Robin Hood*, large, flat, smooth, bottom petals clear pinky rose, top fine blackish maroon shading to rich lake, edge pink, whitish throat; very fine. *Autocrat*, large, good form, lower petals prettily veined with carmine on a blush ground, top maroon shading to a light edge, clear white throat; a very beautiful flower. *Empress*, extra fine form and quite smooth, though showing an occasional fold in the top petals; bottom salmon-pink, top black shading to lake, white throat; a fine flower. *Joan of Arc*, a beautiful dark top shading to richest crimson, bottom rich lively purple-rose, white throat. *The Cardinal*, petals too long, fiery lake shading to carmine; very showy. *Vesta*, large, with broad petals, bottom pale salmon-pink, top rich lake shading to a pale edge, white throat; not smooth enough. *Troubadour*, bottom clear salmon-flesh, top flesh with a blotch consisting of maroon rays, white throat; a large, smooth, broad petalled, and very superior flower. *Sœur de Charité*, lower petals deep salmon, overlaid with thin lines of lake, fine dark top; a flower of superior form and smoothness, and highly attractive in colouring. *Purity*, long pot, but otherwise good; bottom clear rosy pink, top dark shading to crimson, white throat; a pleasing flower. *Bacchus*, bottom very rich lake with maroon lines, top maroon, white throat; far from perfect in form, but extraordinary in colouring. *Hermit* and *Prince Consort* are fine varieties, already described.—From Mr. Fraser, Lea Bridge Road: *Marksman*, large and fine form, top petals extra large, quite black shading to a broad crimson margin, bottom salmon-pink, whitish throat.—From W. Beck, Esq., Isleworth, a series of show varieties, comprising *L'Emperour*, *Beauty*, *Aspasie*, *Filomena*, *Memnon*, *Calypso*, *Aurora*, *Camilla*, all of which have been described in previous reports.

NEW GERANIUMS.—By adopting this heading, in defiance of technical rules, we are enabled to separate the zonal, zonate, inquinans, variegated-leaved, tricolor-leaved, and other of the varieties of pelargoniums that are sometimes classed as "bedding pelargoniums," sometimes as "zonate

polargoniums," sometimes as "scarlet" or "horseshoe" geraniums, from the "large flowered" section for which nobody can find a distinctive name, but which are best known as *Pelargoniums*, while these are best known as *Geraniums*. Probably the grandest contribution to the exhibition in this class was Messrs. James Carter and Co.'s tricolor-leaved variety *Prince of Wales*. In this we have brilliant gold-yellow for perhaps the first time, and abundance of red in the zone, the leaf being extra large, extra flat, and the plant altogether a marvellous example of leaf-colouring. *Princess of Wales*, from the same, is one of the most brilliant of its class.—From Messrs. E. G. Henderson and Son: *Lady Cullum*, splendid in its profusion of red colouring in the zones. *Minnie*, a miniature tricolor, with beautiful colouring. *Little Pet*, small leaves, silvery margin, reddish zones. *Harry G. Henderson*, a few leaves very rich in colouring, the remainder with green margins and disks and dark zones; scarcely prudent to show any variety in this dual state. *Model Outline*, very rich lemon-yellow margin and bright red zone; one of the finest in this new batch. *Fair Emily*, pale yellow margin, fine dark zone. *Jenny Wren*, a silver tricolor, quite a gem in style and colouring. *Bridal Wreath*, a white-flowering ivy-leaved variety; the top petals have red lines at the base. *Brilliant Gem*, in the way of Mrs. Pollock, with abundance of red in the zone.—Mr. Tirebuck, of Luton, Beds., sent *Dandy*, a new style of silver tricolor, the margin white, the zone dull chocolate-brown, with patches of red. *Queen of Spain*, a fine Luna-like variety. *King of Hungary*, of the same class as the last, but acquiring a pale lemon-yellow margin, and a rust-red tone in the zones of the old leaves. *Brown Dwarf*, of the same class; tolerably good, perhaps. *Flora McDonald*, a good one, with decided yellow margin and disk, and rich crimson zone.—From J. Potto, gardener to B. D. Colvin, Esq., The Grove, Bealings: *Mr. Sidney Colvin*, colours very rich, the edge yellow, the zone black and red, disk dull green with triangular yellow base; a rather rough-leaved variety, but splendid in colouring. The label announced that the seed was sown Oct. 3rd, 1866; the plant had seven large leaves and four small leaves in the tricolor style, beneath which were a few of the original dark-zoned green leaves. Supposing the seed to be raised in 1866, we may allow just one year for the whole process of raising a good tricolor.

In other classes the following were noted:—From Mr. Tirebuck: *Felix*, a good nosegay variety, with peach-coloured flowers. *Emily Martin*, a neat little zonate kind, with brilliant scarlet flowers of very superior form; first-rate. *Queen Adelaide*, zonate, dwarf habit, flowers salmon-scarlet; good.—Mr. Bull showed the ivy-leaved variety, *L'Elegante*, in two distinct states; in one, the leaves have a bright reddish pink margin, in the other, a creamy margin; the differences are due to the degrees of solar light to which they were respectively exposed—a constant exposure close to the glass producing the red tint, and a less degree of light the creamy shade. From the same, *Lustre*, a superb zonate variety, which appears to be superior to the far-famed Dr. Lindley; whether or not, it is one of the best yet shown.—From Messrs. Downie, Laird, and Living: *Comet*, a nosegay, fine dark zone, and huge truss of crimson scarlet. *Hon. G. Hardy*, a fine nosegay, with huge truss of deep scarlet. *Floribunda*, a nosegay, with immense trusses of orange-scarlet of the same shade as Harkaway.—From Mr. Shenton, of Biggleswade, a series of zonate varieties of no particular excellence; also *Setting Sun*, a nice tricolor, with rich lemon-yellow edge, and broad zone of dark brown, with a few patches of red.—From Mr. G. Smith, of Hornsey Road, the now famous *Le Grand*, which has been so frequently and so variously described that we venture once more to say that, so far as we can understand the case, the prevailing colour is scarlet, with a decided violet shade. It is undoubtedly the finest nosegay yet produced, and to be without it is to be in a state of destitution. From the same, *Grand Duke*, in the same style as *Le Grand*, but the petals are broader, and the colour is scarlet with shade of orange. From the same, *First Favourite*, a large-flowering zonate variety, with extra broad petals, the flower circular, flat, smooth, and finely fin-bed; colour light scarlet.—From Mr. Davison, gardener to Miss Mason, Highgate Park: *Emily*, a dwarf-habited variety, like *Pink Tom Thumb*, and probably as good.

NEW ROSE.—Mr. Ingram sent from Frogmore a new hybrid perpetual, named *Miss Ingram*. The flowers large, globular, and immensely full; pale pink in the centre, shading to white outside, in the way somewhat of *Madame A. de Rougemont*. To this was attached a label setting forth that the tree withstood the frost of January last without harm.

NEW AMARYLLIS.—Mr. B. S. Williams brought forward a dozen fine varieties of amaryllis, some of which we believe to be new. As it is but seldom these flowers are exhibited, we shall describe this set, putting in italics the names of such as we consider new. *Robustum*, a fine large flower, with broad petals; colour crimson washed over with orange. *International*, very large, a curious shade of dull red with grayish lines and edges. *Graviana*, orange-red, with clear pale green central stripe and greenish throat. *Holfordii*, lake-red with greenish stripes and lines; very handsome. *Regina*, splendid self, orange-red. *Magnifica*, dull brownish red, regularly marked with gray lines, the throat green. *Ma Chère*, pale red, broad greenish stripe; only middling. *Insignis*, very broad petals opening to a flat face, and reflexing at the points; brilliant scarlet, with clear white central stripe. *General Garibaldi*, grayish white shading to pale green throat, thinly marked with lines of purplish red; very distinct, but not very good. *Magnifica purpurea*, very large and fine; crimson-red with narrow greenish white stripe; a splendid variety.

NEW LOBELIAS.—In Messrs. E. G. Henderson's pretty group were some attractive varieties of *Lobelia erinus*. *Pumila* is very dwarf, the flowers minute, the colour lavender blue; the tiny flowers of this variety are produced in such profusion as to form a kind of cloud of soft colour spread over the whole plant. *Indigo Blue* is a beautiful variety, with flowers of average size; the colour indigo with distinct white eye.

BLANDFORDIA CUNNINGHAMII merits mention with a word of praise as a wind-up to this report. It is one of the best of recently introduced greenhouse plants, and merits the special attention of the collectors and cultivators of choice subjects.

S. H.

DECLINE OF THE AGRICULTURAL SERVICE.

At a meeting of the Leicestershire Chamber of Agriculture, held at Leicester a few days since, Mr. Inett, of Asfordby, a farmer of high standing in the county, in reference to the age at which children should be employed, said he wanted to know how men with large families were to feed their children until they were thirteen years of age. If they were to educate them till they were thirteen, they could not keep them from eating. He asked whether they did not think boys were more likely to

make efficient labourers if they went to work at ten than at thirteen? They were less likely to associate together, and to get into vile habits, than they were at thirteen. He should be sorry to say anything against education, but it had not had that influence upon the agricultural labourers that was expected; in fact, the influence had not been for the better, but the worse. He had been a farmer now for fifty years, and he said, without fear of contradiction, that the labourers nowadays were a worse class than they were fifty years ago; they were more dissatisfied with the position in society in which they were placed; they were not so industrious, not so honest—altogether a different class of men to what they were then. They thought more of themselves and their families, tried to cut a bit or figure than their masters in the village; they thought nothing about their masters' interests, and not only did not keep their lands from picking and stealing, but were very much given to poaching. Then, again, he said, education had done nothing to advance the efficiency of the labouring population. With the exception of an odd instance here and there of a skilled labourer, who had been brought out by the extra improvements the agriculturists had adopted, there were many occupations that they never saw attempted nowadays. There were very few men who tried to cut a hedge or shear a sheep. Probably the farmers had themselves to thank in some degree for this, because there was a time when they used to keep from three to five men in the kitchen. They went there as boys, and served a sort of apprenticeship. They were kept there till they knew something; but now they went from bird-scaring to plough-driving, and became labourers. If they wanted them to do anything with a spade or a scythe, not half of them could do it. As he had said, they had to thank themselves in some degree for this; for just as the landlords wished to clear their estates of poor-houses, the farmers wished to clear their kitchens of the plagues there were there. He could not think education had done anything for the agriculturists.

A HOLIDAY IN THE WEST.

PART IV.—MR. ROBERT VEITCH'S NURSERY, NEW NORTH ROAD, EXETER.

I quite understood the story of the poor chair-mender, who was asked what sort of holiday he should like, and replied, "a good lot of chairs to mend," when, on a very sunny morning in the latter part of the month of April, I caught sight of the inscription, "R. Veitch's Nursery," while taking a stroll for the good of my health in the New North Road, Exeter. I felt as pleased as a boy who finds sixpence, or a chair-mender with an extra lot of work to do, for how could I find a better entertainment in that reservoir of ennui, the city of Exeter, than in making a pleasure of business, and giving myself to the old game of a hunt through a nursery? The "constitutional" that some people talk so much about is a very good institution, no doubt, but I incline to the opinion that the best constitutional is hard work, and the man who cannot look upon his work as a sort of joke, or as an amusement, or as a trick for the entertainment of the mind and the improvement of the appetite, is a poor dull wretch who deserves to have no chairs to mend, and who, if he goes about at all, ought to have handcuffs on to keep him out of mischief. The accursed nonsense of considering everybody else's lot better than our own is the cause of nine-tenths of the discontent and envy that sours and darkens the world. I fancy I can discover what is the best lot for any man, and that by optimism rather than by philosophy. The best lot is that which providence has apportioned you, and chronic discontent is practical atheism. A strike for wages is right, and a change of occupation is right, and so are reforms and revisions in politics and morals, if founded on justice and reason. So we cannot take Pope's doctrine and swallow it whole, "Whatever is, is right," believing that as we find things so we must leave them. No; but your perpetually grumbling grizzled phiz, who sees in every man an impediment or barrier to his own success, deserves to have written on all his walls, and scratched on his looking-glasses, and neatly printed on a card and thrust into his pocket-hook, and pasted inside his hat, that passage wherein the Bastard bullies Hubert in *King John* (iv. 3)—

If thou want'st a cord, the smallest thread
That ever spider twisted from her womb
Will serve to strangle thee; a rush will be
A beam to hang thee on; or wouldst thou drown thyself,
Put but a little water in a spoon,
And it shall be as all the ocean,
Enough to stife such a villain up.

Well, let's see, where are we? Oh, to be sure, making a pleasure of business—what a virtuous proceeding! How admirable an occasion for giving those malcontents a kick who grumble at their work as if existence were of necessity a penial condition, and how very nicely we wound it up with the aid of Shakspeare, didn't we? This moralising may be supposed to take place at Mr. Veitch's entrance gate, and the delay in turning the latch may be supposed to arouse his suspicion that the party pausing there has something to sell; and we may next suppose he is about to bawl out, "We don't want any," when he makes the grand discovery—"but we draw a veil over the touching scene," as Mr. Punch would say, remembering how, during the last exhibition season, my esteemed friend M. Jules Croixlecharme entered a shop in Cheapside, intending to make a large purchase, and of course made a profound and polite obeisance to the gentleman behind the counter, and was greeted with the admonition to "Go on; you're not wanted here." Mr. Robert Veitch thought I had just come from London to look after *Adiantum Farleyense*, and began to hurry me up the garden; but I told him I had come without a purpose, except to make sure that the city of Exeter had not lost all the Veitchs, because in such a case the city must go to ruin quickly, and the more quickly the better. I delayed seeing *Farleyense* for the sake of a look round, or rather a look up; for this nursery is in a series of platforms or terraces, and the walk from the high road is a series of ascents by gentle slopes and flights of steps. Going upstairs is scarcely a pleasant pastime, but one advantage results from the peculiarity of the site, and that is, that seen from the public way the greater part of the nursery is displayed to view like a picture in outrageous though accurate perspective. This is one of the prettiest nurseries imaginable, and when I dropped in there was a great blaze of *Rhododendrons* and *Kalmias* in the open air, these things being about a month in advance of ours about London. I was not long in discovering amongst the sea a *rhododendron* particularly worth notice, and learnt that it was an unnamed seedling; say this was the 24th of April, and this *rhododendron* was full out, and you perceive that it has one quality to fit it for pot culture. But it was in splendid health, with ample and handsome foliage and huge trusses of finely-formed flowers, the colour scarlet shading to crimson, and

therefore fit for exhibition, and hardy enough doubtless for the garden anywhere. The name is to be *Duke of Edinburgh*, and it is to have a place in our list as one of the best of the season. Coniferous trees were very beautiful, and in very few cases hurt by the winter. Under glass a fine *Medenilla*, the next best perhaps to the fine one shown by Mr. Wilkie at Regent's Park the other day. *Correa cardinalis*, a good old plant one now but seldom meets with, but it ought to be everywhere except in the garden of a friend of mine, who hates everything that lasts beyond a fortnight, for this *Correa* is nearly always in bloom. *Luculia gratissima*, too, well done, and valuable, and propagated as easy as a soft-wooded plant. Query, for anybody and everybody, if root-pieces are not better than young shoots? *Kalmias* in quantities in pots, and a great sale for them. The old subject, how to grow *K. latifolia*, which is the most useful, to bloom all over like gauze or muslin. Mr. Veitch says they do well at his Broadcliffe nursery, where the soil is a hungry sort of peat, and the plants are rather roasted in the autumn. Go to see Farleyense as a finisher, and find a child thereof in a quite new form and style of *Adiantum*, intermediate between Farleyense and *Capillus veneris*, or perhaps between Farleyense and *Chiliense*. It has large pinnules, the upper margins of which are nearly semicircular and regularly but not deeply crenated, and the inferior margins are irregularly wedge-shaped, the topmost pinnule in every case being quite regular and in the form of an escutcheon. This we named *Adiantum scutum*; whether it is a hybrid, a sport, or a species I cannot pretend to say, but its direct descent from Farleyense, its obvious distinction from that, and the uniform character of all the plants—the stock is considerable—are facts suggestive that it is a seminal variety of Farleyense, and most likely a true hybrid. But no matter about its secret origin, Mr. Veitch is the fortunate possessor of an *Adiantum* that will take rank with the best varieties in cultivation, and surpass many that are considered highest in the rank of excellence for exhibition. I now take my farewell of Exeter, great emporium of Dolldrums; if it were not for Mr. Pince on one side and Mr. Veitch the other it would surely vanish away, save and except the Cathedral, and the portico of the Guildhall, which would grandly mark the site of the once peaceful abode of the family of Dryasdust. S. H.

A SELECTION OF VEGETABLES, WITH HINTS ON THEIR CULTURE.

I am induced to continue the subject of the paper commenced at page 256 from having observed, in a garden which I have visited in the interval, that which goes far to confirm the truth of the remarks there offered on the disappointment which often follows the attempt to prove the qualities of any particular seed in gardens of limited extent, and the importance, therefore, in such gardens of growing only those varieties that are universally regarded as the best. In passing through the garden to which I have referred, my attention was directed to three rows of early peas, each row being a distinct variety. Although these peas were advertised by their respective vendors as being each the "earliest in cultivation," yet it was evident there were several days' difference in their respective fitness for gathering. As the kitchen garden was very small as compared with the other portions of the ground, and as the yielding of each row would afford but a very small dish when fit for use, was it not a mere waste of time and space in thus striving to test their comparative merits, especially as these pages have been already occupied with the result of the trial of the different peas? For what purpose expensive experiments and elaborate reports by the most competent of persons, if private growers do not take advantage of the results arrived at? I shall now refer to a few more kinds of vegetables that should, between this time and the autumn, have our best attention for future winter and spring supplies.

Celery.—Of this esteemed vegetable few persons care to grow the very large varieties as formerly, the desire being to obtain close, thick, compact heads, that can be quickly blanched with considerably less labour than attends the large kinds. The dwarf varieties have proved the best flavoured. Having grown nearly all the sorts that have been introduced during the last twenty years, some of them have become great favourites with me for general cultivation. I had in my previous situation to contend with a cold wet soil in winter. I have therefore given special attention to those which are less likely to suffer from the effect of wet and frost, and which would occupy the least space when growing. Amongst the white celeries nothing surpasses *Turner's Incomparable*; it is very hardy, and capital for every use. As a substitute for sea-kale it is excellent—in fact, cooked any way it makes an excellent dish; as it does not grow to a large size, it can be planted with advantage two or three deep in wide trenches, thus economizing the ground. *Cole's Crystal White* is a little larger, and is somewhat earlier, and altogether a very good celery. Of red varieties *Hood's Imperial Dwarf* is a good companion to *Turner's Incomparable*. *Williams's Matchless Red* justifies all that is said of it in the description of this particular variety; its flavour is very superior, and it possesses the valuable property of being fit for use for a very lengthened period, not showing the least disposition to run to seed till late in the spring.

Endive.—There are not many varieties of this delicious salad; but for small gardens, of the curled varieties, the *French Moss* is decidedly the most preferable; it does not grow so much to leaf as the old green curled. In cultivating this vegetable, I sow it in drills, on a south border, the rows about one foot apart, and afterwards thin them out to about nine inches from plant to plant. It

produces very compact heads. If you wish to preserve it during the winter months, you can sow the seed in an open part of the garden. Before winter it must be taken up carefully with some of the earth adhering to the roots, and planted thickly together in a cool frame; and the crowns should be kept very dry, not allowing rain to fall on them, as that and frost together will cause them to rot rapidly. The *White Lettuce-leaved*, or *Batavian Endive*, is a capital substitute for lettuce during the late autumn months, and by many persons they are mistaken for lettuces. They grow very large and fine, but unless they are tied up early, so as to be thoroughly bleached, the taste will be bitter. They should be used before frosty weather commences, as they are not so hardy as the green curled varieties of *Lettuces* for standing out of doors during the winter months. We have not at present anything to surpass for hardness of constitution the well known cabbage-lettuce, the *Hammersmith Hardy Green*. By making two sowings of it, that is at an interval of about a month, you may supply the table with lettuce till Christmas, and then again early in the spring. The same treatment in sowing and choice of aspect, &c., is recommended as in the culture of the endive. For sowings in the autumn, and afterwards to be pricked into frames to be planted out in the spring, for late spring and early summer use, nothing has yet proved with me to equal the *Brown Dutch Cos Lettuce*. If a row is planted parallel with the garden wall, within a few inches of it, and attentively watched, so that leaves do not accumulate round their stems to harbour slugs, &c., they are pretty sure to survive the hardest winter. But if slugs get amongst them, there will be a number of blanks created. The soil should also be made firm about their stems to prevent canker. By these attentions, and an occasional sprinkling of lime amongst them, you may obtain good eos lettuce very early in the year.

Turnips.—They say it is seldom we can get a garden turnip to equal those which are cultivated in the fields; they either grow too rank or the flavour is indifferent. The sort which has been with me a favourite for many years past is the *Red-top American Stone*, or *Red-top Mouse-tail*. I first obtained it from Messrs. Sutton, seedsmen, of Reading, and since that, when I could get it true, I have grown no other variety, as I find it proves an excellent variety for both early and late use; and it keeps well if taken up previous to sharp frosty weather, and stored away with the other culinary roots. JOHN F. McELROY.

ON ACCLIMATIZATION AS THE MODE IN WHICH THE EARTH HAS BEEN PEOPLED.

By Mons. RUFZ DE LAVISON.

Believing the proceedings of acclimatization societies to be of the greatest importance to the progress of the natural sciences, and, through them, to our social well-being, we have devoted no small portion of this journal to the making known their transactions at home and abroad. Like all new institutions, they have to contend with the sloth of the unenterprising and the ignorance of the ill-informed. They are opposed on the ground that, being an interference with the ordinary processes of nature, acclimatization cannot be expected to produce more than a limited temporary result. A fatal objection, truly, if well founded.

But the theory and practice of these prosecuting acclimatization rest on what they deem the incontrovertible fact that nature is their instructor and guide, and that the successes which they have achieved are to be ascribed to the docility with which they have listened to her teaching.

One of the most eloquent expounders of this main doctrine of the acclimatizationists is M. Ruzf De Lavison, with whose merits as a lecturer at the Garden of the Acclimatization Society, Paris, the readers of our annotated translations are familiar. We think his lecture on acclimatization as the doctrine of the peopling of the earth such an admirable reply to the objection that acclimatization is an unnatural novelty, that we shall proceed to translate nearly the whole of it.

Often, with history in my hand, and actual experience to support it, it has been proved to you that what we are doing has been done in all ages, and that we follow a course commenced in the beginning of the world, and that man has always practised acclimatization; that we merely profess to regulate, stimulate, and generalize what had heretofore been done, as it were, in an unconscious, instinctive, isolated, and capricious manner; that we wish to give to attempted acclimatizations the help and the impulse which civilization has given to many of the works of our era; or, to speak more correctly, that acclimatization and civilization are equivalent words, meaning the same thing—namely, progress. As to all this, I do not believe that your minds are in any doubt. I wish now to show you that the doctrine of acclimatization is in equal accordance with science and tradition; that it adapts itself to the great cosmogenic theories of science; that the school of acclimatization has undertaken nothing contrary to nature—nothing which is not in perfect conformity to the laws which appear to have presided over the actual arrangement of things on the surface of the earth.

History and science now agree in acknowledging the primitive union of creation as being, of all the doctrines as to the peopling the earth, that which most agrees with the subsequent arrangement of things, and with their actual condition. Here is that doctrine. All individuals of the same or even of allied species have descended from one first parent, and have therefore originated in the same stock. However distant and isolated the parts of the world in which they are now found, the primitive species must, in the course of successive generations, have passed from the one to the other of these points by propagating and multiplying nearer and nearer. The animal and vegetable kingdom is, therefore, merely an emanation and evolution from a small number of primitive types.

This is another point not less generally admitted. All organized

beings, under the influence of a power whose reality it is easy to understand, but whose modes of action are not always perceptible, tend, in the course of generations, to modify their forms, and even their structure, according to external circumstances, such as locality, food, and meteorological and physical agents; hence all the variations observed in nature. Man does not produce variability; he merely exposes, often unintentionally, organized beings to new conditions of life, and then, nature acting on the organization, the result is new conditions of life. Human art in its limited sphere can, by numerous examples, demonstrate how a modified animal or vegetable may differ much in appearance from their common progenitors; it can, so to speak, follow with the finger and the eye the progress of the transformations. The variability of primitive species is, therefore, still the doctrine most generally admitted amongst naturalists.

This variability of primitive species is governed by certain laws. There is first the hereditary law, which tends to preserve them in their primitive forms, so long as their conditions of living are the same, and to bring them back to those typical forms whenever they have deviated from them through any special accident. This law of recall to primitive forms has been termed *atavism*. Atavism is the safeguard of the fixity of types. It is also a means of remounting to the primitive species, and of demonstrating them.

These two words, *variability*, *hereditariness*, are sufficient to explain the present aspect of the organized world and the whole creation!

More individuals, no doubt, come into existence than can live. Among the countless beings which dispute the possession of the earth, and wish to see the light, there is endless and universal strife as to the means of existence! each wishes to preserve not only its individual life, but its life as a species—that is, to multiply its race. From this universal strife it results that, if by any accident a being varies, however slightly, but in such a way as to benefit it personally, and adapts itself better to the time or place where it finds itself, and acquires a superiority in form or vigour, this superiority, reproduced by the powerful law of hereditariness, and multiplying through the race in geometrical ratio, will end in giving it the predominance over the inferior races not having the same advantages. These pressed upon, pushed back, smothered, will eventually be exterminated. Hence, for one existing species which has been preserved, many must have disappeared. Thus beings endowed with life go on modifying, consolidating, and perfecting themselves; thus are new specific types being created at the expense of the old; thus by degrees, and nearer and nearer, the face of the organized world is renewed. This law of the predominance over each other of individuals and races has been recently termed *natural selection*. Mr. Darwin, in his very remarkable work, entitled, "On the Origin of Species, or the Laws of Progress among Organized Beings," has developed all the results with much power and learning.

It is not necessary that the variations be considerable; as they act by accumulation, the slightest of them are of some use to their possessor. A grain, as it were, in the balance is enough to determine which individual shall live or which shall die; what variety or species shall increase, which shall continue, and which shall finally be extinct. This is the principle of the incessant work of renewal going on over the surface of the earth.

We cannot deny that nature has this power, when we every day see it exercised by man. Man thus adapts to his advantage or pleasure either plants or animals, by accumulating on an individual the properties which render it suitable for the uses which may be made of it, and by obtaining in the race the reproduction of that accumulation in virtue of the law of hereditariness. Hence what contributes to the improvement of the domesticated races. Such a result is obtained even in ignorance of the effect produced; it is sufficient, without thinking of altering the race, that we do that which is done every day—that one shall put aside and preserve the individuals which appear the best for breeding. If man, with patience, can select and reproduce the variations which are most useful to him, why may not nature select the variations most useful to her living productions by placing them under changing conditions of living? What limits can be assigned to this power, acting through long ages, nearer and nearer every moment, in spaces and numbers indeterminate?

Such is the doctrine by which we now explain the variety of species which people the surface of the earth.

Proofs for the demonstration of this doctrine are not wanting; we know the means by which nature as well as man obtains these results. By climate, by soil, by cultivation, by habit, by the exercise or the non-exercise of certain organs, we are daily obtaining great transformations. We convert the dwarf and stunted tree of the mountain into the great and spreading tree of the plain. By means of the same modifications we trace to the same origin the pug-dog and the strongest dog; all animal and vegetable nature may be retouched, modified, transposed, at the will or caprice of man!

"When listening to these words of Lord Somerville, we may," says Mr. Gubler, "have an idea of the power which man exercises upon the plastic properties of the animals submitted to his empire." Speaking of breeders of sheep, he observes: "It looks as if they had sketched a perfect form on a wall, and then given it existence." Sir John Sebright, the greatest rearer in Great Britain, speaking of his department (pigeons), said that "in three years he could reproduce any given plumage, but that six were needed to obtain a head or a bill."

"Not only do types modify according to circumstances, but man can at will determine the nature of these changes of form by taking advantage of natural tendencies, exciting them as required, directing them, or finally exaggerating them, according to his profit or pleasure. The metamorphosis continues, and is constantly established by passing from one form to another, in the continued birth which we see going on through all organized nature, under the impulse of the powerful means at her disposal."

Can we imagine a doctrine more in accordance with that of acclimatization than this successive transformation of beings from the point of their origin even to the ends of the earth? Was there ever a more logical sequence?

Under the able hands of modern horticulturists we are constantly seeing some new forms of flowers, vegetables, and fruits, at the expense of species more anciently developed. Any day you may see in our parks and courtyards how a small species of sheep, fowl, or pheasant can be changed into our large domesticated breeds. Nature herself, like an able gardener, gathers grains and germs in order to adapt them to circumstances suitable for them. By these analogies we can form an idea of the means she employs for adapting the animal and vegetable species to their new destinations.

But, it is said, these modifications are superficial and slight, and do not penetrate the organization of beings; they never act on that inner mode of being which constitutes their essence, and which insensibly tends to bring them back to their primitive form as soon as the disturbing force is changed. Neither the ovule, which, by impregnation, becomes capable of reproducing the animal, nor the different phases of its development, nor the structure of the being which issues from it, nor the relation of its organs, can be modified. In spite of the marvellous reusability of forms, says M. Decaisne, the true specific characteristics remain ineradicable.

But see how in our parks, under the influence of climate, the yaks of the Himalaya, and the goat of Thibet, and in general almost all wild animals, lose certain parts of their hair—the fine and double down, which, allow me the comparison, like our flannel vests, is found close to the skin; while the Senegal sheep have their short hair lengthened and curled, in order to supply them with a warmer fleece, to protect against the severities of the winter which they have to endure.

If nature only needs such slight changes for the accomplishment of her ends, must she, in order to convince us, set about overturning everything? If some have eyes that cannot see, must she descend to their infirmity? Is it not by these changes, small according to them, and feeble according to their feebleness, that she shows herself faithful to her plan? In order that there may be unity in the variety, is there not variety of forms without change of essence? Are we not constantly repeating as an axiom of universal observation, that nature makes no leaps—*natura non facit saltum*—so that we pass insensibly, and as it were without a transition, from one species to another, so that there are between them separations so slight as, at the two extremities of the scale of species, to efface distances? Have we not here, in other terms, a complete recognition of the insensible modifications employed by nature? "The effects of locality on organisms," Mr. Darwin observes, "are not always manifested by very apparent external changes. In plants and animals the adaptation may be effected by means of modification of function, the constitution of humours and the external structure, without any great alteration of the morphological forms. The organic type is preserved, but the temperament changes. In modifying themselves, the vegetable and animal species have a tendency to render their economy less susceptible to the injuries excited by the physical agents conspiring for their destruction, while they constantly furnish to them the means of existence."

Let us see how it fares with man, the most diffused, the best observed species. With respect to his bodily organization, man is assuredly an animal quite like any other. He is the king, the type, the compendium or model of animals, but he is an animal subject to all the external agents which act upon the nature of animals. Man, nevertheless, can live under all climates. We can follow him through all his migrations, past and present. We heed not those sceptics who deny the possibility of his being acclimatized on any part of the earth whatever. Well, a simple modification of the colour of his skin appears to be the only appreciable condition which nature requires for this adaptation. For all the differences presented, in different countries, in his organization, whether as to his form or his intellect, seem to result from food, or rather from the exercise or the defective exercise of his faculties, rather than from climate.

If it be said that this power of universal adaptation, so visible in man, is peculiar to him, and is explained by the manifold resources of his intelligence, which enable him to ward off the effects of climates, and to hinder the modification of his organization, I ask, if the stables, the courtyards, the greenhouses, the clothing even with which we protect animals and vegetables, the more stimulating food by which we maintain their vigour and excite their calorific power—that is, the power of engendering caloric in their own tissues—the training which we give them, the gradations through which we make them pass; if, in short, all those attentions which they receive from us, and which, as it were, place our intelligence at their service, be not of the same order and of the same power as those attentions by which man protects and accomplishes his own acclimatization in the different parts of the globe.

It is barely a century since the large chestnut tree was imported into Europe. It was at first reared in hothouses, because it was believed to be a native of the Indies. Later it was placed in a cold frame, then it was handed over to the open border, in the open air; and you know if large chestnut trees be not now acclimatized in Europe almost as much as man. We are unable to tell of how many other plants and animals as much may be said, and which are as much proofs of the power of acclimatization.

But it is said if the large chestnut tree and certain plants be acclimatized, and have fixed themselves in Europe, it is because they are the natives of countries whose climatic conditions are analogous. It is not veritable acclimatization, it is introduction, it is transplantation or transportation, that you are dealing with. What matters the world, if we succeed in giving to Europe the yak, the lama, the lophophore, antelope, the ignama of China, the lozo, the sorgho, and the textile urtie, as we have already given to it the turkey, the potato, the camellia, and so many other riches? Transportation and introduction are, no doubt, the first degrees of acclimatization; and reduced to that, to merely multiply and promote such doings, I say that acclimatization renders immense services to humanity.

Having undertaken to demonstrate a general proposition, I cannot stop much in giving the detail of particular facts. If man can be acclimatized under all latitudes, under the poles as well as under the torrid zone, it is equally true that his acclimatizations are very costly—so costly, that some ultra-sceptics go so far as to hold that most of the human species transported from their original zone cannot maintain themselves, and end in being extinct after a few generations; that, in short, man is not cosmopolite. Without adopting this ultra conclusion, we grant that, in the transportation of men, for one who succeeds and forms a stock, there are many who succumb and disappear. But it is not less true that some individuals, profiting by certain of the advantages from which natural selection derives so much, successfully resist the physical conditions which are contrary to others, and that it is from these individuals that there comes a progeny which adapts itself more and more to the soil each generation. Such is the result of all experience. The history of the Deluge and of Noah's Ark is a myth as well as a tradition. It is the principle, the starting-point of the doctrine of acclimatization. But I do not hesitate to affirm, that if with any animal species we took the same pains as with man—if we expended on it as much money and as much care—if, finally, we experimented upon equal numbers, we should arrive at the same results—that is, we should acclimatize that animal species under all latitudes. Do you remember what the different invasions and migrations of the human species have cost, and especially the slave trade? Have not all the domesticated animals

of Europe been naturalized in different parts of America at much less expence?

Our acquaintance with a common physiological fact is sufficient to explain the success of all transpositions of animal species. Under the influence of heat or cold we see certain parts of the organization diminish or develop, the skin become pale or dark, or rather injected and quickened in the circulation. The secretions are transposed, the temperaments change, the sanguine become bilious or lymphatic. The diseases are not the same, and indicate great changes of organization. Finally, the progeny sums up, as it were, and affirms all these changes; for the descendants of an acclimatized species bear the impress of their new climate quite as much as of their progenitors; all the European species which I have seen at the Antilles lose their shape and vivacity, without losing their usefulness.

It is now a trivial truth, known even to the most ignorant, that in the diffusion over the earth of the animal and vegetable species there have been great catastrophes. The ruins of a burnt house, Darwin observes, do not more clearly tell its fate than these forests and bones buried at different depths tell what has happened to them. All historical documents relate that certain animal, and even vegetable, species are no longer found where they existed formerly, whilst others which existed elsewhere are seen where they were not to be seen. Ancient species of the elephant and the rhinoceros were capable of enduring an arctic climate, while the living species are now tropical or intertropical.

As acclimatization, slow and progressive, such as we now see it, is insufficient to explain the extent of these revolutions in the peopling of the globe, we are obliged to suppose that there have been extraordinary cataclysms which might have reversed the existing order, and carried the north to the south, and the south to the north.

But how many other facts teach that it was chiefly by successive acclimatization, and by little and little, that the earth was peopled by the inhabitants which now cover it. Run through the length and breadth of the globe: to whatever continent you go, under the most diverse conditions of life, in spite of heat and cold, on mountains or plains, in deserts or marshes, most of the inhabitants in each of the great classes are closely allied, and present a physiognomy which seems to tell you that the one has been born from the other. You might give them as a motto the lines of the poet—

Facies non omnibus una
Nec diversa tamen, qualis decet esse sororum.

A naturalist, says Darwin, travelling from north to south, never fails to be struck with the manner in which groups of organized beings, specifically distinct, yet closely connected with each other, mutually replace and succeed each other. He sees analogous birds; their plumage is almost the same, their nests are constructed nearly in the same way, their eggs are of the same colour, and yet they are different species. The gradation is even more perceptible in the vegetable world. The productions of mountains and lakes are allied to those of the low or the sandy lands in the vicinity, notwithstanding the great differences of position.

Thus has been, thus daily is, effected the colonization of each station by the inhabitants of the region next to it, by means of migration of species combined with the power of modification and adaptation of these colonists to their new country.

It is thus that the most isolated and remote islands have a fauna and a flora resembling those of the nearest continents. All the plants and animals of the archipelago of the Gallipagos Islands, or the Island of Juan Fernandez, have the most striking resemblance to the plants of the neighbouring countries of America; whereas the organic populations of the archipelago of Cape Verd, and of the other islands of the coast of Africa, have an entirely African aspect.

These resemblances dispose us to think that in eras more or less remote these islands have all formed parts of the neighbouring continents, and that there must have been crossing places in all oceans, which have served as great routes of migration.

But we need not have recourse to these distant suppositions. We are every moment seeing the phenomena of migrations effected by means much easier to be noticed and appreciated: sometimes the winds, sometimes the waves, sometimes animals themselves, and, above all, the hand of man, are charged to operate the diffusion of forms all over the earth. I should like to remind you of the charming and ingenious discoveries which this study has made known—how a bird, an insect, on their wings, or between their claws, or in their bowels, often carry the seed which is to cover a whole country; how oceanic or atmospheric currents propel seeds to one point or another; how man himself, sometimes involuntarily, sometimes carelessly, without his knowing and in spite of himself, is the instrument of these providential transportations. Thus, after the universal exposition of the products of human industry, there were found scolytes (colocopterous insects), which heretofore had only been found in India and other distant countries. They could only have been transported along with the merchandise sent to that exposition. But such references, however pleasing to the mind, would lead me too far. Besides, one of our learned colleagues—M. Aristide Dupuis—has already in this place made the thousand means of transport which nature makes use of for the propagation of animal and vegetable species the subject of a special and most interesting lecture, which you will find in the eighth volume of our "Bulletins." You will in it see how there naturally exists between all the countries of the earth, sometimes free and open, sometimes insensible and latent, a free, natural exchange of all their productions—an admirable model of what we nowadays wish to imitate for our artificial productions.

Conceive this free exchange aiding all these means of transport, and many others yet to be discovered, acting incessantly every instant (for such is the action of the winds and the ocean currents), and during tens and hundreds of thousands of years. In conjunction with the different modifying powers of climate and other things, is not this sufficient to explain the mode in which the earth has been peopled?

It is enough for me to have given a very succinct general statement of these facts in order to prove the text which I proposed to develop before you to-day, and which is summed up in this grand proposition, that all is acclimatization, and that by acclimatization the earth has been peopled with all animal and vegetable species.

Whatever, then, the objections with which we may be met, be persuaded that you are proceeding in harmony with nature, with tradition, with science; but let us in everything imitate this great and wise nature. She does not accomplish her acclimatizations in a few days or years: she only proceeds with slow and short steps. She requires the duration of ages and the extent of space! She does not stop and repose after only a few trials:

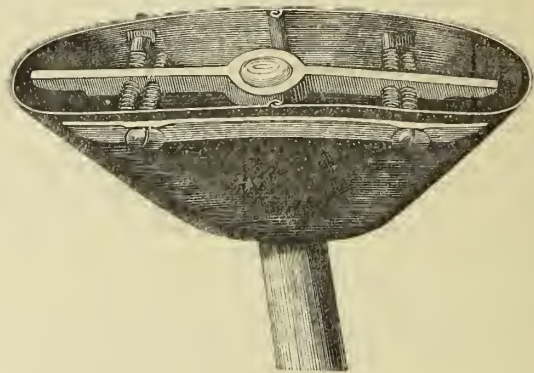
she often begins anew. She never is weary of recommencing her work, and of correcting and recorrecting it incessantly! Before stopping at the specimens which she offers to us to-day, which are not those of yesterday, and will not be those of to-morrow, she has drawn from them many others! She has never said her last word—she is never done with her transformations! Our task is not ended; we ought not to remain immovable in the only forms which we possess. Virgil, a great poet of the earth, has told us the secret of this procedure—

Pater ipse colendi
Haud facilem esse viam voluit.

God has willed that the field open to human activity shall not be easily traversed. Let us be patient, let us be persevering, like nature! This is the price of success. Let us advance towards our end, resolutely, without distraction or distrust, sustained by this thought, that we are engaged in a great work, and that the co-operation of the humblest among us may produce the greatest results! Sowell has the Acclimatization Society understood this truth, that it, as it were, throws its doors open, and requires not the slightest proof of capacity in those who wish to unite their efforts with it; one need not to be either king, prince, or academician, in order to acclimatize a plant or an animal. The smallest such conquest is of more worth than that of a great province, and two or three such acquisitions associated with the memory of the Society of Acclimatization shall one day cause your modest labours to be blessed. Natural history, after being for long, in general, a mere science of observation, should now tend to become a science of experiment, M. Decaisne has remarked. The Garden of Acclimatization is but one realization of this idea.—*Journal of Agriculture.*

TAYLOR AND LAFFERTY'S BROOM-HEAD.

Metallic heads by which the broom-corn can be attached to the handle are coming into common use. They are economical, although costing somewhat more in the first instance than the common brooms, because the handle and head need not be thrown aside as soon as the corn is worn to stubs, but by a simple replacement of the comparatively cheap fibre the worn-out implement becomes again a broom.



The head in the engraving is of sheet metal, fastened at the top to a block through which is a hole for the reception of the handle. The handle tapers to the end, which is received in the socket of the yoke, through which pass two screws on each side of the handle, having on the outside of the case two metal braces for stiffening the box. The broom is introduced into the head, the butts being placed on each side of the central bar or yoke, until the head is filled, while the screws are slacked. These are then screwed up, and by compression hold the broom very securely. It makes a light and handy implement.—*Scientific American.*

RENOVATION OF MUSHROOM-BEDS.

In a notice of the gardens at Belyoir Castle, we find, among other practically useful and interesting matter, allusion made to the appliances and mode of growing mushrooms adopted by Mr. Ingram in that princely establishment. It appears they are in great demand there, and largely grown in back sheds. There is nothing particular in the material used for the beds, as it consists "mostly of horse-droppings, mixed with straw collected from the covered exercise house and the stable." The beds are formed about the usual depth on the floor, against the back wall of the sheds. So far there is nothing unusual; there is, however, in the economical application of heat, the mode of husbanding it, and at the same time dispensing with the covering of hay or other litter, the use of which we regard as objectionable for more reasons than one. The writer says, "Along the front of the beds a sunk flue is carried, which economises the heat that would otherwise be discharged through the chimney. The beds are covered with wooden shutters that proceed from the back wall, and rest either upon a wall or slab of wood beyond the flue. This simple arrangement ensures sufficient warmth, and obviates the necessity of any other covering for the beds." We presume, of course, though the writer of the notice does not say so, that the shutters do not rest upon the surface of the bed, but that there is an interspace enclosing a stratum of warm air. Heavy crops are quickly and abundantly produced; but, as the writer of the notice well observes, "up to this point there is excellent but not exceptional culture." It is to what follows we would especially direct the attention of our readers. As soon as the beds begin to fail or give up producing, Mr. Ingram's mode of renovating them, and restoring fertility, is out of the common track, and, what is more, appears to be eminently successful, and worthy of being more generally adopted. Here it is: "The beds are allowed to become rather dry, and are then stimulated to fresh production by the following treatment: 'They are thoroughly watered with strong manure-water, made from horse or cow droppings, and into every four-gallon can of the water a good handful of common salt is thrown, and well stirred into and dissolved in the water, and applied with it.'" We are then told "the mushrooms spring up as if by magic, and the same beds are renewed several times in this manner." The writer further emphatically adds, "Nothing could exceed the productiveness of the bed that was in bearing at the time

of my visit, which I understood was producing its third crop." Mr. Ingram, besides being one of the most eminently practical and successful, is also one of the most scientific gardeners of the day, and we have no doubt science will endorse his practice, which in this instance has been attended with results so satisfactory; his experience, now of some years, has stamped it as being invariably successful.

As pointing to the scientific solution, we may observe that it is said French growers use with advantage in the growth of mushrooms a very weak solution of another salt—nitrate of potash, or, in other words, common saltpetre. Mr. Ingram has tried the latter, but it appears without much advantage. Some six or seven years ago, M. Chevreul brought under the notice of the Paris Academy of Sciences a new mode of producing spawn, by treating the spores with a solution of saltpetre, and afterwards expediting and increasing the growth of mushrooms by the application of a similar solution to the beds, made up mostly of calcareous matter. Durochet's experiment also appears to point somewhat in this direction, and shows that fungoid growths are promoted by similar agency. He formed a weak albuminous solution, and rendering it acid, the result was the growth of various species of beaded moulds. If rendered slightly alkaline, the genus Botrytis, to which the now too familiar form of the potato mould, *B. infestans*, belongs, was produced; if the solution, on the other hand, was left in a simple state, no form of fungi appeared.

We should have added above that Mr. Ingram not only regards with favour the use of salt, by reason of its promoting the fertility of the beds, but, further, as improving the quality of the produce. He further finds it of advantage in promoting the growth of mushrooms in pastures that produce them.—*Irish Farmer's Gazette.*

LESCHENAULTIA FORMOSA.

It is an inexplicable fact, but nevertheless true, that at the great International Horticultural Exhibition only one plant of this little gem was shown. Twenty years ago, to see it glinting out in the most conspicuous position in every miscellaneous collection of stove and greenhouse was not an uncommon thing, and the superb manner in which John Green, William Hunt, and others used to colour it, and at the same time retain a sparkling crispness upon the flowers, was quite enchanting. The finished and peculiar manner in which some plants, I might almost say all plants, are brought out upon the day of exhibition, constitutes a chief, if not the chief, part of their charms. It is astonishing how one man will bring a plant or a set of plants out to the day; while another, with the same number and varieties, will have some over—past their best—others in tolerable perfection, and the remainder not nearly in bloom. The possession of this knowledge constitutes what is considered tact in plant management, and can only be attained by studious observation and attention, carried over a series of years. As a rule, it is always better to have the plants, if not up to the exact mark, coming to perfection rather than going out of bloom. A stale plant is never pleasing to any one, as its charm is over, its day is gone; but a plant nicely sheeted with fresh flowers, and with plenty more to follow, will always please, because there is something to look forward to. The colouring, too, of flowers is quite an art. Some require full sunlight, others a subdued light, and a third comparative shade. The plant under notice, to bring the flowers to a proper colour, requires to be shaded from the midday sun; but for an hour or two in the morning, and after three o'clock on a May afternoon, it may be fully exposed with decided advantage. Then, again, it must have a nice circulation of air throughout the night if the weather is favourable; but cold draughts must be avoided. Twenty years ago we used to grow *L. formosa* and *Baxteri* for bedding in the flower garden, and very nice they looked. Then we could purchase at Pamplin's Paradise Nursery, or Fairbairn's, of Clapham, nice plants in 4-inch pots at 8s. to 9s. per dozen, and larger ones in like proportion; but now good plants can scarcely be procured at all, even at a price far beyond their value. Indeed, many of our old friends have gone out of fashion, but whether from the want of taste or the necessary knowledge of cultivation it is difficult to say.

I shall not waste space by detailing the method of propagation further than to remark, that young half-ripened shoots root freely in silver-sand under a bell-glass, in a gentle heat in the spring, and that cuttings of the same quality may be put in in August in a cold frame, the same as Heaths, and they will be nicely rooted and fit to pot off in January. For the few plants required in a gentleman's establishment it is never worth while to incur the trouble of propagation, as nice plants ought to be procurable at from 1s. to 3s. 6d. each, according to their size. For growing into specimens it is a great point to get a nice healthy start. The plants should be stiff and bushy, bright green to the extreme point of each shoot, and without any dead foliage about them. If they are not so, but on the contrary weak and lanky, avoid them, for they will never be worth the trouble of cultivation. Good plants procured, the next thing is soil, and that of suitable quality is becoming yearly more difficult to procure. That from Wrotham Heath, near Maidstone, is excellent, and at one time good peat could be had at Shirley Common, near Croydon. For quick growth the soft spongy peat is the best, but if you want the plants to stay with you, a mixture of the hard peat of Wandsworth or Winstead is desirable. Soils, however, for high class plant cultivation should be duly collected and prepared for many months before they are used, or, in other words, a stock sufficient for twelve months' consumption should be got in every autumn, and be kept exposed to the free action of sun, air, and frost for at the least six months before it is used. At the time of collecting, it is a good plan to have the peat assorted, placing the good in the best situation for aeration, and putting the other aside for secondary purposes, American clumps, &c. Some years ago, when extensively engaged in plant cultivation, I had a rough rack, like a hottle-rack, made for storing peat, upon the shelves of which it was placed in layers six to nine inches thick, and thus the air and frost had free access to it, while at the same time it was protected from rain. Before putting it upon the rack, all sand, fine earthy particles, and extraneous matter were removed, so that every ounce stored was fit for use. Messrs. Fraser, of the Lea Bridge Road, used to treat their Winstead peat in the same manner, by introducing strong stakes and pea-sticks between the layers of turfs as they were stacked up, and making the top waterproof. This may appear a very troublesome process, but where the best results are desired, and plants forming a hemisphere two to two and a half feet in diameter are wished for, it must be taken. As many persons will be unprepared with such soils, a method of extemporising a compost may be suggested, and it is this: Take the best peat you can procure, and having deprived it of all unsuitable matter, break it into pieces about the size of a walnut, and then place it in a thin layer

under glass, where it will be fully exposed to the action of the air, but at the same time be protected from damp. Thus exposed for a week or ten days, it will be materially improved; but if it is poor, as most peats from upland situations are, take about half of it, and placing it in sieves, put them in a hotbed frame, or upon a dunghill where the steam is rather strong. In this way after two or three days the peat will be much enriched by the ammonia absorbed, and when mixed with the remaining portion, and exposed to the air for a few days, will form a highly stimulating compost. Time was when the use of stimulants for hard-wooded plants was looked upon as being highly heterodox, and contrary to precedent, but it is those that leave the beaten track that make new discoveries, and fortunately for the progress of good cultivation there are many who have ventured to leave the "old groove" within the last twenty years. So far as has been recorded, it was the late T. A. Knight, Esq., who first ventured to give weak pigeon-dung-water to Heaths. He found his account in it, and others ventured to follow the lead and practice which he had inculcated. Now guano and stimulants are used extensively for hard-wooded plants, and why should they not be? If we go to nature, and examine plants in their native habitats, we find the voidings of wild birds and animals freely distributed amongst them, and as this is washed to the roots by the rains that fall, it is quite certain that even the plants of Alpine regions receive some stimulus in the form of manure. The first time I spoke of giving manure-water to a large and very select collection of Heaths, and other hard-wooded plants, the foreman in charge, an expert and enthusiastic plant-grower, looked upon me as being decidedly "daft." "I might if I liked, but he would not. The plants were doing well now, and it was the best to let well alone." However, unknown to him, I persisted. Regularly as the tank was filled I dropped into it a certain measure of "Potter's Liquid Guano," and so unconsciously he not only watered the plants regularly with weak manure-water, but the water for their daily ablution came from the same source. The progress made was most complete and satisfactory, the best plant growers in England pronouncing the collection, for its age, unsurpassable. From that time to this I have used weak guano-water in the growing season for plants of all kinds, but for the last twelve months I have, upon the recommendation of my old friend, and your correspondent, "Alpha," used "Standen's Gardeners' Friend Manure," and I think with superior results. This manure seems to have some peculiar influence upon the blooming principle of hard-wooded plants, causing them not only to set their flowers most profusely, but to open them with singular vigour and richness of colour. This remark applies particularly to Azaleas, Cborozemas, Pimeleas, Epacris, Heaths, and Zichyas.

To return to the enriched peat, the value of which we have been endeavouring to show. Take for *Leschenaultias* two parts of the soft and one part of the hard, and without breaking it unnecessarily, reduce it so that every portion will pass through a half-inch sieve. Then to each peck by measure put a quart of silver-sand, and a pint each of clean soft-burned potsherds and charcoal broken to the size of horse-beans. Mix the whole intimately together by passing it once more through the sieve, and it will be ready for use. The size of the pots must be governed by the size and health of the plants to be put into them. If they are strong and healthy those in four-inch may be removed into eight-inch, while partly grown specimens may go from six or eight inch into eleven-inch pots at once. The pots must be carefully and efficiently drained, placing some rough peat or a little sphagnum to keep the crocks clean. The plants should be watered the day prior to potting, so as to have the ball in a proper state as to moisture, as that is a most important point. Fill the pot to the necessary height with the compost, making it quite firm. Then take the plant, and turning it out of the pot, remove loose potsherds, and with a sharp pointed stick disentangle a portion of the young fibres carefully from the side of the ball, place it in position, so that the collar or base of the plant will be upon a level with the top of the pot, and fill in the soil, making it as firm as possible by the compression of the hand, but not using the usual rammer with unnecessary force. A well potted plant, the soil being in proper condition as to moisture, should be so firm that the broad part of the thumb pressed with full force upon it will not make much impression. Plants will grow faster when more lightly potted, but they rarely live so long. The pots should be new, or if not new should be washed perfectly clean, and be dry at the time of use. I like a dry pot, as carefully watched it is an index of the due percolation of moisture through the compost. After potting give the plants a gentle watering, so as to moisten the soil in contact with the disturbed roots, and then set the plants away where they are to remain. If it can be had, a brick pit is the best place for hard-wooded plants through the growing season, as the ground if sprinkled daily gives off a congenial moisture, and is at the same time cool for them to stand upon. It has another advantage—the sashes can be quickly put on or off; and on warm dewy nights, or with warm gentle showers in the daytime, I have great faith in giving the plants the advantages arising therefrom. The pit containing the *Leschenaultias* should be kept to a temperature of 50° during the growing season, and should be freely ventilated both back and front, on all favourable occasions, but the plants must not at any season be exposed to cold draughts. The routine treatment will be: ventilate freely in the morning, increasing it as the day warms; water copiously when the plants require it, but avoid dribbles. On the afternoon of warm sunny days sprinkle the ground between the plants, dew them gently over with a fine syringe a short time before the sun leaves the pit, and shut up close, but before leaving for the night give a little air at the highest point, so as to allow the steam to pass off. Stake the plants when necessary, using as few sticks as possible; remove every flower-bud directly it can be handled, and guard against insects and mildew. The greenfly is the greatest pest, but it can be removed by fumigating slightly two or three nights in succession; then place them upon their sides, and with a syringe and water wash the insects clean away. Mildew is quickly checked by sulphur dusted over the parts affected.

Manure water must not be used until the newly potted plants have filled the pots with roots, but the walls of the pit and the ground between the plants may be sprinkled once or twice a week with advantage. The plants may be kept in the pit until October, but through the winter a warm airy part of the greenhouse will be the best place for them. Plants shifted from four to eight-inch pots in early spring will, if properly managed, take eleven-inch pots in August, but it would not be advisable to shift them later than that month. *Leschenaultias* grow all through the winter, therefore they must not be exposed to cold draughts, though they require a free circulation of air at all times. The subsequent treatment of specimens will be given in another paper.—*An Old Subscriber, Midland Counties, in "Gardener's Chronicle."*

SELECT HERBACEOUS PLANTS.

If one looks for the genus *ASTER* in some botanical work giving an enumeration of the species, what a string of names is seen! There are nearly two hundred species in the genus, most of them of a weedy and monotonous type; it is the prevalence of such things as these in gardens that has driven good and bad pretty nearly out of cultivation. But among them are some really worthy of our best attention, and one of the very best is the American *Aster versicolor*, which, forming as it does low tufts of leafage well covered with rather large pink and white flowers, is in autumn a most valuable and ornamental kind that one need not fear having too much of. Then there is the Italian starwort, *A. Amellus*, also rather dwarf and very good in flower; *A. Nova Anglia*, a large late kind of rich colour; *A. elegans*, with quantities of rather small white flowers that make the branchlets hang down gracefully; *A. laevis*, *bessarabicus*, *ericoides*, and *grandiflorus*, the last-named being fine, but flowering so near Christmas that it requires to be grown and trained against a sunny wall, or the beauty of its large star-rayed flowers is lost. Others may be found, but these we know to be all good, and think it better to be rather select. So much for the Michaelmas daisies; now for the Delphiniums.

These are certainly among the richest coloured and finest things we grow. There has lately been a good deal of money spent in the embellishment of that part of Hyde Park which lies beside Rotten Row and between the corner and the end of the Serpentine. Much of it has been spent on sub-tropical plants, for which the place is too exposed, and very ghastly and poor some of them look in consequence. Walking round the park a few days since, we thought the best feature of the scene to be the shrubbery, from near the front of which peer many fine heads of a popular kind of DELPHINIUM. Many nurseries now contain good collections of these plants, and it is almost needless to enumerate the best; but *William Pützner*, *Belladonna*, *Alopecuriodes*, *Hendersoni*, *Schamyl*, and *grandiflorum* are among them.

Though widely diverse in colour and in size of individual bloom to the rich blue perennial larkspur, the gorgeously coloured PRONIES belong to the same order, and merit equal attention at our hands. All the herbaceous kinds are good and showy, but the many beautiful kinds are as yet far too scarce. They may be bought at about 18s. a dozen, and the best way is to leave the selection to a respectable nurseryman, asking for a good and varied collection.

Of the PHLOX we need hardly say a word of praise, as it speaks for itself in so many gardens and at so many flower-shows in autumn. There are scores of varieties exhibiting great beauty and great diversity of colour, and not one of them that is not worth growing. They are abundantly grown in many nurseries, and sold cheap; and here again the selection may well be left to the nurseryman, if the purchaser has not the opportunity of looking over a large collection when the plants are in flower, and selecting those he most fancies.

There is a deep rose-coloured variety of the common yarrow, *Achillea millefolia rosea*, which is well worth having in a good collection, and *Eupatorium*, *aurea*, and *tomentosa*, of the same genus, are fine showy plants, with bright golden flower-heads. Then there are the various beautiful everlasting peas, so suitable for growing over dwarf bushes, over stony places, or indeed in any position, though we do not much like to see them staked as grown against a trellis, or in some places where ordinary rough staking may be dispensed with. The white variety of the common species (*Lathyrus latifolius*) is much the best, because, from some peculiarity or other, it does not seed, and consequently the fine white blossoms are produced freely till late in the season. The small-leaved everlasting pea (*L. grandiflorus*) is a finer species still, and admirably adapted for climbing up a bower or other trellis. *L. rotundifolius* and *L. tuberosus* are somewhat smaller, but free-flowering and beautiful deeply-coloured kinds.

How could we dispense with the exquisite alpine COLUMBINE (*Aquilegia alpina*) in a selection of this sort? *A. glandulosa* and *californica* are also very fine species, quite unlike the common ones grown in borders. *Adonis vernalis*, of the same order, is also first-rate and not uncommon. With these should be enumerated the fine autumn-flowering *Anemone japonica* and its white variety, the *Christmas rose*, as a matter of course; and *Ranunculus acris plena*, the bright yellow "bachelor's button;" nor must we forget the white "fair ladies of France," so nice for cool borders; *Dielytra spectabilis*, *Coronilla varia*, a pretty pinkish lilac species; *Galga officinalis*, its variety *alba*, and *Orobis vernus*, which is indeed indispensable to either spring or summer flowering selections.

It is impossible to have a really effective lot of hardy plants without some of the better IRISES among them, and among the most suitable kinds are many nicely painted varieties of the common "*Germanica*," particularly one called "*Victorine*." With it we should consider *De Bergii*, *Florentina*, *variegata*, *ochroleuca*, *amæna*, *Jacquesiana*, and *florescens* indispensable. The splendid red-spiked TRITOMAS have not yet been named; they are perhaps the most valuable of hardy herbs, flowering as they do so grandly in the autumn when other things are beginning to fade. *T. glaucescens*, or *Burchelli*, *grandis*, and *uvaria*, should be secured; the last is the least desirable, though fine. Even more brilliant than these are the early summer flowering POPPIES, *Papaver bracteatum* and *orientale*, of which we saw a splendid line at Trentham lately. They are rather coarse, it is true, but merit a place in the background. In the north and west, and moist districts generally, the lemon-coloured *Papaver alpinum* and *nudicaule* might be grown to advantage. A British plant called *Trollius europæus*, which grows in the north, is well worthy of culture in gardens, and even better and larger than this is *T. napellifolius*. The old double yellow and dark wallflowers must not be forgotten, nor the very pretty *American Cowslip* in its varieties, nor the *English Fritillary*, which grows so plentifully in the meadows in some parts of England; its white and light coloured forms are very pretty.

The CAMPANULAS we have not yet touched upon: they are in the front rank of hardy plants, and most easy to cultivate. *Carpatica* and *persicifolia*, and their white varieties, *grandis*, *maorantia*, *rotundifolia*, and that old favourite *pyramidalis*, are the most ornamental, though others of merit are likely to be met with. With these may be named *Stenactis speciosus* (a beautiful composite plant sometimes called *Erigeron*), and the old double rocket, yet plentiful in many old country gardens. *Spiræa japonica*, which, though valuable as a hardy subject, is yet more so for taking up and forcing in pots; *Potentillas*, in fine variety; *Veroniceas*, particularly *corymbosa* and *amethystina*; *Trudescantia virginica*, *Lythrum roseum superbum*, *Armorica cephalotes*, *Eryngium amethystinum*, *Symphytum caucasicum*, and *Pentstemon gentianoides* and *procerus*, are all good. Such is our

concise selection from thousands. Well we know that there are many others of merit, but those who begin with this lot, or as many as they can get of them, will not be disappointed, and moreover, after growing these, will be good judges of what is worth adding.

To cultivate them it is not necessary to interfere with that portion of the grounds devoted to summer decoration. If a border does not already exist where it is desired to cultivate them, it may easily be made, and it cannot be too deep and well made—the soil a free open sandy one, as near as may be convenient. Not a few may be suited with a good position among the shrubs, particularly those kinds that are apt to run wild in the gardens. For instance, there is a fine native plant, *Epilobium angustifolium*, as good as any we have named, but it is too wild for the garden, therefore it should be allowed to run about in a shrubbery, as it may be seen among bushes behind the late Sir Joseph Paxton's house at Chatsworth.—*The Field*.

GARDEN EDGINGS.

We are able to recommend a capital permanent edging—everlasting, in fact, and with nothing that could offend the most critical taste. This is simply made of rustic rods of cast iron, in imitation of the little edgings of bent branches that everybody must have seen. They are evidently cast from the model of a bent branchlet, about as thick as the thumb, and forming nearly a semicircle of about 15 inches in diameter. The marks where the twigs are supposed to have been cut off are visible, and altogether the thing looks as rustic as could be desired, is firm as a rock when placed in position, and, in a word, perfect. These irons are, of course, stuck in the ground firmly, and cross each other just as the stick edgings do. But, while prettier than any stick edging ever seen, they are, when fastened, also the most firm and permanent of all. They may be set up by any boy. The fact that they are not stiff and ugly brick-like bodies prevents their offending the eye if one or two should fall out of place here and there. But this is impossible; for at the place where every two sticks cross each other they are tied by a little bit of common wire, fastened firmly by a pincers, of course. They should be so plunged in the walk, or by the side of the walk, that about 7 inches of the little fence appears above ground. This, however, may be varied with the size of the subjects which they are used to encompass; 6 or 7 inches is the height given for edges for ordinary purposes. They are equally useful for the park, pleasure-ground, or kitchen garden. In parks and pleasure-grounds, however, we usually have edgings of grass—the best of all edgings—and therefore it may occur to the reader that they are useless therein; but the little fences of bent wood which furnished the idea for these iron edgings were generally used to prevent grass near much-frequented spots from being trodden upon; and, of course, those now recommended will answer the purpose better. But it is in the kitchen-garden that their chief merit will be found, while in the public garden or park they will prove indispensable in many parts. Though at present there is no such thing used in English gardens, we hope to see them shortly introduced, and, in fact, are sure they must eventually prove the most admired of all edgings.

But it is not these alone that are preferable to the vitrified and other bodies sold as garden edgings. For the kitchen garden an edging of rustic stones, flints, &c., is far better; because, from their irregularity, it is not necessary to have them precisely arranged; they have all the advantages of the artificial stone edgings, and are in many places the cheapest of all. Weeds will grow among them, of course, and may require a little more time to eradicate than in a perfectly straight edging; but this is no objection worth mentioning. We have seen large, flat, sea-worn pebbles used with great success for this purpose in Devonshire. Even common bricks, set one after another at an angle of 45°, are better than the cast edging. As for the flower garden, if we can avoid edgings altogether by having all our beds set in the turf, so much the better. But then everybody cannot do this; and, besides, we have the geometrical garden and not a few other instances to deal with in which edgings may be desirable. The old and popular edging of box is, after all, the best for such places. What have we so pretty among edgings, even of flowers, as its neat and vividly green little hedge when well kept? Nothing; nor are we likely to have. The dwarfest kind, clipped at the right time, in spring and September, if you be very particular, or once a year in spring for ordinary edgings, is the prettiest of all. Indeed, it is indispensable in the geometrical garden. But there is one other hardy green native plant, which we altogether neglect in England for this purpose, but than which nothing can be more beautiful as a wide-edging plant, especially if the garden be a geometrical one. This is the common Irish ivy. When planted pretty thickly, and kept precisely to a breadth of say 1 foot or 15 inches, it forms a dense mass of the freshest verdure, especially in early summer, and of course all through the winter, in a darker state. The best examples of this edging that we know of anywhere are around the gardens of the Louvre at Paris. They are the freshest things to look upon in that city, all through the months of May, June, and July. They form a capital setting, so to speak, for the flower borders—the best, indeed, that could be obtained; while in themselves they possess beauty sufficient to make it worth one's while to grow them for their own sakes. In some geometrical gardens we have panels edged with white stone—an artificial stone very often. These ivy edgings associate beautifully with such things, though we should add that we do not admire these costly stone edgings to panels, nor panels at all. A garden pleases in direct proportion to the variety and the life that are in it, and all these bands and circles of stone, all these unchangeable geometrical patterns, are utterly antagonistic to the true life and beauty of a garden. It should be observed that an ivy edging of the breadth of an ordinary edging is not at all so desirable as when its sheet of green is allowed to spread out to a breadth of from twelve to eighteen inches. Then its rich verdure may be seen to full advantage. It must of course be kept within straight lines, if the garden be symmetrical; if it be a natural kind of garden, you may let it have its own wild way to some extent. To fringe a clump of shrubs with it in the English garden, for instance, would answer quite as well. This is only one of the uses which the French make of the Irish ivy, as most people will remember who are at all familiar with the environs of Paris.

As to the subjects used for outer circles in flower beds, we must not say much now. There are scores of neat and pretty things which may be used in that way, and which indeed we have indicated in a former article; their number is likely to increase. But some of them may be used as permanent edgings in lieu of box, and of these the best we know is *Gentiana acaulis*, with noble blue flowers; *Iberis saxatilis*, the very hardy white rock plant,

capital for edging clumps of choice shrubs; and *Armeria vulgaris rosea* or *rubra*. This is a charming bright rose variety of the common thrift, and a capital thing to make edgings in the kitchen garden; the pale-coloured common one is of no use compared to it. The mass of rose it furnishes in early spring is something surprising. It will be found to spread out so much, however, that after a few years it will be necessary to take it up and make a fresh plantation, which will give an opportunity of increasing the plant to any extent. The old edgings of strawberries, so often used in many kitchen gardens, are a nuisance. All edgings of plants require renovating now and then, and this is against them to some extent. Sometimes a little shrub may be used with much taste in the flower, or oftener in the pleasure garden; and in this way we know of nothing to surpass the dwarf early-flowering *Erica carnea*. It might be used with the best taste around beds of roses, or any others from which it would be desirable to remove an aspect of bareness around their margin. Some people make little hedges of oak and other trees clipped small, as in one part of the Botanic Gardens in the Regent's Park. These are always ugly and troublesome, and should be avoided above all things. It is nonsense to clip a rough-growing large tree into a diminutive hedge, while you can get small, tidy, shrub-like plants, like the *Iberis* and *Erica* above mentioned, to answer the same purpose—that of edging clumps of choice shrubs, &c. It is a much more tasteful practice to edge a clump of choice shrubs in a pleasure-garden with some neat permanent plant or plants than to leave the margin bare all round and dig it. What is the use of digging it? We say distinctly that some of the most beautiful effects ever seen in a garden may be produced by edging the various clumps of shrubs, American plants, &c., with the choice dwarf shrubs and alpine, the several species of *Iberis*, *Erica carnea*, *Lithospermum fruticosum*, and *Aubrietia*. By using a distinct species for each bed, how fine the effect might be made, and how unlike the present monotony in the generality of flower-gardens! Consider for a moment what an exquisite effect might be produced by edging a bed of dwarf choice shrubs with *Hepatica* in mixed colours. And we could name many combinations equally beautiful made by margining permanent plantations with choice dwarf plants.—*The Field*.

THE FLOWER SERMON AT ST. JAMES'S, ALDGATE.

The church was so much crowded on Whit-Tuesday, that many persons went away unable even to obtain standing room. The text was Numbers xxiv. 6: "As the trees of lign aloes which the Lord had planted," and the sermon, by the rector, the Rev. W. M. Whittemore, D.D., was especially addressed to the young, drawing from the teachings of creation useful hints for the formation of Christian character, and urging the importance of thorough devotedness to the Lord's service. On this occasion the young people, according to their usual practice, brought bouquets of flowers, but the best flowers were themselves, with their young, bright, and eager countenances fixed on the preacher during his sermon. The singing was excellent, and much credit is due to Mr. Buckland, and his selected members of the Cathedral Evening Service Choir, for their kind and talented assistance, so freely rendered on this special occasion.—*City Press*.

Calendar.

WORK FOR WEEK COMMENCING JUNE 29.

Kitchen Garden and Frame Ground.

CUCUMBERS must have steady bottom-heat to produce fine fruit. It is a common fallacy that when the weather becomes warm the beds may be left to cool down, but it is rarely fine fruit are cut from frames that are never lined after the first heat is out. Keep a moist atmosphere, for cucumbers absorb immensely by their leaves.

LETTUCE.—This useful salad is too much neglected after the early part of the season, through the tendency of the plants to bolt in hot weather. This may be prevented by planting in a rich cool soil, and giving some amount of shade.

PEAS.—Good autumn crops may be had by sowing now such sorts as Wrinkled Marrow, Hair's Dwarf Mammoth, and Veitch's Perfection. A layer of manure should be put at the bottom of the trench, to draw the roots down, and prevent suffering by drought.

POTATOES to be frequently hoed between. A dressing of wood-ashes and guano between the rows of the main crops now will considerably increase the produce, especially on sandy or chalky soil, where disease rarely appears; on moist loams and clays it will be less safe and less necessary. As fast as crops are taken off, trench and manure for broccolis, cauliflowers, and winter greens.

LEeks to be planted out in rows nine inches apart every way, in very rich moist soil.

Sow last crop of broad beans, Walcheren broccoli, Early York and Colard cabbage, kidney beans (dwarf and runners), lettuce for succession, any early kinds of peas, radishes, and turnips. Keep the hoe in active service between advancing crops.

TREE ONIONS need a little support, as the crop is apt to fall over and be preyed upon by snails. As soon as the onions are as large as walnuts, and lock inclined to ripen, snap the stem, but do not break it through; this will assist them to ripen. The top bulbs are the best of all onions for pickling, and those at the root store well for kitchen use.

ARTICHOKES are now coming to table in plenty—that is to say, where they are grown, which is in very few places. As the heads are cut the plants must have attention; cut the stems off to the ground, remove dead leaves, fork over the soil, and lay on a heavy dressing of half-rotten dung. If wood-ashes are at command, cover the dung with a thin layer; they need not be watered, for at this season the heavens will soon supply them with plenty, and the labour may be saved.

ASPARAGUS.—Any more cutting of this crop will ruin the plantations. To many it may seem needless to make this remark, but people are cutting asparagus now, and we must advise them to desist, unless they have made up their minds to the policy of killing the goose, &c. Where the beds have not had much attention, let them be at once pointed in with a fork, all weeds raked off, and the surface covered with a mulch of half-rotten dung. Manure rotted to powder should never be used as a mulch; there is no strength in it.

BEANS to be topped as soon as they show flower, and crops ready for use to be topped back a second time to within a leaf or two of the plumpest of the small poles. Earth up advancing crops.

BROCCOLI must now be got out to furnish a supply during autumn. Manure liberally, and if the planting is done in dry weather, give water as abundantly as possible. Better, however, to get the ground ready and wait for showers, both to save labour and to give the plants a better start, for a free natural growth is especially requisite with broccolis and cauliflowers. Transplant from the seed-bed to a piece of rich light soil the plants from the late sowings. Small clubs just appearing on the roots may generally be removed with the thumb-nail, but where clubs are formidable, from the size of the plants, throw the plants aside and burn them.

CAULIFLOWER.—Plant out, and remember that for this crop the soil cannot be too rich; they will actually grow well in dung only, if well rotted. Hoe between those coming forward, but do not earth up the stems, except of such as are loose at the collar.

CELERY requires a heavy watering where the ground is dry. If the fly has attacked the leaves, pick them off and burn up; generally a few leaves only are touched, and they can be spared. But as no crop will bear to be entirely diseased, where the grub has got the upper hand it will be in vain to expect much produce. We once lost a long row of *Chenopodium atriplicis* by the grub of celery-fly, a plant we never before saw attacked; this indicates a partiality for the spinach warts, which is rather a serious matter. Dustings of soot, therefore, so useful to protect celery, may be needed also among beets and spinach.

WINTER GREENS to be planted out at every opportunity. It is most important to get out good growths of Brussels sprouts as early as possible.

Flower Garden.

Roses that have bloomed freely require to be pruned back, and have a mulch and plenty of water to assist the autumn bloom. Half ripe shoots of most of the perpetuals may be struck now, with the help of a moderate bottom-heat; but it is full early yet, and better to wait a week or two than waste time in putting in soft shoots. Buds to be entered on briars with discretion; if either the buds or the shoots to be entered on are in a soft state, they will not take; the bark must be firm, or the work cannot be done properly. One night's heavy rain will do more to perfect the stocks and scions than a week of artificial watering. Roses strike from cuttings now with great certainty. The safest way is to make a hotbed at once, and the same day put in cuttings of young wood three or four inches long singly in thumb-pots. Water the cuttings, place them in a cold frame, and shade with mats. There let them remain for a week, by which time the hotbed will be sweet, and the heat steady, and the cuttings will have formed a callus. Place them on the bed, and shut up; give air by degrees, and keep them from flagging by frequent sprinklings rather than by heavy waterings. Shoots that have just flowered, or that have flowers on them, will root with certainty.

CHRYSANTHEMUMS require liquid manure now, and frequent sprinkling overhead. Tie out as fast as the side-shoots break, for if they once harden out of shape it is no easy matter to restore them to a proper form. Plants recently struck may be planted out in a bed, where they will require less care as to watering than in pots, and may be taken up in dull weather without losing a leaf. It is not too late now to strike a few pompones to flower under glass, to make the house gay in the autumn.

FLOWER BEDS need a slight hoeing before the plants meet, and the subjects that require pegging should be kept regular betimes, and especial care to be taken to get plenty of shoots on the north side of every plant, leaving the south side to take care of itself, which it is pretty sure to do.

HARDY SHRUBS of all kinds may now be propagated by layers or cuttings, the latter preferably, and the smaller the better if the shoots are firm. Aucubas, Laurels, Laurestinus, Griselinia, Box, Ivy, Holly, &c., &c., may be increased indefinitely by putting in small cuttings of this season's growth in sandy soil, in a shady place, and keeping them watered in dry weather. Any rather tender subjects struck in this way should be potted in September to keep in frames all winter, but generally they may remain where first put in till the following spring. As Irish Ivy makes a grand edging to great beds, the hint may be useful that now is the time to propagate it for such a purpose next year.

HARDY HERBACEOUS PLANTS of all kinds may be propagated now from seeds and cuttings. See to Antirrhinums, Pansies, Mimulus, Dianthus, *Iberis coraeifolia* and *sempervirens*, *Arahis* of sorts, especially those with variegated leaves, and *Dielytras*, though these increase rapidly by parting the roots.

RHODODENDRONS.—In all cases, unless seed is wanted (and generally it is of no use), the dead trusses should be removed without injury to the young shoots. If seeds are allowed to ripen, the growth is checked, and there will be less bloom next year. As to the young growth, generally speaking, it is best to let it grow in its own way; there is no shrub so orderly in its habit as the *Rhododendron*; but where the growth in any one direction is irregular, the knife may be used now to cut it back, and it will be best to cut to the old wood in such a way that it will break and fill up any gap caused by the pruning. Water can scarcely be given in too great a quantity now to *Rhododendrons* and *Kalmias*; nevertheless in turfy peat and loam sunk below the level (they should never be above the level) it is rarely they require artificial watering. As a rule, the removal of the dead blossoms by a dexterous snap of the thumb, easily acquired by practice, is all the attention *Rhododendrons* require in the open air; but we are supposing them to be in beds of good peat, or peat and loam chopped up together: if they are in what is called "common garden soil," or stiff clay, it will be a trouble to keep them alive. Old beds may be refreshed by a top-dressing of cow-dung. It should be remembered that American plants thrive best when they get rather thick, as then the roots are screened from the sun. *Rhododendrons* in pots mostly want a shift now, but it must always be a small one, as too great a shift will be likely to cause the bloom buds to start prematurely, which will result, not in a second bloom, but in a crop of leaves, to the loss of bloom next year.

HARDY PLANTS IN FLOWER.—*Viola cornuta* and *lutea*; *Oenothera Fraseri*, *Lamackiana*, *speciosa*, *riparia*, *serotina*, and others; *Symphitum asperinum* and *Kermesina*; *Armeria formosa*, *Platycodon grandiflorum*, *Gypsophila Steveni*, *Chelone barbata*, *Verhascum lagurus*, *Alstræmeria aurea*, *Phyteuma Hispanica*, *Campanula gargarica*, *carpatica*, *rotundifolia*, and others; *Sanguisorba Canadensis*, *Lythrum roseum superbum*, *Arenaria cæspitosa*, *Myosotis alpestris*, *Morina longifolia*, *Gentiana cruciata*, *Achillea ptarmica*, *Malva Moreni*, *Helenium pumilum*, *Papaver alpinum*, *Epilobium angustifolium*, *strictum*, *Saponaria cæspitosa*, *Hedysarum splendens*.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Put netting over currants, gooseberries, and cherries, to keep the birds from the fruit. To retard or keep hanging currants and gooseberries, cover with mats. Strawberry runners to be pegged down in pots, and the superfluous runners to be cut away an inch or two from the stools.

STRAWBERRIES, as soon as rooted in pots, to be removed to a frame and placed upon a bed of some moist material, where they will soon fill the pots with roots. Remove weak runners, and peg down in pots or on the border a few more of the best.

RASPBERRIES to have their suckers reduced to three or four to every stool; those left will rise strong, and ripen their wood well, but a forest of spray will be all weak alike and at the winter pruning there will be a temptation to leave all, because for strength there will be little choice. Never dig between raspberries; it causes them to throw their suckers a long way from the stools; but surface manurings at this time of year, and no disturbance of the earth, causes strong suckers to rise near home.

VINES AND VINE BORDERS.—If there is a good wall, a lean-to may soon be put up, and there may be a border outside, and the vines brought in and trained to the rafters. Under the vines a few orchids may be grown. Better still, ferns, as the vines will give them shade just when they require it. But to keep bedding plants or to flower pelargoniums, and other plants that need plenty of light, is a great folly. In fact, wherever it is attempted to mix greenhouse plants with vines, there must be more or less injury done to one or the other; they cannot both prosper in the same house. We depend chiefly on sun-heat, but a little help from hot-water pipes, if heating can be afforded, is an advantage. The Paxtonian houses answer admirably for vines, and if you have choice of wall, and can put up a house ten or twelve feet high, a sixteen or eighteen feet rafter will be the proper thing. The width of the border must be proportioned to the length of the rafter, say for a ten feet rafter a border full in the sun (the house should face south) four feet wide; for a fourteen feet rafter, five or six feet wide. The Paxtonian house can be ordered to measure, and the lights and irons will be sent ready for fixing, with directions, so that the village carpenter can put it together in a brief space of time. If cheapness and efficiency are aimed at, without regard to ornament, a low span-roofed house will be found admirable, and the following measurements will suit most people: Sixteen feet wide; brick walls three feet high; height to ridge, eight feet. A border on each side four feet wide would leave an eight feet space in the centre. To economize that space would be an easy matter. If ornament were desired, it would answer to have one row of large specimen fuchsias in pots standing on clean gravel or concrete, and leave the rest of the space for walking. A few ferns might be accommodated with the fuchsias, and there would be no litter, no crowding, sufficient walking space for enjoyment; and the same treatment would serve for all. As for the construction, it may be borne in mind that vines do not need much air. Therefore apertures in the wall a yard apart, seven to nine inches square, and at each end of the house, over the door, a triangular shutter fitting closely to the angles of the ridge, will suffice. Such a house ought to be heated with a small boiler at one end, and two courses of four-inch pipe all round. As we have no intention to force, the fire would not often need to be lighted. But in case of cold, damp weather, when the vines were in flower, a moderate heat, at the cost of a few bushels of coke, would make sure of the crop. So again, in case of a cold wet summer, with the benefit of a little heat to ripen them, good colour and flavour would be ensured. A still cheaper method of procedure would be to make the border outside, and dispense with heating apparatus; but this plan would be occasionally attended with the drawback of a poor crop. With the border inside and with command of artificial heat, you may be sure of grapes every season; with no heat, and with outside borders, you would not get a berry in such a season as 1866 was. Outside borders answer better with lean-to houses, because we can have them facing full south; but a span-roofed house must be put to run as nearly as possible north and south, so as to get the sun on all parts of the house during the day. The borders, therefore, face east and west, and have much less sun-heat than when a south-looking lean-to has a border sloping full in the face of bright Phoebus. The borders would require to be thoroughly well drained to begin with. The stuff for the border should consist in the main of good turfy loam, with a very plentiful admixture of sandy road drift, broken oyster-shells, broken bones, and clean lime rubbish. After many years' cropping the vines begin to need a little help, and then a good mule-heap with fat dung will produce its effect. One of the most prevalent errors in vine-growing is the free use of manure; nearly all the shanking, rust, mildew, and the rest of the plagues are produced by manure; and when all works well, manure only makes large berries, it does not make either flavour or colour. Reserve the fattening foods, then, for times of real need; for the first start and for many years to come, turfy loam, siliceous and calcareous additions, will make fine canes, and superbly coloured and flavoured grapes.

Greenhouse and Conservatory.

GREENHOUSE HERBACEOUS PLANTS, such as Cinerarias, Primulas, Heliotropes, herbaceous Calceolarias, &c., must have frequent attention now. Get seedlings pricked out into pans or singly in thumb-pots; shift cuttings and rooted suckers; sow Calceolaria and Cineraria to succeed the first lot; a moist, cool, shady place will bring them on, and as they gain substance they must have more light and air. Use for all these plants a light rich compost, in a sweet and friable condition.

CONSERVATORY will require air night and day, unless there are many stove plants, in which case shut up while the sun is on the house. Use water in plenty, and liquid manure wherever it seems to be required. Free-growing soft-wooded plants may be assisted now by placing the pots in pans of water, and sprinkling the paths morning and evening.

WINTER FLOWERS must be thought of now. Propagate Euphorbia Bojeri, Jacquiniiflora, and splendens; repot and propagate Poinsettia pulcherrima; give Salvia splendens another shift; set out in the open air Solanum capsicastrum, and Calliandra purpurea; put all potted shrubs for winter blooming in a cool moist bottom for a month, then remove them to a sunny position under a wall or fence, to hasten the ripening of the wood.

HARD-WOODED PLANTS mostly require shifting, if only to remove a little of the worn-out stuff on the outside of the balls, and repot them in the same pots. The soil should be lumpy, and with plenty of fibre in it. Take care the drainage is safe; a strong oyster-shell over the whole is a safe way to ensure an outlet for water. After shifting, sprinkle frequently, and give only a little water to the roots.

GREENHOUSE PLANTS IN FLOWER.—Zonale and large-flowered pelargoniums, globe amaranths, cockscombs, balsams, herbaceous calceolarias, and fuchsias, are now in their prime; also Bossia inophylla, microphylla, and scolopendrium; Septas umbella, Abronia mellifera, Senecio elegans, and cinerarioides; Nymphæa bivalvata, Acemadina tetragonia, Nivenia spatulata, and Lagopus; Mirbelia dilatata, Acronychia Cunninghamii, Adenandra fragrans, Adesmia viscosa, Actinotus helianthus, Mimulus roseus, Sempervivum arborescens, caespitosum, and tortuosum.—*Ericas*: Ilibertiana, Albida incana, Blandfordiana, conspicua, depressa, exurgens, fastigiata, inflata, Juliana, Monsoniana, palustris, Parmentieriana rosea, pulverulenta, Sainsburyana, speciosa, splendens, Humea, Ventricosa hirsuta, tumida, varia, jasminiflora rubra, gemmifera, thymifolia.

Stove and Orchid House.

ORCHIDS require now a free circulation of air to ripen the spring growth. Use as little shading as possible, and keep the air moist by watering the paths and borders in the afternoon, after which shut up.

ORCHIDS IN FLOWER.—Epidendrum alatum majus, E. maculatum grandiflorum, E. phoeniceum, E. verrucosum, Calanthe masuca grandiflora, Aerides affine, A. quinquevulvum, Acineta Barkerii, Dendrobium filiforme, Mormodes citrinum, M. luxatum, Angreum caudatum, Anguloa Clowesii macrantha, Bolbophyllum Henshalli, Warcea tricolor, Vanda tricolor, Stanhopea aurea, S. Devonensis, Cattleya amabilis, C. candida and superba, C. crispa, crispa superba, C. labiata picta, C. M'Orlandii, &c., C. Schilleriana, violacea, Dendrobium alba sanguineum, D. sanguinolentum, D. taurinum and formosum, Cœlygne Lowii, Cycloches barbatum, Oncidium divaricatum, O. papilio majus, &c.

Forcing Pit.

PINES to be encouraged with heat and moisture. Young stock to be aired freely, to get them strong; fruiting plants to be refreshed by frequent sprinkling of the beds and plunging material; as they begin to ripen, keep them drier. As soon as fruit is cut, earth up the stools and give extra heat. Plants now coming into fruit to be pushed on so as to ripen at the end of September and beginning of October, when the summer fruits are scarce.

VINES in early houses to be kept rather dry, to promote the ripening of the wood, and to have plenty of air. In late houses encourage quick ripening, keeping up the heat, and ventilate well to prevent damp and mildew. Water and mulch the borders of late houses, and by all means abstain from cropping the borders, as the practice is most injurious to the roots of the vines, the best of which are near the surface.

Correspondence.

PARIS EXHIBITION.—I conclude from the interesting papers you give us from your Paris correspondent that gardeners would do well to visit the Exhibition. Now how are they to do it? You will say take tickets by South-Eastern or Great Eastern or some other railway, and trust themselves to the elements. I think if the employers of some faithful and able gardeners were to give them leave and a bonus to help them across, it would be a generosity well bestowed, for they will assuredly learn something that will be a benefit to the gardens they have to keep. I throw this out as a hint only. I do not want it myself, having better wages than many worthy brothers of the craft, too many of whom are under-paid. Yes, sir, under-paid I say, and yet expected to learn while they live, and look respectable too. But how delightful it would be if a company of gardeners—say any number, from a score to a thousand—were to go in a party, and have a guiding genius amongst them who understands the French language and knows all about the interesting points of the affair, and who would direct them to save them the inevitable loss of time pottering about amongst things they would neither understand nor care about. You know, it's a sort of delusion for a man who wants to see some of the French training of fruit-trees to lose himself in a court filled with samples of lace or tin-ware, or to go in the wrong direction through the kind advice of some Frenchman who has misunderstood the question put to him. But, besides all that, the feeling of brotherhood that prevails amongst the craft should, I think, be fostered on such an occasion as this, and there is nothing like a *strange place* to make men who have some taste in common fraternize and cultivate a regard for each other and a consideration of mutual interests. I wish some one would seriously propose a gardeners' excursion some time in July, and that all the details of expense of travel could be settled beforehand, so that all could go at the same price and in the same train and vessel. But I would leave them to so much freedom that I would not make a close programme of proceedings. Say the trip to occupy a week, and two days out of the week to be devoted to visiting certain parts of the exhibition, and the party to be a committee on its own account for comparison and criticism; for as two heads are better than one, so two or three hundred heads might constitute a horticultural wisdom useful to our business as we follow it at home. To say that a social gathering to wind up with before starting away for home again would be desirable and agreeable, if properly carried out, seems scarcely needful; yet if I go—as I hope to—I should hardly like to leave without spending a few hours in social enjoyment with a few of my cotemporaries. I submit these proposals, Mr. Editor, to all whom it may concern, and sign myself, as my desire is to be on the wing, A HORTICULTURAL SWALLOW.

THE SEASON.—I have to thank you for your remarks on the season and the crops; for they have not only given me the comfort that results from knowing we are not alone in our misfortunes, but they satisfied my worthy employer that we were not all to blame in our garden work for the scarcity of vegetables and flowers for some months past. In this district (near Nottingham), we had till within the past ten days almost given up all hope of obtaining anything from the ground after all our labour. Potatoes planted early have not yet afforded a single tuber large enough to cook, and many people are digging them up and tossing the haulm on the muck-heap to plant winter greens or sow turnips. Parsnips and carrots failed in all the early sowings, but some sown in May are actually alive and promise now to do well. We lost all our early breadths of French beans, as you report to have been the case in the northern suburbs of London, and seeds generally appear to be bad this season, though perhaps the exceeding coldness of the ground was much more the cause of the general failure than the inherent badness of the stuff. It is in such untoward seasons as this that we hear complaints mostly of bad seeds; one

cannot help thinking that the same seeds would be found as full of life as the best sample ever sown if favoured with a sufficient temperature. I am happy in being enabled to inform you that during the past eight days an immense difference has taken place in the appearance of the crops, and yet a bleak east wind has been blowing and the nights have been almost frosty. I attribute the renewed vigour of vegetation to the intensity of the sunshine, and I fancy from what I have read that our climate this year approximates very closely to that of the northern parts of Scandinavia; for we know that the Swedes, Danes, and Finns grow the same sorts of vegetables that we do to perfection, though they sow their seeds a full month or more later than we do, but have more sunlight than us to make up for it. In my few journeys northward—never farther than Inverness—I have noticed that the sunlight is purer and the air bleaker than in mid-England, and vegetation, though less luxuriant, is nevertheless vigorous and more active in growth, no doubt in great part the result of the augmented power of the actinic principle of the sun's rays.

W. H. B.

SENDING FLOWERS BY POST.

Correspondents who send flowers for our opinion are greatly disappointed when they learn that "your flowers were dried up when they came to hand, and we can offer no opinion of their merits," yet such is a quite common occurrence, and one of the wonders of editorial experience. For it is a wonder, to say the least of it, that men who grow flowers, and who know much about them beyond what may be seen and learnt in the garden, should expect them to travel safely when merely wrapped in dry paper or put loosely into chip boxes, and then committed to the post at this time of year. As an experiment in hay-making, this mode of transmitting bits of vegetation may be all very well; but that is not the intention; the senders of the desiccated scraps wish us to see them as they see them, fresh and bright, that we may say whether in our judgment they are good, bad, or what else. Now, let any of these disappointed correspondents consider for a few moments one aspect of the subject. Suppose the flowers on which our opinion is desired are now growing at York, A, B, or C, the grower thereof, purposes to forward them to us. He cuts them perhaps in the morning, when they are at their best, puts them loosely into a chip or pasteboard box of some sort, taken haphazard from a drawer or closet. He seals up the box, and directs it to Aldersgate Street, and perhaps he attaches a proper number of stamps. We say "perhaps" here advisedly, because sometimes we have to pay sixpence, eightpence, or more for these packages, and in every case of that kind we fling them away as far off as possible, and know nothing more of them; time is too precious to be wasted in asking people to refund what we have been mulcted of, and experience has taught us to deal in a summary way with every species of humbug and annoyance. But suppose they are delivered free (as we are bound to admit is the case generally speaking), they are as a rule twenty-four hours old when they are received at the office. The next thing to be done is to send them on to Stoke Newington, and there may be a little delay even to the extent of half a day or so between the receipt and the dispatch of the flowers at Aldersgate Street. We will now allow three hours to elapse ere they are delivered at Stoke Newington, whether by post or carrier, and we may consider another day to have elapsed ere we see them, or say from thirty-six to forty-eight hours from the time the flowers were cut. But here another delay is possible. Editors occasionally leave home; not often, it is true, for they are such a poor set they seldom have boots fit for walking in, and riding is out of the question, and another whole day or so may pass just at that particular juncture when A, B, or C's flowers, already worn out by travel, are seen by the person to whom they are addressed. Here is the case as we are familiar with it, make what you please of it, friends. This is not the first or second time we have endeavoured to make the path easy for cultivators to obtain our opinions on their flowers, and having shown how the case commonly fails, we will proceed to remark on the conditions of success. At this point we are reminded of a great lot of herbaceous calceolarias of "Neill's Strain" on which we reported three weeks since. Those flowers came from the extreme north of England and were subjected to several small delays, yet when we opened the package they were as fresh and as bright as if just gathered, and we were enabled to place all the bunches in vessels filled with water, and have a good leisurely look at them ere saying a word as to their qualities. The fact is, they were skilfully packed in a close fitting square tin box, one foot deep and fifteen inches square, the lid of which fitted accurately. Within this was a sort of wooden cage formed of very thin laths, say half an inch wide and an eighth of an inch thick, and which was lifted out bodily. Within this cage the flowers were packed in bunches, every bunch being surrounded at the base with moss, and all of them bedded in a mass of moss at the bottom of the cage. The moss was moist, the tin box almost air-tight, and the flowers came out almost as fresh as when they went in, though nearly forty-eight hours had elapsed from the time they were gathered till the time we saw them. We remember a similar case occurring about this time last year. Messrs. Barr and Sugden desired us to see a collection of *Ixia*s grown by one of their agents in Jersey, and they were sent from Jersey direct, and we had them in a state of perfection. The bunches were tied round with moss at the base, and were laid one upon the other with a little damp moss sprinkled between them in a long deal box, and above them a few cross-bars of wood were fixed with nails, so that in the event of the box being turned upside down, or even thrown from hand to hand by the carriers, the flowers were so fixed by the cross-bars that not one could move, and therefore no ordinary concussion could harm them. An occasional correspondent, Mr. Alexander Boyle, of Narberth Pembrokeshire, sends us leaves and flowers, and sometimes cuttings of plants, simply folded in oiled paper and enclosed in common envelopes, and they generally arrive in a condition not only such as admits of fair judging, but we can strike the shoots if desirable, and we have, in fact, several plants obtained from cuttings sent in this simple way. The grand thing is to arrest evaporation; this the damp moss accomplishes in one case and the oiled paper in the other. Common tin-foil is also an excellent preservative of leaves and flowers sent by post.

In the case of subjects that cannot be submitted to pressure, a box of some kind is essential. The Post-Office authorities properly refuse to carry boxes with sharp edges, and any tinman will quickly make a box of any size, for a mere trifle, with the edges rounded, so that the Post-Office regulations need not be infringed. But wooden boxes, even if of the most fragile kind, will usually answer the purpose, if the flowers are packed in it tight enough and sufficiently fixed to prevent injury by shaking, yet loose enough that they do not injure each other by pressure, with a slight amount of moisture to keep them fresh; but in no case should they be wet, or that may cause as much mischief as extreme dryness.

A common error in packing flowers for the post is to bed them in masses of dry cotton-wool. We do sometimes receive good samples packed in that way, but commonly the juices are drawn from them by the cotton-wool, and they come to hand shapeless, shrivelled, and indeterminate. It is not always possible to obtain tin boxes and other specially prepared receptacles, and the boxes that seedlitz powders are sold in, the wooden boxes, two or three inches over, in which tooth-powders are sold, and the small wooden barrels, about four inches high and two or three inches diameter, in which many housewives keep such things as arrow-root, and in which some grocers pack coffee and spices for sale, are severally suitable, and in most houses are ready to hand. Card and paper boxes are generally not so trustworthy as wood or tin, on account of their liability to be crushed, and the excessive evaporation of moisture from their contents they allow. Given a suitable box, the rest is very easy. A little damp moss will be found the best of packing, and if the flowers are firmly bedded in it, they will continue fresh for two or three days. Not long since, we sent a boxful of flowers a long journey to a friend. They were packed in a long deal box—a sort of fig-box—with clippings of privet above and below, and the flowers carefully laid together, without ties, but as it were in a heap, the small clippings of privet serving to fill up, and keep them from being shaken on the journey. They reached the friend in a perfectly fresh condition, though the journey comprised three separate changes from rail to rail, and from rail to carrier's cart. Freshly gathered ivy-leaves, and even fresh grass-mowings, answer admirably, without any addition of water; in fact, fresh green leaves of any kind will do, and if bruised, as in the case of clippings of privet or mowings of grass, the better. Lastly, these perishable things may always be forwarded to us direct, as we have frequently suggested. If directed to Stoke Newington, London, N., they will probably be in our hands a day earlier than if sent to the office, and the best days for our convenience to receive them are Tuesdays and Wednesdays; therefore, as a rule, Monday is the best day on which to post them.

S. H.

HOW TO TAKE IMPRESSIONS OF PLANTS.

The advantage of being able to take accurate impressions of plants without much labour need not be pointed out to those who can appreciate what is useful. It is not brought forward as a substitution for dried specimens, where these can be obtained and attended to; but as being less cumbersome it deserves notice, as a means of refreshing the memory, in very many instances, in a manner equally satisfactory as when specimens are employed. It has, further than this, no claim to novelty, but simply to usefulness.

The materials required are few, and these not expensive. One pennyworth of lampblack and one pennyworth of sweet oil are all that will be required besides the paper. A large sheet of paper should be provided, and this should be prepared by rubbing it evenly all over with a piece of flannel moistened with the oil; this must be done thoroughly, and when the paper is well moistened, but not in a wet state with the oil, a small quantity of lampblack should be laid evenly over it, also using flannel for this part of the operation. If this preparation can be made a day before using the paper, it will be so much the better. The next process requires great care:—Having the prepared sheet in readiness, place on it evenly and flatly the plant, flower, or leaf, of which an impression is required; then place over this a dry sheet of paper, and with a handkerchief or cloth press firmly over every part, that it may equally and regularly receive the black preparation. The paper intended to receive the impression should now be in readiness, and the specimen must be carefully removed and placed on it, and great care must be taken that its position is not changed; this, too, must be again evenly and firmly pressed as before, and the impression will be complete, and must be laid carefully aside to become dry. A specimen or two can be tried on a spare sheet, in order to ascertain whether the blackened sheet is in a proper state of preparation, before it is attempted to take a very careful impression. This is particularly valuable in preserving sketches of the leaves of rare and valuable plants.

OUR TREES AND THEIR ENEMIES.—For the past two or three seasons our trees have suffered from the attack of larvae or grubs. Amongst these enemies (after little boys) perhaps the most dangerous is the "Cossus ligni perda," the larva (grub) of the "goat moth," called thus from the rank smell, similar to that of the well known quadruped, it emits, and this so strongly at times that by it betrays the locality of its habitation. This grub is, when full grown, the size of the middle finger of an adult, of red brown colour on the back and pale salmon underneath, with a jet black shining, wedge-shaped head, with which it can lift, comparatively, enormous weights. It feeds, when young, on the albumen, between the bark and the wood of the tree, and ultimately bores labyrinthian passages through the whole trunk, causing certain ruin. Even a single insect, if it should complete its destructive course in a circular way round the stem, is capable of laying low a tree of more than fifty years' growth in two seasons. They generally begin their pernicious career at the place of their birth, mostly at the foot of the tree, close to or a little below the surface of the ground, where they easily escape observation until the attacked tree shows more apparently by its sickly looks signs of decay. This larva is of great endurance, firm against frost as well as chemists generally vaunted as vermin killers. It requires two seasons to reach its natural terms of change into chrysalis, for which purpose it burrows, during the month of October, into the mould surrounding the stem, to enshrine itself into a firm cocoon, composed of bits of wood and silken filament of its own fabric, from whence, in the spring, the goat-moth issues, in order to deposit a number of light green eggs in the crevices of the bark of elm trees in preference, but also of other trees. In order to diminish this rapacious insect, care should be taken to remove the mould surrounding the stems of affected trees, and to burn or otherwise destroy it, and to keep a vigilant eye on the nests of young larvae to dislodge them before they have eaten their way beyond reach.—VERONICA, in "Leamington Courier."

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Replies to Queries.

Proliferous Rose.—D. T. C.—Yours is an interesting case, as it is but seldom a tree produces a large crop of these prolific flowers, though one or two on a tree is not at all an uncommon occurrence. The flower sent (like *Boula de Nanteuil*) is of large size, and with abundance of stout petals. In the centre is a bunch of buds, six in number, giving to the flower a very singular appearance. The excessive production of these monstrous growths must in your particular instance be regarded as entertaining, but in a general way this sort of monstrosity is undesirable, and the question arises, can it be prevented? We believe the cause to be over-feeding, and have no doubt at all that the ground on which this tree stands was liberally manured last autumn, and that the roots have got hold of a body of manure that has escaped being mixed up with the soil. It is a golden rule in all cases of applying manure to blend it with the soil thoroughly, for when dug in in masses roughly irregularities of growth invariably appear in the crop, whether it be roses, cauliflowers, or what else.

Zonate Pelargoniums.—T. L. B.—The following nine Zonate varieties are first-rate for pot culture: Madlle. Vincent, white; Madame Werle, painted; Amelina Grisau, painted; Dr. Lindley, light scarlet; Andrew Marvel, deep red; Herald of Spring, flame red; Mrs. W. Paul, pale pink; Hibberd's May Queen, deep pink; Tintoret, puce rose. The following nine Tricolor-leaved varieties are also first-rate for pots: Mrs. Pollock, Jetty Lacy, Lady Cullum, Sophia Dumaresque, Titania, Sunset, Italia Unità, Lady of Shalott, Silver Star. As the foregoing list of nine tricolors includes some that are not to be had at less than from two to three guineas a plant, we offer another list of nine cheap tricolors: Mrs. Pollock, Sunset, Yellow Belt, Mrs. Benyon, Oheron, Argus, Beauty of Guestwick, Italia Unità, The Countess. See page 206 of this year's issue (May 18, 1867) for copious selections for various purposes.

India rubber Tree.—T. L.—You may remove the two deformed leaves by cutting them off close to the stem without injury to the tree. You must judge for yourself whether the tree will be injured in appearance by the loss of those leaves. The plant should have plenty of water now, and occasionally the leaves should be cleaned with a soft sponge and tepid water.

H. Tipping.—Your geraniums were all shrivelled up before they came to hand. A cardboard box will never do at this time of year for conveyance of flowers by post, especially if they are without any moist packing, as yours were. Judging by the size of the petals, we conclude that your varieties are of no value, but they may be useful as bedders.

J. E. Daniel.—An index for the numbers, May 6th to December 30th, 1865, inclusive, was published immediately after the completion of the volume, and may still be had at the usual price of a number.

J. S.—What can it matter to the horticultural public that servant-maids go to Victoria Park on Good Friday and enjoy healthy exercise and fresh air? We really do not understand the purport of your letter; if it is intended to cast a slur upon any particular religious denomination or sect, we do not want it; but if you are simply overjoyed that the poor of the East end of London know how to spend their holidays rationally, our sympathies are with you, and we will hope to see the servant-maids enjoying an innocent frolic in Victoria Park next Good Friday.

Hybrid Pelargoniums.—R. W. B. P.—How these have originated it is not easy to say in every case, and probably few of them are really hybrids, but merely crosses. A hybrid must be the result of breeding from two species, but within the limits of a species there may be any number of crosses. We have cross-bred sheep and cattle, but no one with brains enough to fill a spoon would call them hybrids. The publication of your paper would not advance the inquiry at all; the best it could do would be to raise a laugh at your expense. If growing is your object in addition to discovering origins, the following will suit you:—*Diadematum*, *Bridal Ring*, *Sidonie*, *Cardinal de Richelieu*, *Ignescens*, *Madame Csillag*, *Lady Mary Fox*, *Unique*.

Chrysanthemum in Pots.—Ne Quid Nimis asks, "In how small a pot will the above flower effectively, and how many may you safely venture on in a 10 or 12 inch pot? I have got nice heads of bloom in 4-inch pots, with the soil as hard as iron." We presume the query refers only to the large-flowering kinds, and thereto we reply that we have flowered the large varieties in 48-size (5-inch) pots, and had an average of three and four splendid flowers each. The plants, of course, were on single stems, and had the aid of liquid manure. That is an extreme case. In 10 or 12 inch pots, half-a-dozen flowers are as many as can be relied upon to have them good; but if mere colour and not quality is desired, they may be allowed to carry all they show, and the result will be some two or three dozen flowers on the free varieties, but of course no quality. When our correspondent asks "how many," we suppose him to mean how many flowers, for only one plant should be allowed in a pot. Again, our correspondent says, "This year one of our growers in his instruction book says you cannot give the plant too much room in the early stages of its growth. This doctrine is entirely opposed to the old theory and practice, so far as I understand it, which is to gradually increase the size of your pots till you come to the flowering pots; and by their being a little pot-bound in the earlier stages of their growth they are kept to a more manageable size, and have a tendency to show flower-buds earlier. This being another case of doctors differing, there is nothing left but to go to the consulting physician." If our correspondent quotes correctly, we are bound to say that the expression "cannot give them too much room" is nonsense, because one might fill a hog'shead with soil and stick a cutting in the centre, and still be complying with the author's teachings. But the error is not one of practice but of language, and is evidently intended to guard the amateur against the baneful practice of allowing young plants to remain for a long time starving in small pots containing only poor sandy soil, such as is commonly used for the first start in growing almost every kind of plants from cuttings. If he has a clear notion of what should be done, though not a master of language, he would say, Be careful not to subject your young plants to severe checks, for it is an injury to cause a premature hardening of the wood; the best plants when in flower are those that were encouraged to grow freely when young; the hardening of the wood is a process proper to the end and not to the beginning of the growth, and a pot-bound condition, such as takes place after the last shift is accomplished, is a condition eminently favourable to the ripening of the wood, and to the subsequent production of fine flowers. "Ne Quid Nimis" is just wrong in supposing that "a pot-bound condition

in the earlier stages of growth" is beneficial; it is in fact injurious; and the most successful exhibitors are those who take care to keep their plants always growing from the first until they are in the flowering pots, when growing ceases, and the ripening of the wood begins.

BOTTOM HEAT FOR VINES.

Gardeners have for many years felt that it was exceedingly unnatural to place the branches of the vine in a high temperature, while the roots were in the cold soil of the border outside the house, and they have had recourse to various expedients to remedy this clearly recognised evil. Hot fermenting dung and leaves have been applied to the surface of the border, which did some good, more by its negative than its positive action, in so far as if the heat from it did not penetrate the border to any depth, it at least, if applied in autumn, prevented the escape of the heat the border had derived from the sun during the summer. Wooden shutters, and in some instances glass, have been laid on the surface of the border to prevent the radiation of its natural heat. All these methods were well known to be very defective; and it is only of late years that the beating of vine-borders from beneath by means of hot-water pipes has placed the temperature of the roots as completely under the gardener's control as that of the branches has always been. Where the expense of stone pavement for covering the pipes is an objection to its use, the same end may be arrived at by first laying the pipes on pieces of half-inch round iron, resting on a smooth stone surface, at intervals of nine feet apart. These bits of iron will act as rollers, and enable the pipes to expand and contract without the risk of "drawing" the joints. The pipes should then be covered with a small brick drain full of loopholes on each side, taking care that none of the covering bricks rest on the pipes. From these loopholes hot-air drains should be run right and left with dry bricks, or by using common drain-tiles, on the top of which six inches of brickbats should be laid, and then the turf, as already recommended.

The mere heating of the soil of the border by these appliances is not the only advantage that results. There is the additional and important one of the constant passage of air through the soil, forced up through it when heat expands that in the air-drains and interstices amongst the brickbats, and down through it when the air in the drains cools and contracts.

When the difficulty of getting a boiler fixed at a sufficiently low level to heat the pipes for warming the border cannot be overcome, as must often be the case where the country is level and the drainage bad, the best substitute is to make all the arrangements as to air-drains I have described as necessary when pipes are laid, and to connect these subsoil air-chambers with the atmosphere of the interior of the vinery by a series of drain-pipes along the front of the house near the hot-water pipes. Along the back wall of the vinery construct an underground air-drain, to be connected by a series of pipes, four inches in diameter, with the general underground air-chambers of the border. From this drain another series of pipes should be carried up the back wall some seven or eight feet, where they should have openings into the interior of the vinery; and if the flue from the boiler is made to run along the back wall in such a way as to heat the air in the upright air-drains, it will become lighter, and escape into the general atmosphere of the house; while at the same time a current of air will pass down the front air-pipes, already referred to, at a lower temperature than that escaping from the outlets in the back wall, but sufficiently warm to be of great benefit to the roots of the vines. This arrangement has the additional advantage of keeping the air in the house in constant motion. There is also the possibility of making such arrangements in forming a vine border as to admit of the application of warm dung-linings, which answer the same purpose. It is, however, only necessary to have heat applied to the roots, as here described, in cases where grapes have to be forced early. If the vines are not started till the beginning of March, they will do perfectly well without it, as is evident from every-day experience.—W. THOMSON, *Cultivation of the Grape Vine.*

LISYANTHUS RUSSELLIANUS.

The best time to sow the seed is in March, and as the seed is extremely small, it requires particular care. If deposited in the usual way upon loose soil, the first watering carries the seed along with it, and hence the failure. Prepare the following compost: half loam, the other half leaf, peat, or bog mould, and a little sand; place plenty of drainings in the bottom of a 48 or 32 pot; fill it with the compost very tight, and on the top place half an inch of sand; damp the sand with water to harden the surface; sow the seed, and sprinkle a very little dry sand on the top. Place a propagating glass over the pot, or a piece of flat glass will do; place the pot in a heat of 70° or 80°, with a pan under for future watering; at no time water on the top, but the pan ought never to be allowed to get dry. The seedlings will appear in three weeks or more; when about three weeks up, plant them singly in a 60-pot, in the same compost, with plenty of drainings in the bottom. Place them again in the back of your cucumber-pit or frame; after this you cannot give them too much water over head and in the pans, and by the autumn, if they have been kept in a good growing heat, they will be fine little bushy plants. Top them at every joint; in September shift them into large sixties, merely to keep their roots in a more intermediate state for the winter; after this, all top watering must cease, and a pan placed under each pot to receive the watering. As the winter approaches, not a drop of water must be allowed to fall on the plant. The drier the top mould next the leaves and stem, the more certain of preserving the plant. The best place I have found is a one-light pit heated with a lining of dung from 50° to 60°, air being given front and back, so that no damp can fix on the bars and drop on the plants. The second best place is the coldest part of the stove, very near the glass; I have also kept them well in the warmest part of the greenhouse; in all cases, water just sufficiently to keep the plant from flagging; if the winter is dry, once a fortnight, if damp, once a month or so. Towards the end of February place them in a cucumber-pot or frame, in a heat of from 70° to 76°, and when they begin a fresh growth shift them into as large pots as convenient, remembering the larger the pot the finer the specimen. As the spring advances, it is almost impossible to give too much heat and moisture. They are very fond of liquid manure. It is useless to attempt to grow a fine plant in any place approaching to a dry heat, or in a temperature of less than from 70° to 80°. I have grown them five inches in seven days, and have had six hundred flowers on a plant at one time. In removing them out of the pits, great care must be taken to prevent the sun shining on them for some days, as the change from a damp close heat to a dry house will be too much for them. By the above treatment they will come into flower about the middle of July, and keep blooming from two to three months. It is far better to grow this plant from seeds than from cuttings. JAMES CUTHILL.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun		Moon		WEATHER NEAR LONDON, 1866.					M. temp. avg. of 43 yrs. (Fahrenheit)	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D	
			Rises.	Sets.	Rises.	Sets.	Barometer.	Thermometer.		Rain.					
1867			b. m.	h. m.	b. m.	h. m.	MX.	MIN.	MX.	MIN.	ME.				1867
7	S	3rd Sunday after Trinity	3 51	8 15	10 55	a. m.	29.07	29.91	71	41	56.0	.01	01.7	Aerides quinquevulvum, 1 ...	Manilla 7
8	M	Length of day, 16 h. 19 m.	3 56	8 15		p. m.	30.13	30.08	68	55	61.5	.03	61.7	Acneta Barkeri, 1 ...	Mexico 8
9	T	Hereford Rose Show.	3 56	8 14	1 11	a. m.	30.19	30.08	79	54	66.5	.00	61.7	Dendrochilum filiforme 1 ...	India 9
10	W	Elder Walk Window Flower Show, Islington.	3 57	8 13	2 18	"	30.26	30.25	85	50	67.5	.00	61.7	Mormodes citrinum, 1 ...	Mexico 10
11	Th	Stenford Hort. Exhibition.	3 58	8 13	3 22	"	30.28	30.22	82	48	65.0	.00	61.7	luxatum, 1 ...	" 11
12	F	Rugby Rose Show.	3 59	8 12	4 22	"	30.18	30.07	89	53	71.0	.00	61.0	Augrueum caudatum, 1 ...	Sierra Leone 12
13	S	Richard Cromwell died, 1712.	4 0	8 11	5 18	"	30.01	29.92	84	52	68.0	.00	61.5	Anguloa Clowesii macrantha, 1 ...	Columbia 13

The Gardener's Magazine.

SATURDAY, JULY 6, 1867.

TRIALS OF PEAS HAVE NOW BEEN MADE TO A SUFFICIENT EXTENT to determine the relative values of all the varieties in cultivation; and though we may expect in the future a constant succession of new or professedly new varieties, which it will be necessary to compare with established sorts, there will not henceforth be felt that interest in the subject which has prevailed during the past few years. We reported in our issue of June 15th that all the early sowings of trial crops at Stoke Newington had perished, but that sowings of peas made on the 2nd of May were doing well. The greater part of the collection is now in flower, and many of the earlier kinds are in a fit condition for gathering. We shall in due time report upon the whole, but with less detail than last year, and we shall again have to show that FIRST CROP, alias *Carter's First Crop*, alias *Sutton's Ringleader*, is the earliest variety in cultivation, and distinct in several particulars from all others. Within a week of this date, the distinctive qualities in several of the earlier sorts will, with us, be most prominent, as, although it is in the first gatherings of certain kinds that we detect certain peculiarities and relationships of the highest importance, we cannot determine the position or value of any one kind until we have observed it through all its stages, and have seen not only how it lives, but how it dies. As it has been so frequently stated that First Crop and Dillistone's Early are the same, we would point to two obviously distinctive features. The first named comes into bearing and gives good supplies several days in advance of the second, but has finished its course, and may be cleared off the ground, while the other is still fresh, tolerably well covered with pods, and perhaps still showing a few flowers. The variety which most closely resembles First Crop is Dickson's FIRST AND BEST, which is a few days later in affording a first gathering, but is extremely fruitful, and finishes its course suddenly, like the First Crop.

It is a matter of so much importance to both private growers and those who grow for market to determine which amongst the many is really the earliest pea, that we must not consider time or space misspent if we can promote the clearing up of the questions that have arisen during the long and conflicting discussion of this subject. It will be remembered that in 1865, when First Crop was first distributed, the Fruit and Vegetable Committee of the Royal Horticultural Society reported that it was identical in every respect with Dillistone's Early. In 1866 we pointed out the differences between them, but in that same year the Fruit and Vegetable Committee made no report, for the Chiswick peas were destroyed by mildew. This year the Fruit and Vegetable Committee have the start of us, for their early sowings were not destroyed by frost. They now report, as in 1865, that Dillistone's Early, First Crop, and Veitch's Early are perfectly identical. But they have made a discovery of quite a startling nature, namely, that Dillistone's Early is not Dillistone's Early, but something else. They say that the confusion that has arisen is the result of Mr. Dillistone having sent out a spurious stock of his Early pea, and they call upon him for an explanation. They do not openly acknowledge having made a blunder, but they indirectly confess there is something wrong somewhere, and throw the burden of proof of what is the actual truth on a person who has nothing at all to do with the trials or the discussions. Men who love the truth, without regard to persons, parties, and interests, will scarcely be satisfied with this mode of dealing with so important a matter. In the first instance, the Committee hinted that Messrs. Sutton and Carter were parties to a dishonourable proceeding, namely, the sending out of an established variety of pea under a new name, with a new character, and at an advance upon the market price. They make the same report in 1867 as in 1865; but they select another victim, for now they say Mr. Dillistone is the offender, for Dillistone's Early of Dillistone is not Dillistone's Early of Chiswick, but a badly mixed stock of Sangster's No. 1. Now we know something of Dillistone's pea. It has been grown at Stoke Newington every year since 1862, has been obtained every year from two or three different houses, and has always been the same. The samples supplied by Mr. Clark, of 42, Bishopgate Street, in 1865, were the same in growth and every character as we had from Mr. B. S. Williams and Mr. Dillistone in 1866, and agreed precisely with the description of the variety in the Chiswick report of 1861. The Fruit and

Vegetable Committee do not inform us how they have become possessed at last of the true variety; they leave the whole affair in a fog, with a vague reference to "a London house," and call upon Mr. Dillistone to clear up that which they profess to settle themselves by the aid of almost superhuman knowledge, yet with the vagueness and incertitude that belong to supernatural things. We cannot help thinking of the cuttle-fish, which, when assailed by an enemy, discharges an inky fluid which confounds its pursuers, and affords it a chance of escape from a difficulty under cover of an extemporized darkness; or of that particular species of beetle which naturalists tell us emits an abominable odour when involved in a perplexity, and which keeps its enemies at bay by its own repulsiveness. The position of the First Crop pea is, at all events, established, and two out of three respectable trading houses that have been vituperated are vindicated by the facts, though the intentions and feelings of the Committee are as dishonourable as heretofore. In respect of the attack on Mr. Dillistone, we are willing to wait to learn the truth, and have no doubt at all that gentleman will be found well able to take care of himself.

THE JUDGING OF PLANTS AND FLOWERS CANNOT BE GOVERNED BY THE SAME RULES. A plant may be well grown, but the variety selected may not be the best in cultivation; a plant may be badly grown, but may be the best variety known in its class; and if the two are placed side by side as plants, we ask which is to be placed first and which second? The question is one of some importance, and amongst judges there appears to be considerable difference of opinion on this point. Some will vote for the best plant as a plant—that is to say, in regard to contour, training, freshness, abundance of flowers, and effective colouring; and some will favour the best flowers, making light of defective training and that peculiar freshness and finish which are by others regarded as essential in a specimen. At the first great show at the Crystal Palace, Mr. Turner's great azaleas were placed second to Messrs. Glendinning's—justly, as we thought, because one of Mr. Turner's plants had been half blown away or frozen on the road, and was in an unrepresentable condition; whereas Messrs. Glendinning's were all fresh and covered with large flowers, with bits of bright green foliage peeping out all over them; though, as to size, Mr. Turner's were gigantic, and Messrs. Glendinning's were of useful dimensions for embellishing any good conservatory. But, at the second great show at Regent's Park, Mr. Turner put up a group of gigantic specimens, which were equally finished and fresh throughout; and Messrs. Glendinning presented just such plants (the same, perhaps) as were so successful at the Crystal Palace, and again obtained the first position. In our reports of these exhibitions we gave free expression to our opinion on the awards, but of course did not stop to argue the question. We now ask if the judgment was as good in the second instance as in the first? Let it be understood that we are cognizant of the facts of the case in each particular instance: in both cases Mr. Turner's flowers were inferior to Messrs. Glendinning's; but at Regent's Park Mr. Turner's were well matched in size, any one of them was equal to the whole group (or nearly so) put up by the Chiswick firm, and they were literally sheeted with colour, were without blemish, were abundantly various in character, and as specimens had no equals in the entire exhibition. We repeat, after some deliberation, the opinion expressed in our report, that they were properly first, and those placed first were properly second. A similar case occurred at the last Cambridge show. Messrs. Wood and Ingram put up a group of pelargoniums superbly modelled to convex outlines, dense, leafy, flowery, and fresh. Mr. Heady put up a group very finely turned out, but wanting the finish, the brightness, the denseness of the Huntingdon collection. But there was this great difference between them—Messrs. Wood and Ingram's were not first-rate sorts; they were highly effective as to colours, but some of them were sorts that give rough long-petalled flowers; whereas Mr. Heady's were in every case the best varieties in their several shades of colour, and the flowers were finely produced, with broad petals, and every other peculiarity that a florist would rejoice in and understand by the collective term "quality." We cannot expect all our readers, however experienced in the judging of productions submitted to competition, to agree with us when we say that in the case of the azalea competition at Regent's Park the judges were wrong, and in the case of the particular competition referred to at Cambridge they were right. We repudiate all personal feeling in the matter;

we are anxious only about the establishment of principles. It appears to us that when *plants* are to be judged, we must not follow the rules that guide us in the judgment of *flowers*. A man may select the very worst varieties, and yet turn them out so well as to surpass by many degrees the plants from another cultivator who has made a better selection, yet has failed in many respects to do them justice. Are we, then, to place selection before cultivation? We think not. Take an extreme case, for that is always a proper mode of determining a nice matter. Suppose a man brings a group of pelargoniums finished in the style of a Turner or Fraser, say five feet across, measured by a tape laid across from the extreme outer points, and in this group are varieties not quite so good as John Hoyle or Fair Rosamond. Another brings a group in 48-sized pots, just purchased but comprising the very best that can be had, with one or two flowers each, superb in outline, and just such models as Mr. Andrews would delight to make drawings of. This is an extreme, an impossible case as schedules are framed; but suppose it, and to whom would you award the first prize? To the specimens undoubtedly. And why? *Because as plants they are the best!* A principle is a principle; and if it applies to an extreme case, it applies to all. That many points should be considered in judging we readily admit; a man of one idea is quite unfit to act as a judge. If two groups of plants are equally balanced as to merit of cultivation, and we cannot make a distinction between them on that ground, the next thing to be done is to see who has the best flowers. If in one group there is a preponderance of ill-formed rough flowers, and in the other a preponderance of round, broad-petalled, smooth flowers, then we say without hesitation the best flowers must have the first place; but we must consider cultivation first, and quality of flowers afterwards.

It may be said in defence of the judgment of the azaleas at Regent's Park, that the judges were anxious to discourage the production of gigantic plants that are useful only on such occasions, and that cannot possibly be turned to good account in any ordinary private establishment. Mr. Turner's gigantic azaleas are confessedly show subjects, and Messrs. Glendinning's pretty little plants are of a size and shape that fit them for many uses to which the others are not applicable. But if we have great exhibitions we must expect exhibition plants, and it is an open question whether judges are to determine, not what is most meritorious amongst things submitted to them there and then, or what is best adapted for this or that particular purpose other than the occasion which has called them together. Are judges to be arbiters of fashion, or of the respective merits of the things they see? Of the things they see, we say, for fashion has a law of its own, and if you discourage great specimens for a few seasons, they will reappear, and again be in favour; and as the fashions change in the world at large, so will the opinions of judges vary as to what is and what is not desirable, and they had best have nothing to do with fashion at all, but judge plants as plants, and leave all other matters to settle themselves. We offer these remarks in the most friendly spirit possible, and in the interests of horticulture solely. If we are wrong, we are willing to be corrected. Generally speaking, the judging at exhibitions affords small grounds for complaint, but much for satisfaction; yet the smallest error is worth consideration, and we can only do justice to all the interests concerned by discussing these questions on the broad ground of principle, leaving interests and personalities out of the case altogether.

CALCEOLARIA DISEASE has broken out in several of the great gardens in the southern counties during the past week, and where there was a brilliant display of golden flowers there are now shrivelled bits of brown leaves or blanks so numerous that the beauty of the beds is past for the season, unless they are at once replanted with some other subjects better suited to endure hot sun and drying winds. We saw in a contemporary a few weeks since an elaborate inquiry into the causes and nature of the disease, from the pen of a writer signing "M."; but not a word was said as to prevention or cure. Let it be fungoid, what then? No doubt Mr. Berkeley is right, though it is his peculiar gift to find fungi anywhere and everywhere, and probably he could trace mycelium in the Reform Bill. As our contemporaries occasionally appropriate our ideas and suggestions without acknowledgment—an ancient vice of high-priced papers—we think it proper just now to remind our readers that we have several times pointed out a certain method of preventing calceolaria disease. In beds formed almost wholly of thoroughly decayed and pulverised manure the disease never appears. At all events, during the past seven years we have treated calceolarias in this way, and they have been robust in health and brilliant in appearance whilst others planted in ordinary beds were perishing. There should be at least nine inches depth of soil, consisting of at least three or four parts of manure rotted to powder to one of mellow loam, and in such a compost calceolarias will make a vigorous growth and flower profusely till quite the end of the season. Of course, many will say they cannot command manure

in sufficient quantity, but our business is to state what we know, and if the only soil fit for the purpose was one consisting of gold-dust we should be bound to chronicle the fact.

THE ROYAL BOTANIC SOCIETY'S THIRD SHOW took place on Wednesday last. It was an interesting and brilliant affair, particularly rich in fine-foliage plants, large-flowering and zonal pelargoniums, and new plants. Owing to the multiplicity of our engagements, we are compelled to defer the publication of our report till next week. The attendance was not large, and unfortunately there was so dense a fog throughout the afternoon that it was scarcely possible to see any of the plants or flowers enjoyably.

THE BIRMINGHAM ROSE SHOW proves to be the best rose show of the season, whether because of its later date or because of a more enthusiastic devotion to the rose in the midland counties than elsewhere, we do not pretend to say; but we think the date must have much to do with it. Certainly, for number and quality of roses, the Birmingham Exhibition is the great event of the season.

THE HARVEST IN FRANCE has already commenced, and in a few days the Emperor will be presented with a loaf made from this season's wheat.

FARMING THE PRAIRIES.—A correspondent of the *St. Louis Democrat* says: "The productive prairies of the Mississippi and Alabama are all under cultivation—one half in corn and one half in cotton; and what is still more gratifying, the freedmen are, as a general thing, working remarkably well."

THE CROPS IN ALL PARTS OF THE UNITED STATES are reported to be in excellent condition, and promising an abundant yield. For instance, the Indian corn crop this year is estimated at 1,200,000,000 bushels as compared with 868,000,000 bushels last year.

THE INTRODUCER OF THE POTATO.—A wealthy citizen of Berlin has applied to the municipality of that town for a site on which to erect a statue to Francis Drake, as the introducer of the potato into Europe, and offers to subscribe 15,000 thalers (£2,250) towards the statue.

SOMETHING NEW IN THE FLORAL DECORATION WAY.—A Nashville paper says, that at a recent wedding in that city "the bride and bridegroom knelt and joined hands from opposite sides of a table, in the middle of the altar, on which was an open Bible covered with a wreath of flowers. A beautiful pyramid of flowers was suspended over their heads from the ceiling."

WATERPROOF PACKING PAPER.—The following is a German recipe:—Dissolve 680.4 grammes (about 1.82 lb.) of white soap in a quart of water. In another quart of water dissolve 1.82 oz. of gum-arabic and 5.5 oz. glue. Mix the two solutions, warm them, and soak the paper in the liquid. Pass it between rollers, or simply hang it up to drip, and then only at a gentle temperature.

THE FROST OF MAY 23, 24, AND 25 LAST.—The full extent of the mischief done to vegetation by the severe frost which occurred in the end of May (says the *Edinburgh Courier*) is only now beginning to be fully comprehended. In the gardens, potatoes, strawberries, blackberries, gooseberries, and red and white currants have suffered severely, and will in most cases prove a very light crop. In the orchards, apple, pear, and plum trees have also been much injured. But the ravages of Jack Frost's farewell bite have not been confined to gardens and orchards alone. The woods and hedgerows have also been subjected to the blasting influence. Ash, beech, larch, spruce, and Scotch fir trees are all more or less brown and withered in their foliage. The vales of the Borthwick and Teviot seem to have suffered the most of any part in this locality. The whins in all the fox covers around here are quite brown, with hardly a spot of bloom. The generally beautiful Galalaw cover, which at this season of the year used to delight the eyes of all by the blaze of yellow bloom which arose from its sides, is this year as brown as the winter heath. Borthaugh, Chapehill, and Drinkstone covers have all, to a greater or less extent, shared the same fate, and will require two or three seasons at least to restore them.

A SHOWER OF HAZEL NUTS!—The following correspondence may interest the lovers of the marvellous:—

To the Editor of the *Meteorological Magazine*.

SIR,—I enclose you two extracts from one of our Dublin papers relative to some berries, which are reported to have fallen in large quantities in some parts of Dublin on the night of Thursday, 9th May. I have been given two of these berries; they are in the form of a very small orange, about half an inch in diameter, black in colour, and, when cut across, seem as if made of some hard dark brown wood. They also possess a slight aromatic odour. Various speculations have been given forth as to their origin, but none of them seem to be worth much. If you think the extracts herein worthy of a place in your Magazine, you can insert them. Yours very truly,

ARTHUR PIM.

Monkstown, Dublin, June 1st, 1867.

THE SHOWER OF BERRIES.

To the Editor of the *Daily Express*.

SIR,—I have been daily expecting to see some notice of the strange phenomenon which took place during the tremendous rain-fall of Thursday night. None have appeared in any of the journals. I hope, through your columns, the public may learn to what cause we are to attribute the shower of aromatic smelling berries which fell over Dublin (and, possibly, other parts) on Thursday night.

Both on the north and south sides of the river these berries fell in great quantities and with great force, some being larger than the ordinary Spanish nut. Numbers of these strange visitors were picked up in Capel Street, in Dame Street, and Bishop Street, and I am informed that so violent was the force with which they descended, that even the police, protected by unusually strong head covering, were obliged to seek shelter from the aerial fusillade!

Yours truly,

T.C.D., May 13th, 1867.

RUSTICUS EXPECTANS.

INQUIRER, who has sent us some "small balls," which he says "fell in large quantities on Thursday night," locality not specified, is informed that they are simply hazel nuts preserved in a bog for centuries. How they came to descend on him we cannot say.

IMPORTATION OF PROVISIONS.—The grain and provision merchants of Paisley have recently been agitating in favour of the abolition of the Customs dues. An association has been formed for the purpose.

WORKING MEN'S FLOWER SHOWS continue to prosper and increase. There was a very interesting exhibition of this class in Great Dean's Yard, Westminster, on the 28th of June, when the Earl of Shaftesbury gave away the prizes. On Wednesday next a similar exhibition will be held in Elder Walk, Islington, when the Rev. Dr. Raleigh will give an address. Messrs. Duncan and Drummmond are labouring hard to promote an exhibition of plants belonging to the working classes of Edinburgh on the 3rd of August, when about three hundred prizes will be offered. This exhibition will take place in the Corn Exchange, Grass Market, Edinburgh.

DESTRUCTION OF SMALL BIRDS.—Every year at this season the papers teem with remonstrances against the wholesale destruction of little birds, which causes so much injury to the crops. The Minister of Agriculture has addressed a very clever circular to the mayors of France, enjoining them to punish severely all persons caught in the act of netting, trapping, &c., small birds, whose valuable services as destroyers of insects he sets forth, demonstrating by statistics the utility of these humble members of the feathered tribes.

A RACE FOR CUTTING DOWN TREES.—Our contemporary, the *Athenaeum*, directs attention to the mischievous effects of the reckless cutting down of trees in France and southern Europe, where the climate becomes every year drier, and the soil is washed away by destructive floods, to the impoverishment of the whole provinces. Warnings have long been uttered by competent overseers, but in vain; a sort of race for cutting down woods has prevailed for the last two centuries. But at length the people most interested—the inhabitants of the countries involved—have begun to open their eyes to the question, and a petition has been laid before the French Senate, which points out that the army might be employed in planting trees on the now barren hill slopes and plains. It would be something now to exercise soldiers in so peaceful and beneficial an undertaking, and we should be glad to see the experiment tried. Planting might prove more profitable than fighting; plenty would replace penury, and the meteorologists would have the opportunity of witnessing a singularly interesting experiment.

HORTICULTURE AMONGST THE FREED NEGROES.—In the report of the Friends' Association of Philadelphia, it is stated that the distribution of garden seeds among the freedmen, as extensively as our acquaintance reaches, has been of peculiar advantage. The evidences of last season's culture prove the effect of this kind of charity in promoting industry and forecast. Testimony was given us showing that the distribution of seeds last year resulted in actually saving human life. The donation of garden and other seeds may seem a small matter, but when in addition to the healthful supplies derived from this source, we take into account the discipline of fencing, planting, tilling, and the patient waiting for the "early and the latter rain" which it involves, the influence must be great upon a people by nature and education remarkably improvident.

CULTIVATION OF BEET.—The cultivation of the beet-root, for the sake of the spirit and sugar it contains, is attracting attention in Australia. The patent for the manufacture of spirits from beet-root by steam has been secured for Messrs. John Levy and Sons, and we learn from the *Melbourne Argus* that the firm received from France a package of 200 lbs. of beet-seed. As illustrating how disadvantageously Australia is situated in these matters, we may mention that the original cost of the seed was but £10 10s., and yet the freight from France to Melbourne amounted to £17 10s. 7d.; the Customs duties and charges connected with the entries necessary to pass the goods amounted to 18s. 3d. While on this subject, we may remark, in connexion with the valuable prize cup offered by Messrs. John Levy and Sons, through the Board of Agriculture, for the best crop of beet root, that the Board has not given attention to the reasonable suggestion that the adjudication should be postponed for another year, as only four competitors entered their names, and the extent of land under beet-root represented by those entries did not exceed sixteen acres. Such a competition as this, it was obvious, would serve but little the purpose for which the prize was offered. The board, however, had the cool assurance to intimate that they had appointed four gentlemen to examine the four crops entered for competition, and to ask Messrs. Levy and Sons for a cheque to meet the expenses of those judges, as the board "had no funds at its disposal (the large annual Government grant notwithstanding) to apply to such purposes"!

CRYSTAL PALACE ROSE SHOW.

SATURDAY, JUNE 29TH.

The opinion held by rosarians who were present at last Saturday's exhibition was that the show was highly creditable alike to the place and the competitors. It has been so bad a season that we might not have been rash had we predicted there would be no show at all; yet despite a thousand adverse influences, a dreadful winter, a wintry spring, and, not the least important of all, intense sunshine and a cold parching east wind three weeks previously, the exhibition of Saturday last was scarcely inferior to some of the best rose shows held there, and in many instances the flowers shown were truly magnificent. There were certainly many visible indications of the unsuitableness of the season for a good bloom of roses. In the first place, there was not a perfect group in any of the large classes, not even in the 48's. The finest collections contained faulty flowers, and in some instances the faulty ones were so bad, as compared with the splendid examples with which they were associated, as to prove that in cutting and preparing for the show the cultivators were severely tried to find flowers enough for their boxes. A very interesting feature of this show was the general excellence of the collections from amateurs. We may be honnd to take especial note of trade contributions, for the simple reason that the trade can show new varieties best, because they obtain them first, and also because of the generally large extent of their plantations. They are as it were bound to lead the way and show the largest collections. But the estimation in which the rose is held can be judged only by a review of the contributions from amateurs. If private growers do not take some pride and bestow some care in the cultivation of the flowers, nursery manipulations and enterprises are all in vain. It was therefore with exceeding satisfaction that the rosarians who met at Sydenham on Saturday last found the amateur collections in advance of the average of former years, and in many instances the flowers were equal to any that have been seen at rose shows during the whole time that such meetings have been instituted. There were some

novel features too to give interest to this meeting. There were prizes offered for collections of yellow roses, and for collections of tea and noisette roses, and our frequent suggestions in behalf of encouraging pot roses were carried out, and the result was some good groups of plants. Interesting as were the collections of yellow roses, and tea and noisette roses, they were scarcely effective, and we cannot afford to tolerate a single ineffective feature in a rose show. To be sure, the lack of effect was due in great part to the lack of good flowers in these classes; nevertheless there is weakness and indecision in groups of yellow and tea roses; they really want strong colours to bring them out. Let any of our friends who saw all the flowers call to mind how gloriously shone a single *Maréchal Niel* in Mr. Hedgo's 48, where it was associated with high-coloured flowers, and how comparatively weak in appearance was the same rose, though well done, in several other instances, where it was grouped with roses of its own class. Probably the ends sought to be accomplished by these now classes, might be attained by instituting classes for 24, 18, and 12 roses, to comprise 8, 6, and 4 yellow flowers respectively. Such a mode of displaying yellow roses would enable the exhibitor to associate them with high-coloured flowers, to afford suitable contrast, and the stands so filled would have a charming appearance. We may be able to return to this subject, and perhaps amplify the suggestion; but for the present we commend it to the consideration of our friends of the rose world, while its value can be tested by exhibition facts.

Those of our readers who are familiar with past reports of Crystal Palace rose shows will remember that this is not the first time we have had to record that the affair was saved by the skin of its teeth. We have become quite familiar with had seasons and with an unsatisfactory first bloom. Yet it is desirable to hold such an exhibition as that of the Crystal Palace as early as possible, and we cannot fairly say that the directors are in too great haste in fixing the date of the show. Delay would cause it to clash with others, and the commercial considerations necessarily compel the promoters to the course they follow, or at least very nearly so. But there is yet a possibility of fully gratifying the lovers of roses and of doing full justice to the flower, and that is to hold another show this year, say about the 3rd of August, or at whatever date may be best for securing the best of the second bloom. Let us now proceed to the classes. The greatest class was that for 72 varieties, one flower of each, and in this there was a spirited competition. The first place was taken by Mr. J. Cranston, of King's Acre, Hereford. Messrs. Paul and Son and Mr. Mitchell, of Piltown, also exhibited.

MR. CRANSTON'S FIRST PRIZE, SEVENTY-TWO.—Madame Brianson, a splendid large flower, rather flat; Madame Moreau, Paul Ricaut, William Jesse, *Maréchal Souchet*, Margaret St. Amand, Madame Victor Verdier, Souvenir d'Elise, Maurice Bernardin, Jean Goujon, François Lacharme, Madame Boll, showing a big eye; Horace Vernet, fine; Comte de Nanteuil, Christian Puttner, beautifully folded, crimson purple, a charming flower; Thorin, a fine rose; Louis Van Houtte, Madame Eugène Verdier, Madame Pauline Villot, Alpaide de Rotalier, Duke of Wellington (to call this a "Duc" is simply to insult the memory of one of our own heroes), La Esmeralda, Napoleon III., Souvenir de la Malmaison, Beauty of Westerham, Centifolia Rosea, Dr. Andry, Duchess of Orleans, Gloire de Montplaisir, Madame Clémence Joigneaux, Lord Clyde, Gloire de Dijon, Claude Million, Madame Vidot, Charles Verdier, Duchesse de Caylus, Pauline Lansezur, Madame Domage, Madame Crapelet, Madame Bravy, Prince Camille de Rohan, Caroline de Sansal, Jules Margottin, Baron Gonella, King's Acre, Sénateur Vaisse, Céline Forestier, Madame Charles Wood, an enormous flower without a shadow of coarseness; Joseph Fiala, Madame Knorr, Baron de Noirmont, Anna de Diesbach, Le Rhône, Louise de Savoie, General Jacqueminot, Mrs. Rivers, Pierre Notting, Madame William, Prince Henri de Pays Bas, Charles Lawson, Charles Lefebvre, Niphetos, Lord Macaulay, Charles Margottin, Admiral la Peyrouse, Comtesse Cécile Chahillant, Devoniensis, Madame Hector Jacquin, Souvenir d'un Ami, John Hopper, fine; President, Souvenir de Charles Montault.

MESSRS. PAUL AND SON'S SEVENTY-TWO.—Xavier Olibo, Alpaide de Rotalier, Alfred Colomb, Sophie Coquerel, a saucer; *Maréchal Vaillant*, Madame Clémence Joigneaux, Claude Million, Joseph Fiala, Triomphe de Rennes, Madame Boll, Sénateur Favre, Madame Caillat, Maurice Bernardin, Madame Rivers, Prince Camille de Rohan, William Griffiths, Rushton Radcliffe, Impératrice Eugénie, Madame Boutin, Duchess of Orleans, Duc de Rohan, General Jacqueminot, Antoinette Ducher, a beautiful closely-built globular rose; Alba Roses, La Fontaine, Madame Furtado, Prince de Porcia, Abel Grand, Sénateur Vaisse, Madame Villermoz, John Hopper, Lord Canning, Beauty of Waltham, Margaret St. Amand, Gloire de Vitry, Leopold I., Victor Verdier, Madame C. Wood, Queen Victoria, Exposition de Brie, Madame Thérèse Levat, small hut neat; Leopold Hausberg, President, Charles Lefebvre, Monsieur Woolfield, very large, globular; Triomphe de Caen, Dr. Andry, Madame Victor Verdier, Comte de Nanteuil, Mlle. Gabriel Peyronny, Mlle. Margaret Dombain, Le Rhône, La Reine, Marie Baumann, fine; Souvenir d'un Ami, Baronne A. de Rothschild, Gloire de Dijon, Lord Clyde, Madame Derreux Douville, Olivier Delhomme, Charles Verdier, Vicomte Vigier, Lelia, Madame Crapelet, remarkably fine; Madame Margottin, Pierre Notting, Josephine Beauharnais, François Treyve, La Ville de St. Denis, Duke of Edinburgh, Madame Vidot.

MR. MITCHELL'S SEVENTY TWO.—Madame Furtado, Souvenir d'un Ami, Pierre Notting, Gloire de Ducher, La Ville de St. Denis, Anguste Riviere, Madame Hector Jacquin, Duke of Wellington, Duchess of Orleans, Mlle. Gabriel Peyronny, Eliza Sauvage, Olivier Delhomme, Centifolia Rosea, John Grier, Baron Gonella, Louise de Savoie, Queen Victoria, François Louvat, Madame Vigneron, Leopold I., Madame Eugène Verdier, Bernard Palissy, Mlle. Margaret Dombain, Madame Caillat, Vicomtesse de Cazès, Charles Lefebvre, Madame Charles Verdier, a had rose; Josephine Guyot, La Reine, Dr. Andry, Colonel de Rougemont, one of the most horrid of the pancake class; H. Laurentius, Louis Peyronny, Duc de Rohan, Josephine Malton, Madame Victor Verdier, Vicomte Vigier, *Maréchal Niel*, La Tour de Crouy, Gloire de Santhenay, La Globuleuse, a beautiful globular shaded rose, distinct, delicate, and refined; Baronne A. de Rothschild, Souvenir d'Elise, Comte de Paris, Lamarque, John Hopper, Céline Gonod, Margaret St. Amand, Jean Lambert, Souvenir de la Malmaison, Madame Boutin, Madame Filion, Leopold Hausberg, Anna de Diesbach, General Washington, Madame Boll, Madame Charles Wood, Madame Clémence Joigneaux, Madame Charles Crapelet, Xavier Olibo, *Maréchal Souchet* (Damaizin), Caroline de Sansal, Gloire de Dijon, Le Rhône, Sénateur Vaisse, Triomphe de Rennes, Victor Verdier, Sénateur Favre, General Jacqueminot, President

Mas, Maurice Bernardin. It appears from my note-book that in this lot there were duplicates of at least three varieties.

The most effective groups in the whole of the exhibition were those in the class for forty-eight, three trusses of each. The number suffices for a fine display, and there is more scope for tasty setting up when three trusses are allowed. The first prize for forty-eight, from Messrs. Paul and Son, were doubtless the finest lot of roses in the show, various in colours and styles, most tastefully disposed in respect of buds and leaves, and, generally speaking, the flowers were grand in character and marvellously fresh. Mr. Mitchell, of Piltown, presented a very fine collection in this class, the arrangement of which was admirable.

MESSRS. PAUL AND SON'S FIRST PRIZE, FORTY-EIGHT.—Madame Crapelet, Souvenir d'un Ami, Mlle. Margaret Dombrain, Vicomte Vigier, Caroline de Sansal, Joseph Fiala, Comte de Nanteuil, Baronne A. de Rothschild, Madame Boll, Sénateur Vaisse, Madame Charles Wood, Gloire de Dijon, Amabilis, Maria Baumann, Alpaïdo de Rotalier, Lord Macaulay, Manrice Bernardin, Michel Bonnet, Madame Victor Verdier, Margaret St. Amand, Madame Bravy, Olivier Delhomme, Madame Rivers, Sénateur Favre, Triomphe de Rennes, Charles Lefebvre, John Hopper, Xavier Oliho, Beauty of Waltham, Souvenir de la Malmaison, Prince Camille de Rohan, Madame Caillat, Leopold Hausberg, Comtesse Cécile Chabillant, Lord Clyde, Victor Verdier, La Brillante, Claude Million, General Jacqueminot, Jules Margottin, Madame Boutin, fine; Louise Margottin, Le Rhône, fine; Madame Vigneron, Gloire de Santhenay, William Griffiths, Maréchal Vaillant.

MR. MITCHELL'S FORTY-EIGHT.—Madame Crapelet, Duchess of Orleans, La Tour de Crouy, Sénateur Vaisse, Souvenir de la Malmaison, Francis Louvat, La Ville de St. Denis, Victor Verdier, fine; John Hopper, fine; Olivier Delhomme, Maurice Bernardin, Semiramis, Baronne Prevost, Souvenir d'Elise, Triomphe de Rennes, General Jacqueminot, Madame Hector Jacquin, Jules Margottin, Louis Van Houtte, Dr. Andry, Comtesse Cécile Chabillant, Auguste Mie; Maréchal Souchet, Baronne A. de Rothschild, Josephine Malton, a beautiful creamy rose; Queen Victoria, very fine indeed; Leopold Hausberg, fine; Maréchal Vaillant, Gloire de Dijon, Margaret St. Amand, General Washington, rough; Vicomte Vigier, La Reine, Madame Clémence Joigneaux, H. Laurentius, Anna de Diesbach, Madame Victor Verdier, Madame Fillion, Bernard Palissy, Madame Furtado, Le Rhône, Eliza Sauvage, fine; Xavier Oliho, Alfred Colomb, Caroline de Sansal, Pierre Notting, Céline Gonod, rough and almost coarse.

MR. CANT'S FIRST PRIZE, TWENTY-FOUR.—Charles Lefebvre, Madame Crapelet, Madlle. Margaret Dombrain, Xavier Oliho, Marie Baumann, the finest flower of this fine variety in the exhibition; Madame Bravy, Margaret St. Amand, President Mas, Madame Victor Verdier, Ruhens, Madame Fillion, Maurice Bernardin, John Hopper, Comtesse Chabillant, Triomphe de Rennes, William Griffiths, there was not one good example of this in the whole exhibition, though it was shown in very many stands; Le Rhône, Victor Verdier, Exposition de Brie, very fine; Madame Charles Wood, Madame Rivers, Duchesse de Morny, La Brillante.

In the amateur's sections Mr. Hedge, of Reed Hall, Colchester, took his old and well-kept place, and carried away the first prizes in the classes for 48, 36, and 24. The barriers were removed and the public rushed in just as we were making notes of the amateur collections, and we were compelled to quit without obtaining particulars of the awards throughout. As the Crystal Palace Company do not advertise their prize lists, we shall have to pass over the names of the winners of second and third positions, which we regret, because the amateurs are the life of rose shows, as they are the source of all power and improvement in the cultivation of the rose. Our occasional and much-valued correspondent, the Rev. E. N. Pochin, of Sibley Vicarage, Loughborough, took the first place in the class for 12 with as charming a dozen as was ever seen on an exhibition table. I saw one collection from an amateur who employed stonecrop for a surfacing to the boards with singular infelicity. I was about to turn up the card to see who was the innovator, but the old saw suddenly occurred to me, "if ignorance is bliss," &c. &c., and I passed on, and just had time to take the names of the following:—

MR. HEDGE'S FIRST PRIZE, FORTY-EIGHT.—Coupe d'Hébé, Sénateur Vaisse, Triomphe de Rennes, Madame Crapelet, Queen Victoria, Lord Clyde, L'Enfant Trouvé, Olivier Delhomme, Comtesse Chabillant, Madame Victor Verdier, Charles Rouillard, Marie Baumann, Louise Margottin, Charles Lefebvre, Ruhens, George Prince, Maréchal Niel, the best example of this rose in the show, colour clear, rich, and rather deep yellow; La Ville de St. Denis, Mrs. Rivers, Pierre Notting, Souvenir d'un Ami, Madame Charles Wood, Armida, Prince Léon, Devoniensis, Madame Boll, Caroline de Sansal, Alphonse Damaizin, Moiret, Souvenir de Count Cavour, Gloire de Dijon, Alfred Colomb, Souvenir d'Elize Varden, La Fontaine, Cloth-of-Gold, John Hopper, Madame Knorr, Charles Margottin, had; Auguste Mie; Madame de Camhacérés, Louise Darzens, Baron Gonella, Joan of Arc, Charles Lawson, Enfant de Lyon, Gloire de Santenay, Adam, Lord Macaulay.

MR. POCHIN'S FIRST PRIZE TWELVE.—Charles Lefebvre, Anna de Diesbach, Fisher Holmes, John Hopper, Madame Boll, Maréchal Niel, Xavier Oliho, Margaret St. Amand, Madame Victor Verdier, Prince Camille de Rohan, Souvenir d'un Ami, Madame Crapelet.

The collections of yellow roses and teas have been already remarked upon, and there is little more here to be said. The teas were so far unattractive that I made no note on them at all, though I should have done so if time had allowed; but from the stroke of twelve by the clock there is an end of reporting, the crush is too great, and possibly the reporters are by that time tired of their work, and desirous of change of occupation. There could be no question about the superiority of the yellow roses from Mr. Hedge; like all his flowers, they were in charming condition. To wait for the awards of the jurors in this case was needless; he was inevitably first. Mr. Bristowe, gardener to G. Orme, Esq., of Worthing, put up a boxful of yellow roses which were far from good, though it was not difficult to believe that the trees they were cut from are admirably grown; the flowers were rather spoiled by carriage than poor in the first instance, though had they been fresh Mr. Hedge's would have beaten them by a long stride. Mr. Hedge's varieties were Maréchal Niel, Janno of Smith, most beautiful; Triomphe de Rennes, L'Enfant Trouvé, Enfant de Lyon. Mr. Bristowe's were L'Enfant Trouvé, Eliza Sauvage, Gloire de Dijon, Solfaterre, Céline Forestier, Isabella Gray, Triomphe de Rennes, Cloth-of-Gold.

NEW ROSES.—In the first place in this section must be placed *Miss Ingram*, shown by Mr. C. Turner, of Slough, who has purchased the stock, and will be its distributor. This is globular, compact, thoroughly double, with a good centre, and stout petals, the colour pink and bluish in the

centre, shading to soft white outside; a counterpart of Mrs. Rivers, but a larger flower, and the plant, Mr. Ingram says, considerably harder in constitution. We are not rich in light roses; let us, therefore, give a hearty welcome to *Miss Ingram*. The following varieties were shown by Messrs. Paul and Son, *Princess Mary of Cambridge*, now well known as a charming rose of a class not much enriched by the importations of the past few years, for a majority of the new roses are crimson and carmine, and this is a fresh, clear, rosy pink, with shades of true rose colour. It has abundance of petals, is globular, and delicately finished, indispensable in every good collection. *Madame Moreau* is a fine crimson rose, substantial in build, and inclining always to be massive, a fine depth of colour, and in every respect first-rate. *Exposition de Brie*, a fine high-coloured rose. *King's Acre* has been fine in every instance in which it has been shown this year, illustrating a remark Mr. Pochin made to me, that "every rose has its season." Since it was first shown by Mr. Cranston, and made a sensation by its splendour, it has not looked so well till now; indeed, we began to question the character given to it. When good, as it is this season, it is a first-class rose. *Ville de Lyon*, apparently a fine showy rose, but in this case rather bleached and showing a bright yellow eye. *Monsieur Boncerne*, large imbricated, deep velvety purple, fine but flat, and showing an eye. *Elizabeth Vigneron*, large, rosy pink, good, if not coarse. *Charles Margottin*, bright carmine, large and showy, but thin. *John Grier*, *Achille Gonod*, thin; *Charles Rouillard*, Duke of Wellington, thin; *Madame Fillion*, Fisher Holmes, imbricated and camellia like, brilliant red, first-rate; *Madame Gustave Bonnet*, not well shown, but possibly a good rose; *Josephine Beauharnais*, delicate rose with silvery edges, the form good, a beautiful flower; *Madlle. Marie Rady*, red with whitish edges, doubtful; *Felix Genero*, fine; *Prince de Porcia*: this is described as carmine, but it probably approaches nearest to scarlet of any rose in cultivation, it is moreover good in character, though apparently thin. *Michel Bonnet*, a good model for a pancake, or for a mask for Polyphemus, the eye being very distinct. *Sœur Thecla*, thin; *Charles Verdier*, poor; *Alfred Colomb*, a fine rose, the form superb, and the petals thick and well packed, colour fiery red; likely to be a famous show rose for at least ten years to come. *Abel Grand*, not at all grand, the colour is a nice shade of silvery rose, and that is its only good quality; *Camille Bernardin*, fine in form and substance, colour bright red edged with white, first-rate. *La Tendresse*, beautiful. *Carl Coers*, a very had purple. *Antoine Ducher*, good; *Thorin*, fine; *Margaret Anaud*, first rate; *Madame Thérèse Levet*, *Xavier Oliho*, a most distinct, brilliant, and beautiful flower. *Madame Margottin*, Comte Litta, had; *Madlle. Margaret Dombrain*, quite second-rate, though pretty, the colour delicate bluish; *Maurice Bernardin*, one of the best of all roses, new or old; *Chevalier Nigra*, a beautiful flower of a fine rose colour, like Baron Gonella, but filled up in the centre in an almost conical form; *Gloire de Ducher*, deep purple, a good example of its class. *Belle Normande*, a pretty light rose coloured flower; *Jean Lambert*, large and full, neatly rolled up like Xavier Oliho, and very curious and pretty in bud, colour cerise shaded scarlet. *Comte Alphonse de Serenys*, red tinted purple, middling. *Dukè of Edinburgh*, like Exposition de Brie and Madame Moreau, a good rose, promising indeed to be quite first-rate. *Triomphe de Soissons*, not so good as Emotion. *Souvenir de William Wood*, a companion to Prince Camille de Rohan, but darker in colour; it has the fault of weak footstalks, and is a very superior flower. *Hippolyte Flandrin*, bright rose, commonplace; *Dr. Andry*, bright shaded red, good; *Souvenir de Bernardin de St. Pierre*, large, imbricated, velvety crimson, fine.

Many miscellaneous subjects were shown, but space cannot be afforded for detailed notices of them. Mr. Cowan, gardener to — Hutchinson, Esq., Croydon, presented a specimen of *Peristeria alata*, the Dove orchid, with seven spikes of flowers, standing six feet high, a fine example of an eminently interesting plant. Mr. Sleat put up a fine lot of Sir Charles Napier strawberry, some in pots and some gathered from the open ground; they were of great size and beautifully coloured. Messrs. James Carter and Co. made a beautiful group of tricolor-leaved and other geraniums, and received an extra prize for them. The varieties were *Prince of Wales*, *Princess of Wales*, *Oberon*, *Titania*, and others that have been described in former reports.

S. H.

EXHIBITION OF WINDOW FLOWERS, DEAN'S YARD, WESTMINSTER.

Some time ago a committee of gentlemen resolved on forming a society for the promotion of window gardening among the working classes in the united parishes of St. Margaret and St. John, Westminster, and on Friday the annual fête of the association was held in Great Dean's Yard. The specimens sent in for competition were ranged in two tastefully-constructed marquees in the enclosure, and when we consider the streets in which they were reared, and the deficiency in the supply of what are necessary in floriculture, light and air, they not only constituted a satisfactory evidence of the success of the society, but also a strong incentive to others to found similar associations in other districts of the metropolis. A fuchsia plant, which obtained the first prize in its class, was a conspicuous object of attraction. It was fully 6ft. high and 4ft. wide. The following is a list of the principal prizes, with the names of those to whom they were severally awarded:—Class 1.—Working Men and Women: Fuchsias, Alfred Fillwood, lamplighter, 2 Philip Street. Geraniums, Mrs. Ann Fillwood. Annuals, Mrs. Leigh, 5, Bowling Street. Class 2.—Domestic Servants: Fuchsias, Mary Ann Robinson, 3, Smith Square. Geraniums, Caroline Williams, 3, Smith Square. Class 3.—Children in parochial, national, infant, Sunday, and ragged schools: Fuchsias, Ellen Fillwood. Geraniums, G. H. Smith, 8, William Street. Annuals, Sophia Mullins, 21, New Peter Street. Prizes were also awarded in a class open to all persons, and in another, in which inmates of workhouse and hospital wards competed. For the latter division the rewards were some beautiful coloured prints, presented to the society by Miss Burdett Coutts. Among those present on the grounds were the Duke and Duchess of Argyll, Lord Ebury, the Dean of Westminster and Lady Augusta Stanley, Miss Stanley, and an unusually numerous company of other ladies and gentlemen. After the distribution of prizes, Lord Shaftesbury, who spoke from a rostrum in the centre of the enclosure, said that he had to congratulate alike the founders of the society and those who had followed in their footsteps. The real value of such a society as that might be estimated by any one who took the trouble to inspect the various districts of which the metropolis was composed. Its benefits were great as regarded its moral, religious, and physical effects. It was impossible to undertake the care of flowers without giving them a proper supply of light, air, and water, and those who devoted themselves to so refining

an occupation must necessarily make an application of its conditions to their own existence. He could tell them from his own experience that a high degree of civilization had been introduced into some regions of London by the culture of flowers, for with it came the admiration of God's works, and thanksgivings for His blessings. Everything which concerned plants and flowers was by an easy transition made applicable to ourselves. The children who had won prizes that day were deserving of all praise, but there were in the metropolis hundreds of thousands of others for whose religious and physical culture they should earnestly strive to provide.

GREENWICH PINK SHOW.

The Greenwich Amateur Floricultural Society's Pink show took place, on Monday last, at Orchard Hill, Greenwich. In the class for twelve, first, Mr. Stoer, of Eltham, Kent, with Maclean's Earnest, Marianne, Rev. George Jeans, Maclean's John Ball, Turner's Delicata, Elcho, Colchester Cardinal, Steer's Rose of Kent, Turner's Blondin, Turner's Constant, Beautiful, Maclean's Mary Ann. Second, Mr. R. Cronk, with Christabel, Miss, Nightingale, Delicata, Esop, Celestial, Blondin, John Ball, Mary Ann, Bertram, New Criterion, Volunteer, Amelia. Third, Mr. Gucran, of New Cross, with Eva, Mary Ann, Bianca, Miss Nightingale, Bertram, Delicata, Purple Perfection, Constance, Marianne, Beautiful, Rev. G. Jeans, Miss Stevens. Fourth, Mr. Rose, of New Cross, with Marianne, Bertram, Elcho, Purple Perfection, Constance, Mary Ann, Charles Williams, Earnest, Scarlet Gem, Kentish Volunteer, Beautiful, Picturata. There were several other collections in which we noticed beautiful examples of Mrs. Charles Williams, Maclean's Devico, Maclean's Evening Twilight, Star's Mrs. Gardens, Bonny Jean, Maclean's Kentish Volunteer, Maclean's Lizzie, Turner's Picturata, Maclean's Clara, Turner's Bianca, John Ball, Blondin, Delicata, Rev. G. Jeans, Elcho, Colchester Cardinal, Devico, Marian, Rose of Kent, Charles Williams, Beautiful. Seedlings were shown by Mr. Martin, the best being *Marksman* and *Hermil*. Mr. Howell brought forward an exceedingly pretty silver-edged tricolor-leaved geranium, and a capital lot of seedling varieties of shrubby calceolarias.

SNAILS AND SLUGS.

The long and almost uninterrupted prevalence of wet weather has this season encouraged snail and slug propagation to an almost unprecedented extent; and the unusual lowness of the temperature throughout the spring months having weakened and retarded plant growth, garden as well as field crops, and especially those of the brassica family, have been rendered more than ordinarily susceptible of injury and destruction from the ravages of these slimy herb-devouring members of the great mollusca group. Hence not only amateurs, but even experienced cultivators, have been driven to make use of all known remedies for removing or lessening what they have found to be an insurmountable destructive nuisance. A celebrated horticultural author has stated snail-hunting and slug-picking to have been a stereotyped recommendation since the days of Mascall. The intolligence of the present day prescribes for their complete annihilation the inexpensive easily-prepared application of caustic lime. Lime is, no doubt, one of the best specifics, although not by any means a sovereign remedy. The fact is, in the appliance of this, as well as in that of other modes employed for their extirpation, too little attention has been paid to the difference in the natural habits of the various kinds, which, in so far as they are generally and troublesomely prevalent, consist of six in all—namely, two species of snails and four of slugs:—

1. THE BROWNISH-SHELLED SNAIL (*Helix aspersa*), Muller.—The full-grown shells of this snail are larger than those of any of the other common native species, thin or delicate in texture, and generally of a dull lightish brown colour, with chocolate-brown bands, interrupted or marbled with very pale coloured streaks. Its habits are strictly nocturnal, seeking shade and shelter during the day in holes of walls, under stones, in box-wood edgings, &c. It is most abundant in places which have been long under cultivation, such as the vicinity of towns, near old residences, &c. It was formerly much in repute as a remedy for pulmonary affections; and is one of those kinds deemed edible in countries where snails are esteemed culinary delicacies.

2. THE VARIABLE-SHELLED SNAIL (*Helix nemoralis*), Linnæus.—Shells smaller, harder, and more globular than those of the last, remarkably variable in colouring, frequently very distinctly and beautifully banded, and sometimes of a uniform whitish or other colour, but never mottled nor marbled. A very common species, frequently most abundant where the preceding is rarest; compared with which it is somewhat less nocturnal in its habits, and more generally diffused over ground surfaces which afford little shelter except what is supplied by plants, clods, and small stones.

3. THE SMALL WHITISH SLUG (*Limax agrestis*), Muller.—This smallest lightish-brown species, the commonest and most voracious, as well as the most active, of the tribe, is abundant everywhere, in gardens, cultivated fields, and waste ground, sheltering in very clear and dry weather about the base of plants, under clods, stones, &c., and going abroad to feed at night, as well as in dull and rainy days.

4. THE LARGE GRAY SLUG (*Limax cinereus*), Muller.—Is the largest of our land molluscs, being often from five to six inches in length; of a dull brownish colour, mottled or spotted with black. It seeks shelter from drought and sunshine under stones, blocks of wood, large plants, &c., going out to feed an hour or two before nightfall, as well as throughout the day, when the weather is dull and moist, and is too well known to require further description.

5. THE LARGE BLACK SLUG (*Arion empiricorum*), Ferussac.—Is so well known as to need no description. It is more sluggish or slow in its movements than the last, which it, however, very much resembles in its other habits. And although generally jetty black, it is occasionally to be seen of various shades, some of them so light as to lead to its being considered a different species.

6. THE SMALL BLACKISH SLUG (*Arion hortensis*), Ferussac.—Also termed by gardeners the small blue and the yellow-bellied slug. The ordinary colour of this slug is a dull bluish black, but it varies much in different individuals, being in some approaching to white. In the young state it is whitish underneath, but it there often assumes a dull yellowish colour in older specimens, from which it has obtained one of the above names. It differs from all the preceding by being more underground in its habits, seldom appearing on the surface except in damp weather, and may frequently be seen in twos or threes, clustered and curved round the

stems of young brassica, and especially those of cauliflower, where they often remain till they have eaten the stems so far through as to kill the plants; and it is also not unfrequent on the tubers of garden-grown potatoes, even when they are three or four inches under the surface.

Newly slaked or caustic lime, as before mentioned, is an excellent snail and slug annihilator, but it must be applied when and so as it can reach them most effectually—that is, in the evenings, or after nightfall, when they are abroad and farthest from their sheltered haunts, or in dull days after rain-falls; for if applied during dry sunny days it will only have the effect of restricting them to their haunts till the lime loses its caustic or burning qualities, which it very soon does, and must consequently be renewed frequently if the weather is dull and showery. It is best also to apply it when the plants are dry, so as it will not adhere to their surface, and it should be spread on so thickly as to whiten the surface of the soil. But instances will occur when this whiteness will be deemed unsightly, and where night sprinklings of lime-water from the rose of a watering pan may be given in place with equally beneficial effects; and it is partially useful for clearing them from strawberry beds between the setting and ripening of the fruit. The undiluted liquid manure drainage of byres and stables is another very effectual agent in the destruction of snails and slugs, more especially of the latter; but it must be used with caution, for although it may be applied with impunity to the different kinds of brassicæ, it is too overpowering in its effects for many other plants. It is only such as these two liquid appliances by which No. 6 can be got at in its underground works of destruction, where it is secure against the reach and influence of any dry surface appliances.

Broken or chopped barley chaff scattered around plants is a good safeguard against both snails and slugs, as it adheres to and annoys them if they attempt to pass over it; but it is also unsightly, and so only suitable for defending special plants. When their depredations are dreaded in select flower beds, rockeries, or other places of moderately limited extent, they may be trapped by laying cabbage or lettuce leaves about, on which, by the aid of a lantern, they may be seen and gathered off an hour or two after dark. This is of all modes the most successful for dealing with the *Helix aspersa* (No. 1); and if preserved till next day these will prove highly acceptable feeding for both ducks and hens, which have no difficulty in breaking through the tender shells and extracting their, to them, highly acceptable contents.

Many kinds of singing birds and other wild fowl are good snail and slug destroyers; and it is curious to watch a common thrush in its laborious exertions of attempting to swallow a four or five-inch long *Limax cinereus* (No. 4), in which, if undisturbed, it generally perseveres till its efforts are crowned with success. Tame sea-gulls are great devourers of land as well as water molluscs, and one or two are frequently kept in large gardens for that purpose; and, with the same view, ducks and ducklings are often drafted from the poultry yard to the kitchen garden after showers or in mild evenings, the ducklings being usually preferred, in consequence of their light weight rendering them less injurious to young crops and newly dressed ground than their full-grown seniors. Passing a heavy roller over the ground when snails and slugs are abroad is sometimes done with the view of crushing them to death, but it is a mode only applicable to certain crops, and generally more suitable for those of the field than of the garden, although it may be performed when they are over-abundant on ornamental greens and grass lawns, but in no case should it be done on heavy soils when they are over-saturated, or it will be likely to bind and harden them too much. Dry soot and soot-water are other applications recommended for destroying slugs, but soot in any form is less deadly in its effects than lime, and for obvious reasons not so generally suitable.—*The Farmer*.

VEGETABLE MONSTROSITIES AND RACES.

The discussion recently excited by MM. Dareste and Sanson, as to whether monstrosities in the animal kingdom can give rise to distinct races, recalls to my mind teratological facts which appear to demonstrate that this may be the case in the vegetable world.

To avoid doubt, it may be well to explain that I use the word *monstrosity* in its ordinary botanical sense, that of notable departure from forms that are typical, or reputed to be such. There is a marked distinction between monstrosities incompatible with reproduction and those which do not impair the reproductive faculty. It is of the last only I have now to speak.

Well attested facts seem to me to place beyond doubt that considerable anomalies in the vegetable kingdom, that are usually classed amongst teratological facts, are faithfully transmitted from one generation to another, and become the salient characters of new races. Horticultural practice might have furnished a great number of such instances if they had been collected, and verified by experiment; but I shall only cite a few, because they are the only ones which I know to have been examined scientifically, and they suffice to establish the principle of hereditary transmission of anomalies, by sexual propagation through an indefinite series of generations.

The first fact of this sort shall be borrowed from Professor Göppert, of Breslau. A poppy exhibited the curious anomaly of the transformation of part of its stamens into carpels, from whence resulted a crown of secondary capsules round the normal and central capsule, whose development was complete. Many of the little additional capsules contained, as well as the normal capsule, perfect seeds, capable of reproducing the plant. In 1849, Professor Göppert, hearing that a field of these monstrous poppies existed a few miles from Breslau, caused to be sown in the following year a considerable quantity of seed taken designedly from the normal capsules, and almost all the plants springing from this seed exhibited to a greater or less extent the monstrosity of the preceding generation. I do not insist upon these facts, because observation of them was not carried to a sufficient extent, and it might be found that the number of generations was not large enough to conclude from them the stability of the anomaly.

This doubt does not affect the following case:—Cultivators of ferns know that these plants are very subject to variation, and that some of them exhibit, even in a wild state, veritable monstrosities in the conformation of their leaves. These monstrosities are much sought after by collectors, and are regarded as excellencies, for which a high price was paid. Now they are easily and abundantly procured by simply growing spores taken from the abnormal part of a fertile frond. When the frond has remained in a normal state, the spores give rise to normal plants, while those from monstrous parts of the same frond are sure to produce plants affected by same kinds of change. During many years that this method of propagation has

been employed, the transmission of the monstrosity has not been contradicted by experience.

Very considerable anomalies, which, even more than those just cited, may be called monstrosities, are observed in three species of edible gourds, plants which have been cultivated from time immemorial, and which have never been found in a wild state. These anomalies have the peculiarity of characterising races that are sharply divided and very persistent, and which maintain themselves, in spite of change of locality and climate, and partially resist crossing with other races of the same species. The date of their origin is unknown, and we cannot now tell under what influences they were formed; but as the species are all domestic, it is probable that some, if not all, have been produced by cultivation. Among them is a race of common gourds (*Cucurbita pepo*) in which the tendrils convert themselves into a sort of branches bearing leaves, flowers, and often fruits. There are also numerous races of the same species producing deformed fruits, warty, and particoloured, and which transmit their peculiarities with their seed so long as they are not modified by crossing.

A still more remarkable example is afforded by a small race of pumpkins, *C. maxima*, which we have received from China, and observed for many years in the Museum. It differs from the typical form of the species by the ovary and the fruit being entirely free, and the tube of the calyx being reduced to a sort of disk (*plateau*), serving for the support of the carpels; notwithstanding, the complete adhesion of the ovary to the tube of the calyx is stated by authors to be an essential character of the family of the Cucurbitaceæ. This example shows how great the extent of variation may be, and what fixity they may acquire when once produced.

The next fact of which I have to speak is quite recent, and has already been brought before the Academy by Dr. Godron, Professor of Botany, at Nancy. In 1861 M. Godron found, in a crop of *Datura tatula*, a species with very spiny fruit, a single individual, in which the capsule was perfectly smooth, and unarmed. Seeds taken from this capsule gave, in 1862, a batch of plants, all of which reproduced the peculiarities of the individual from which they sprang. From their seed grew a third generation, similarly smooth, and in 1865 and 1866 I saw at the Museum the fourth and fifth generation of this new race, in all more than 100 individuals, not one of which manifested the least tendency to reproduce the spinous character of the species. Crossed with this last by M. Godron himself, the unarmed race produced mule plants, which in the succeeding generation returned to the spiny form, and the unarmed form, being, in fact, genuine hybrids, endowed with fertility. M. Godron, from these facts, refers to one species, the *Datura Stramonium*, *D. levis* (of Bertoloni, not of Linnaeus), and *D. tatula*, three constant forms previously regarded as good species, and adding to it *D. tatula inermis*, discovered by himself, and, so to speak, born under his eyes. These four distinct forms have arisen by variation from a single type, not one of them wanting in any character assignable to true species.

Here a point presents itself, to which I would call the attention of all who believe in the mutability of specific forms, and who attribute the origin of actual species to simple modifications of more ancient species. Most of these observers admit that such modifications have been produced with exceeding slowness through insensible gradations, so that thousands of generations may have been required to transform one species into a neighbouring species. We know not what may have happened in the course of ages; but experience and observation teach us that at the actual epoch of anomalies, whether slight or profound, the alterations in what we, perhaps, arbitrarily, call *specific types*—the *monstrosities*, in fact, whether they are of a transitory and individual character, or whether they give rise to new races, persistent and uniform, through an indefinite number of individuals—are produced abruptly, and without any transitive forms between them and the normal form. A new race is born completely formed, and the first individual representing it exhibits the characters of the generations that will succeed if the variation is preserved. New modifications may be added to the first one, and occasion a subdivision into primary and secondary races; but these appear with the same suddenness as the first variation did. I am not defending the doctrine of evolution. I state merely that the biological phenomena of one epoch do not justify in any way the hypothesis of an insensible degradation of ancient forms, and the necessity for millions of years in order to change the physiognomy of species. Judging from what we know, their transformations, if they have taken place, may have been effected in a much smaller lapse of time than is supposed. There may be alternations in the life of nature, and periods of immobility, apparent or real, may succeed other periods of rapid transformation, during which that which was previously exceptional and abnormal becomes a portion of the regular order of things. And we must not forget that time is to us a succession of phenomena, and that whether the phenomena succeed each other quickly or slowly, it is all one for the doctrine of evolution. In either case the principle of continuity is not assailed.—CH. NAUDIN, from *Comptes Rendus* in July No. of the "Intellectual Observer."

COWPER'S TOMB.—"I come from East Dereham, the paradise of England, sir; in the church there Cowper, the poet, was buried, and my father helped to dig his grave; East Dereham, in the county of Norfolk, the paradise of the world, sir." Such was the exclamation of a good and gone old friend of ours; and as the assertion was hammered into our ears at least three hundred and sixty-five times a year (more or less) it will readily be imagined that we expected to find something at least picturesque, if not absolutely Arcadian. But fancy our astonishment upon arriving at "the paradise of the world," and finding the place a veritable Cottenham, from which Mark Tapley would have retreated. Nothing in the likeness of Eden could we discover, and not till the bells were rung next morning, upon the anniversary of our gracious Queen's coronation, could we be brought to believe that we had arrived at East Dereham at all. However, in the course of the day ample amends were made by a friend of the old worthy above named; we visited Cowper's resting-place, and this in itself was sufficient to atone for any shortcomings of East Dereham, "the paradise of the world." Some of our readers will perhaps be interested to learn that the tomb of the bard is very plain and simple. Upon the top is the Bible, and leaning against it is the immortal work of the "The Task." Over both books is a leaf, which appears to be a species of large fern. Cambridge Independent Press.

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WIRE-FENCING FOR PLANTATIONS.

Wire-fencing at the present time is, perhaps, more used than any other kind of fencing, and, in particular situations, is a very neat and efficient fence when kept properly strained; but how often it is met with in a very different form—wires slack, posts half drawn over—in short, "presenting an appearance more like the ruins of some gigantic spider's web than anything else." The fact is, a wire fence, if not kept properly strained, is the most miserable fence extant.

The common method of erecting wire fences, with wooden straining, posts, on which the wires are fastened, must always prove an annoyance, let the wire be never so well put up, by the wood contracting and decaying. Even the best hard-tempered wire always yields more or less to the strain through length of time, and though the wires can be loosened and tightened, yet it can never prove satisfactory. There are several improved appliances

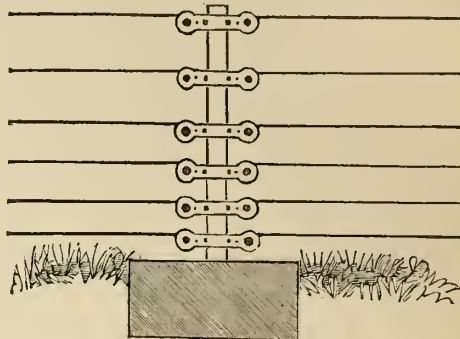


Fig. 1.

for straining and keeping the wires in proper tension, such as the patented straining pillars, descriptions of which I have at former times seen advertised in the pages of *The Farmer*, and no doubt, as the advantages of such become better known, they will be more generally adopted. The first cost, in many cases, is a drawback; but if the fence is intended to be permanent, it will prove the most effectual and cheapest method in the long-run. No doubt there are many other contrivances more or less useful in their own way. Fig 1 is a form of straining-post which I have used, and answers the purpose very well, and is not very expensive; and as it can be easily constructed by any handy blacksmith, the following outline of its construction may perhaps prove useful to some of your readers:—

The straining-post is formed of 1½ inch square bar iron, 4 feet long—if for six-wire fence, to stand 3½ feet high—fastened into a stone block in the usual way; there is no stay required in intermediate stretches, as one stretch supports the other. The appliances for straining the wires, fig. 2, are two winders (w) turning in two iron plates (p), which are fastened with two bolts (b), one on each side of the iron bar (B). The plates are 7½

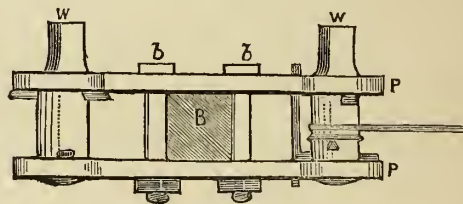


Fig. 2.

inches long, by 1½ inches broad, by ¾ inch thick, in the form of fig 3. The winders are formed of inch-round iron 3½ inches long, ¼ of an inch of the end of each being formed square, projecting on one side of the plates, for the purpose of being turned by a key when straining the wires. There are two iron pins inserted in the winder, cross to each other, and close to the inside of each of the plates. They project about ¼ of an inch on each

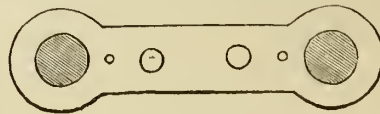


Fig. 3.

side of the winder, and serve to keep the winder in its place, and also to hold the wire, the end of which is inserted in a hole in the winder, at every quarter-turn, by a piece of wire which is put through the small hole in the plates near the winder.

It will be seen that each straining-post serves to strain two stretches, one on each side of the straining-post. As 200 yards is not too much for a stretch, where the line of fence is straight, one straining-post will strain 400 yards. Where rigid economy in the first cost is an object, and where there is a long line of fence, a wooden post can be erected between the straining-posts for fastening the wires to. Under any circumstances, however, it would be better to use an iron post, as it will not cost much more, being only a plain bar of iron, no winders being required for the intermediate posts.



Fig. 4.

Fig. 4 is another form of winder, formed with a bolt and nut for fastening into a wooden post. In using hard-tempered wire it will be found an advantage to soften a foot or two of the ends of the wire by heating, which takes the temper out of it, and renders it more pliable, and not so liable to break when winding or unwinding it.—JAMES KAY, *Eden Place, Rothsay, in "The Farmer."*

OBSERVATIONS ON WATERING PLANTS.

The utility of this practice, that is, of constantly pouring large quantities on to the roots of plants in beds, and elsewhere planted in the grounds during dry weather, admits of some inquiry, because among amateur horticulturists it is considered one of the greatest essentials for promoting the growth of vegetation. However necessary the supply of water may be to plants out of doors during dry seasons, yet, in my opinion, the use of it is too frequently urged by amateurs without due consideration as to the consequences which must follow from an excess. I have for some years past carefully contrasted the results of the constant use and the occasional use of water to bedding plants during the prevalence of dry weather, by observing the effects in two gardens adjoining each other, and belonging to separate proprietors. In one of them there was every facility afforded for providing the garden with a liberal supply of water, and the proprietor of the same insisted on his gardener using it freely, which order was constantly adhered to. Not so favoured was the other adjoining garden. The water required for their ordinary use had to be fetched some distance. Altogether the supply was very limited during dry weather, yet withal the bedding plants were on a par as regards continuance and quality of bloom. We must admit that the water, as sprinkled on the soil of an evening, imparted a very enjoyable freshness to those who promenade the garden. But the object we have in view is to show that the quantity of water poured on beds by many persons does not benefit the plants to the extent that many suppose. You, of course, expect me to give my reasons for such an assertion.

It is thus. We will presume that two plants of the same species are cultivated in the one garden, but subject to the influences of different conditions. For instance, take the common wallflowers: one shall be grown in a bed or border, and supplied with water in the usual way; the other may be planted or self-sown on the top of a wall, where it never receives any moisture beyond what the dews or rains afford. Yet during very hot or dry weather the plant on the wall does not show any indications of suffering from the effects of drought, while that in the border, which is in the habit of being watered in the regular way, will soon exhibit signs of drought by flagging if the watering is discontinued, especially after the plant has been subjected to the treatment for some time. To what, then, are we to trace these differences in the behaviour of the two plants? Why, that the organs of the plants growing on the wall have so developed themselves as to accommodate their structure to the circumstances which surround them; for example, the pores of the leaves have become so contracted as not to be so susceptible of adverse changes of weather. Not so with the plant in the border; owing to the very liberal treatment afforded it, its organs collapse at the slightest changes that are not favourable to luxuriant growth. I have in sight of me now while writing several kinds of plants thriving on the top of a wall that have not had a drop of water given them this season beyond that afforded by the elements, and yet their foliage is equal with the same kinds of plants in the ground; though there is this difference, that those growing on the wall are dwarfer compared with the others. Having said thus much, we maintain that the time spent by some in watering is a waste of labour. There can be no question but cleansing the leaves of plants in beds or borders with a syringe, or a rose fixed to a garden engine, is very beneficial, far more so than the often repeated application of it to the roots.

We do not say that watering is not requisite to newly planted beds—decidedly they require it, but not in such large doses as some persons apply it. When plants are established, we believe the roots will search for and find the required nourishment, provided they are planted in good soil. In preparing our flower-beds for the reception of the plants, I do not think, as a rule, that we give so much attention to the preparation of the soil as we should, by depositing some little depth beneath the surface materials that would afford the roots plenty of nourishment during hot weather. Such a practice would obviate the frequent use of the watering-pot during seasons of drought.

JOHN F. McELROY.

A PACKET OF ODDS AND ENDS.

EARTHING CELERY.

Being somewhat alive to the wants of a gentleman's table, so far as the garden is concerned, I find it to my own benefit to be always on the alert, and to keep a sharp look-out for every good thing that may turn up as likely to be useful, and also to prove by practice, on a limited scale, the recommendations of others when they favour us with any new method of culture; for I am not one of those who, having read an article detailing any thing new in practice, put it aside as useless because it is new; I prefer to ascertain if it is applicable to my own case, and if it is I adopt it; but if I do not find it answer, I say it is not to be universally recommended. This is a far more reasonable plan than to throw aside with disdain, after a mere perusal, any article that bears upon the face of it some amount of practical information, although it may not exactly suit our own preformed notions. But this is not writing about earthing celery; so I will tell you of a plan which I adopted last year, with perfect success to myself and to all concerned. But mind, I do not say there is anything new in it; for all I know, it may be as old as the hills, for we have high authority for the doctrine that there is nothing new under the sun. I will not presume therefore that this is a new idea, but at all events it is new to me, and a force of circumstances brought me to adopt it. Finding last autumn that I had planted out larger breadths of celery than I had previously done, I could foresee that I should have sufficient to carry the supply on until early spring, which a limited space had previously prevented me from securing. The supply being thus increased, my next anxiety was how to best secure its keeping in a soil that is rather retentive of moisture during winter. After a day or two's consideration, I decided that instead of earthing up, as I had usually done during the months of September and October, all the celery as it grew in height, I would not put any earth to those rows that I required to come into use about the beginning of February, but instead of putting earth round the stems I would tie each one up loosely with a piece of matting. This I did, adding another tie above the other about the middle of October, and on a dry day in the beginning of the second week of last November, just before the few days' frost we had after that time, the whole body of earth was put to it at one time, so that instead of repeated applications of earthing, there was only one. The day it was done was bright and clear, and the plants perfectly dry; and the result was that after such a severe winter the last row taken up at the end of March was equal to the first, and to find a root that was getting rotten at the heart was the exception. Such a result I never had before, because I had hitherto earthed up by piecemeal, but I will never do so again for late celery; as where half

of the crop is often lost by the old method, ninety-five per cent. is secured by late earthing. The rationale of this is simple enough; for all the time celery retains its natural colour it is not affected by moisture, but once bleached it and surrounded with earth, or indeed any thing that will retain moisture, it is susceptible at once of all the ills attending reduced vigour, exclusion of light, and the action of damp. By late earthing we retain it in its natural state quite two months later, and practically we add that much to its time of keeping.

CONNING'S RELIANCE BROCCOLI.

Those of our readers who desire a good late May broccoli may depend upon this variety, if they can secure it true. It is perfectly hardy, producing fine large heads from the middle up to the end of May. I saw it when visiting Mr. Record, of Hawkhurst, on May the 11th. His plants were just then showing their heads.

STADTHOLDER CAULIFLOWER.

Have any of our readers grown this variety for summer use? I saw it last year when visiting a friend, at a place near Wimbledon Common, in superb condition. It was August when I saw it, and the heads were as compact and white as any I ever saw in June. It is of neat habit, being close and compact, evidently a first-class variety to come in before the Walcheren.

GRUBS AT THE GREENS, AND HOW TO CATCH THEM.

When you have planted a piece of cabbage, and fancy you shall be troubled with the black grub, cut a few sods of fresh green turf about a foot square, and place them amongst the plants grass upwards. If there are any grubs, they will congregate under these turf sods, from whence you must remove them by going round early every morning. Turn the turf on one side, and where it had lain there will be the grubs, if there are any about. Pick them up, and put them in some vessel, and as soon as possible destroy them. I learnt this rub early one morning last May when on my journey of inspection. I wished to catch an early train for Hastings, and on my way to the station I passed by a cottager's garden. The cottager had just risen, and before he went to his work was turning over some green sods amongst some cabbage plants; and I could see under each one he picked up something, and consigned it to a tin box. I stood for some seconds watching his movements, and then as I felt I should like to know more about what he was gathering up from beneath these sods, I boldly asked him; and he not only told me what he was doing, but he showed me the results of his morning's gatherings by exposing to my view two or three dozen of those monster grubs. The cottager assured me it was his only means of saving his crops; in fact, he had adopted it for years, and while they had a fresh turf to go to, he assured me, they would not disturb a plant. Since then I have adopted the same plan myself, and I have found it to answer admirably.

J. C. CLARKE.

RAISING PETUNIAS FROM SEED.

The cultivation of the genus is so simple, and requires so little of what may be called "tact," as to place them within the command of the smallest grower. If healthy plants are purchased in the spring, they may be increased to any extent through the summer months, by inserting cuttings under a small hand-glass upon any shaded border; and but few plants may be kept with greater ease in the sitting-room window. But it is to their culture from seed we intend to direct our remarks; and for this purpose a good-sized well-ventilated melon-pit or greenhouse is necessary; it may be done in either, though we think the pit preferable, because the plants, naturally impatient of heat, may here have a larger proportion and be in more immediate contact with the fresh air, and for the greater facility of covering, uncovering, shading, watering, &c. A difficulty is generally experienced in procuring sound well-ripened seed; this is attributable to our variable and often dull wet summer. The plants being natives of the clear bright sunny regions of South America, have not the natural and necessary space of dry weather either to fertilize or, when that happens, to mature their seeds; hence the necessity of a pit or some such protection in the blooming season. It is well known to all acquainted with the laws which govern the vegetable productions of the earth, that a certain amount and continuance of dryness in the surrounding atmosphere are essentially requisite to enable the plant to fully develop its generative powers; and the want of these is the frequent cause of failure in the production of good seed, and so of crops. This is perhaps beyond removal in relation to things of extent requiring the open air; but with subjects like the present, which are portable at pleasure, we see no difficulty in remedying this defect of our climate.

We will suppose a collection to be formed of strong healthy plants, and containing some of the best sorts. About the beginning of April they should be placed in large pots, with any light rich soil, such as a mixture of leaf-mould, loam, and decayed hotbed-manure; there should be sufficient of this earth in the pots to sustain the plants throughout the following summer, without being again shifted. Petunias frequently commence blooming about the beginning of May; the first flowers may be taken advantage of to decorate the greenhouse or other place, as it is not these that are to be depended on for the production of seed, but such as appear about the commencement of the settled weather of June or July; at this time the plants should be taken to the pits, the better to protect the flowers from occasional showers and other moisture; in this situation they require an abundant supply of water and air, with free exposure to bright sunshine so long as they will bear it, which they will do to any extent (if regularly watered) until the roots have entirely filled the pots. Should it happen that cloudy weather prevails, advantage of every gleam of sunshine should be taken to assist the plants by artificial fertilizing; but in anything like the average summer weather this will not be required, as the plants themselves, assisted by insects, will perform the operation; after the seed is set, it will only be necessary to keep the head of the plant dry, that moisture may not lodge in the capsule, and so destroy it; each pod of seed should be gathered as it becomes ripe, and the whole kept in the usual way until the season for sowing, which we recommend to be the early part of March; a slight hotbed, such as is usually employed at this part of the year for raising tender annuals, will be necessary on which to sow the seed; and as soon as they are large enough to handle, let them be potted singly into small pots, continuing them in the frame until grown sufficiently to bear removal to the greenhouse; here, with the usual attention to repotting, &c., they will produce flowers almost as early as mature plants, and according as any improvement or degeneration is observable they should be preserved or rejected—the best to be increased by cuttings, which root readily at any time in sandy mould on a gentle bottom-heat, and the remaining portion may be turned into the beds of the flower-garden. We have generally observed the white and pale-coloured varieties exhibit a much less tendency to produce other varieties than those of a deeper shade.

Calendar.

WORK FOR WEEK COMMENCING JULY 6.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—When early crops are coming off, clear the ground and dig it over at once; it is a folly to wait for the last handful of peas or beans. As soon as the rows cease to be profitable, destroy them, and clear the ground. Dig deep, that the heavy rains now to be expected may sink deep, and plant out Brussels sprouts, green collards, kale, savoy, cabbages, broccoli, &c. If the plants are crowded in the seed-bed, it is best to get them out at once. Have all ready, and in the evening put out as many rows as possible, and give a little water to every plant. Next morning lay a few houghs or mats over them to shade off the sun, and the next evening get out more, till the planting is finished. This is better than waiting for rain, which may be so heavy as to render the ground unfit to be trodden on, and, if succeeded immediately by heat, the plants will flag as much as if put out in dry weather, whereas, being already in the ground, the smallest shower benefits them. Seed-beds for winter spinach should now be made up and well manured, and the seed got in without delay. In gathering French and runner beans, take all or none. If seed is desired, leave a row untouched. Never take green pods and seeds from the same plants. Take up onions, shallots, and garlic, as they ripen, and store for winter. Give asparagus beds plenty of liquid manure, and use the grass mowings from the lawn as mulchings to prevent the soil from cracking. Earth-up celery for early use, but the rows that are not forward must be kept open and well watered, as the plants grow very slowly after being earthed up, the object of the earthing being to blanch it only. Also plant out the main crop of celery as soon as the ground can be got ready. Cut down artichokes. Hoe between all growing crops, and especially between potatoes. Top runners, and keep them well staked, but very tall sticks are not at all necessary, as they are only the more liable to be blown over by gusts of wind. Sow the last succession of runners and French beans; also lettuce, endive, Stadtholder and Mitchell's cauliflower, radish, small salads, spinach, peas, and turnips. Land lying high and dry may be planted with potatoes now, for use early next spring.

PEAS may be sown this month for late supplies, and at this season it is as well to sow early as well as late sorts. Bedman's Imperial and Knight's Dwarf Marrow are good peas to sow the first week this month, for a supply very late in the season; but Sutton's Emperor, Sangster's No. 1, Advancer, and other of the earliest sorts, often prove useful, and are soon cleared off the ground. The best way to grow peas now is in trenches. Take out the trench a depth of two feet, lay at the bottom six inches of rich half-rotten dung, then fill up to within nine inches of the surface, and tread over. Then sow, and cover with two inches of mould, and bank up the sides of the trench, so that the peas will grow in a sunk alley of about six or eight inches depth. At each end of the alley, close it in with a spadeful of earth, so as to make a trough of it. As soon as the peas are up, sprinkle them plentifully with soot or wood-ashes; stick directly, and then every evening in dry weather you can fill the alley with water, alternating twice a week with manure-water, and the crop will come wonderfully fine. This plan is the one we always adopt after the beginning of June, and we have for years had healthy rows of peas, and abundance of produce, when elsewhere the heat has turned them yellow before their time, and the gathering has scarcely paid for the seed. The method is not so troublesome as it appears, for the filling the trench with water is but a few minutes' work, and being sunk and closed at the ends, there is not a drop wasted.

CUCUMBERS.—Keep liberally watered, and train and thin as necessary, to prevent crowding. They will take almost any quantity of liquid manure if in a good state at the roots.

Flower Garden.

FLOWER GARDEN.—Budding is the most important operation this month. After heavy rains is the best time, and the operation should be performed at dawn or after sunset; but early morning is the best, as the sap then flows freely. The stocks should be vigorous, and if the weather continues dry, and if the sap flows slowly, a drenching of liquid manure or plain water for two or three nights in succession will prepare them, without waiting for rain. Cuttings of all kinds may now be struck out of doors; Antirrhinums, Phloxes, Pentstemons, Alyssums, Dielytras, &c., and cuttings of Laurels, Aucubas, and other shrubs, must be struck in the shade; but Geranium cuttings should be struck in the full sun, and the sooner they are got in the better plants will they make to stand the winter. Where long ripe branches of Geraniums can be spared, they are better than soft shoots; and, if pinched for time, strike a lot of such ripe branches in five-inch pots, half a dozen in a pot, put all round, and they need not be potted separately till spring, when started for hedging out. Dahlias want special attention now as they come into bloom; earwigs are very destructive to them, and must be trapped with beanstalks, or a handful of hay may be stuffed into an empty flower-pot and put on a stake, and the vermin shaken out into salt and water every morning. Another lot of Chrysanthemums should be struck this month, under hand-glasses, to make dwarf plants for the window and greenhouse in autumn. The pompones are the best for this purpose, and they may be stopped till the middle of August, to keep them dwarf and bushy. Train out Dahlias neatly, but do not cut them severely, for the loss of foliage only weakens the plant. Put in cuttings of scarlet Geraniums in the full sun, either in a sandy border or in pots half filled with crocks, to be potted singly as soon as rooted. Get strong plants of Chrysanthemums into their places in the borders, so that the heavy rains this month may establish them. Layer Pinks, Carnations, and Picotees, and put pipings of the same into a gentle bottom-heat. Another lot of annuals may be sown early in the month, to keep up the gaiety of the borders. Bud Roses during cool moist weather.

DAHLIAS must be labourled as to disbudding and tying, because every variety has its own peculiar style of growth. Disbud freely all soft-eyed varieties, but hard-eyed kinds allow to open all the blooms they make till they come good.

EVERGREENS and shrubs of the free-growing kinds may be propagated from this time to the end of August; cuttings put in in a shady place will root immediately. Prepare now to plant evergreens, which move well from the end of July to the end of September. In new ground this is the

best season to plant them, but in established gardens the places intended for them are generally occupied with summer flowers.

HEDGES of all kinds, except holly, should now be clipped in. Hedges of large-leaved trees—such as laurel, aucubas, &c.—ought to be cut back with a knife, as the shears will spoil their appearance for the whole season.

PINKS to be propagated from pipings, layers, or cuttings. The last is the simplest, most certain, and therefore the best method.

RHODODENDRONS and other hardy Anaricans may be layered now. Beds of Americans much exposed to the sun will be benefited by being mulched with moss.

WORK OF THE SEASON.—WATERING.—Bedding plants that were put out early now look worse than those that were put out late. We shall probably have plenty of rain this month, indeed, July is a wet month usually. But as it is also a hot month, a few remarks on watering may be useful. This matter of watering is one much less understood than it should be; but the more it is understood the lighter becomes the labour. As a rule, water should never be given until the further withholding of it would be detrimental to the plants. *Habitual* watering does, in the majority of cases, more harm than good. Plants left to battle with drought send their roots down deep in search of moisture, and when rain does come, they benefit more by it than those that have regular waterings all along. If the ground is dug deeply, and kept in good heart, plants that have once got established will bear drought for almost any length of time; but things lately planted, and that have not had time to "get hold," must be kept supplied, or their beauty may vanish for half the season. Succulent vegetables, too, which ought to be kept growing quick, must have abundance; and of course, plants in pots must, of necessity, have sufficient. There are two important points to be attended to in giving water—one is to expose the water to the sun before using it, to render it soft and warm; and the other is to give a thorough soaking at once, sufficient to keep the ground moist for a week. Supposing the supply to be limited, but regular, the best way of economizing both water and time is to take the garden piece by piece, watering each piece thoroughly every evening, and then beginning again as at first. Surface sprinklings bring the roots to the surface in search of the moisture, which, when they reach it, is insufficient to nourish them; but, on the contrary, causes exhaustion, by inducing the growth of fibres within reach of the burning rays of the sun. Plants in pots, in windows, and on gravel paths, are very much tried by the heating action of the sun, and to keep their roots cool, it is advisable to drop the pots into larger ones, and fill between the two with moss. This is the proper way to use ornamental pots, and the dressing of moss may be made to hide the inside pot, which contains the plant, by arranging it neatly over the surface of the soil.

Fruit Garden and Orchard House.

STRAWBERRIES.—Runners of strawberries struck in pots may now be cut off, and the plants shifted into a size larger, or turned out into beds. Beds made now have the best chance of becoming strong before winter, to bear abundantly next year. Strawberry-beds now want special attention. Strong-rooted runners should be taken off to form new plantations, and be pricked out into well-manured beds, pretty close together, to strengthen, preparatory to making new beds in September; or they may be laid in small pots, with a stone or peg to fix them, and will root directly. After three years, strawberry-beds cease to pay, and should be broken up and the ground trenched for winter crops.

STONE FRUITS.—Tie in and train as needful, and use the syringe to wall trees if the weather should be dry, and especially with east winds. Continue to bud stone fruit-trees, for orchard and pot culture. Thin out weak spray on all bush-fruits, and foreright shoots on wall-fruits. Maiden trees intended to be trained should be stopped, to make them break into side-shoots, as a whole season's growth is thus saved.

BUSH FRUITS.—Keep gooseberry and currant bushes open in the centre, and leave on the hush-fruits only as much wood as will bear a fine crop next season. Cuttings of gooseberries and currants may be struck now in a moist shady border, and if sufficient canes were not got in last winter, the deficiency may now be made good, and a season be saved. Mulch raspberries with half-rotten dung.

Greenhouse and Conservatory.

GREENHOUSE.—Shift all greenhouse plants required for late blooming, and grow them on to a good size before allowing them to blossom. Cinerarias for winter blooming must have good culture and shifts as required, and Camellias may be shifted if necessary; but if well potted in the first instance, they will flourish in the same pots for three seasons in succession, and to overpot them is to do them injury, from which they may never recover. Ericas generally require to be pruned and cleared of seed-pods and dead flowers. Put out all the Ventricasas in the open air in a north aspect, and shelter with spare lights during heavy rain. All those with woolly leaves to be put in cold pits, and kept shaded at midday. Any not shifted in the spring cut in at once, and as soon as they break repot them. Repot Icoschenaultias. Every kind of hard-wooded plants may be repotted now if out of bloom.

AZALEAS to be prepared for ripening their wood by giving more air. Put out the earliest in a shady place.

CAMELLIAS.—Treat the same as azaleas, and shift any that require it. Their roots may be refreshed without giving larger pots by turning out the ball, removing some of the stuff from it, and making it up again with fresh compost. Pot firm.

CINERARIAS to be propagated from suckers; put in round the sides of the pots in very sandy compost, and keep close for a week. Sow for seedling plants.

CONSERVATORY to have plenty of air night and day, and abundance of water for all growing plants, overhead as well as at the roots. Neglect of watering now will hereafter show sad results, especially among soft-wooded and liliaceous plants.

PELAGONIUMS newly cut down to be kept pretty dry till they break, then to be potted in small pots. Pelargoniums done blooming must be turned out, but with the pots plunged in tan or ashes, and the plants sheltered. After a week's exposure, cut them in to the first or second eye at the bottom of each shoot, and place them in a cold pit to make their new growth. They must now for some time be kept from growing rapidly, and have but little water. When they have broken well, they must be repotted into the smallest pots their roots can be got into, and all the old soil must be shaken off, and the roots moderately thinned.

Stove and Orchid House.

STOVE.—Achimenes and Clerodendrons require weak liquid manure to keep them in full vigour and beauty; shade at midday, and keep up a moist heat. *Globo Amaranthus* must have a moist heat of 75°, and be near the glass. If not all potted, pot at once in 48 and 32 size, with such a compost. *Ixoras* done blooming to be out in close and placed on a bark bed to break afresh. See that the plants for winter blooming are doing well, and pay especial attention to *Euphorbia jacquiniiflora* and *Poinsettia pulcherrima*. Give air at every favourable opportunity; plants newly potted to have very moderate supplies of water at the root, but to be aided with a moist warm atmosphere.

ORCHID HOUSE.—Orchids that have finished their growth should now have such attention as is required to get the pseudo-bulbs well-ripened. Many of the large specimens will be found to require sponging all over, and this had best be done at the first opportunity, and in the present lull of work there is a fair chance of its being done effectually. More air should be given now among orchids, and to allow of a freer ventilation, put all the small and growing plants at one end of the house, where they can be kept close. *Stanhopeas* are about to commence their seasonal growth, which is a good time to repot them. As a rule, they do best in baskets, both because of their habit of growth and the downward direction of their flowers. They should have plenty of root-room, in shallow baskets filled with chopped moss, and after the shift to have very little water at the root till they grow freely, but liberal heat and atmospheric moisture. As soon as they begin to grow, water at the root freely, and keep them growing briskly till they have formed their pseudo-bulbs, and then keep nearly dry till they show flower. A prolonged rest is most essential to their welfare. To get up good specimens, put them in large baskets, in which they may continue several years without shifting. There need be no fire-heat in either house this month, unless we have a long period of dull, cold weather, in which case keep up the temperature by artificial means; but, as a rule, a judicious system of ventilating and shutting up will ensure a proper temperature for Indians and Mexicans alike, and better than by the aid of fire-heat. Temperature of East-India house, and for growing plants, 70° to 75° by night, 75° to 85° by day, with a rise to 90° with sun-heat. Mexican house, 65° to 70° by night, 70° to 85° by day.

ORCHIDS THAT MAY BE IN BLOOM IN JULY.—*Aerides affine*, odoratum, roseum, crispum, crispum v. *Lindleyanum*, crispum v. *pallidum*, crispum v. *Warneri*, *Fieldingi*, *maculosum*, *maculosum* v. *Schraëleri*, *Morlandi*, *nobile*, odoratum, v. *cornutum*, *quinquevulnerum*, *quinquevulnerum* v. *album*, *suavissimum*, *Veitbii*; *Acineta Barkerii*; *Angoveum caudatum*; *Anguloa Clowesii*, *Clowesii macrantha*, *uniflora*, *virginalis*; *Arpophyllum cardinale*; *Barkeria melanocaulon*, *spectabilis*; *Bobophyllum Henshalli*; *Brassia Lanceana*, *Lawrenceana*, *Wrayii*, *Broughtonia sanguinea*; *Calanthe Dominici*, *fureata*, *masuca*, *veratrifolia*; *Cattleya Aclandiae*, *amabilis*, *candida*, *citrina*, *crispa*, *crispa* v. *superba*, *Harrisoniae*, *Harrisoniae violacea*, *labiata-pieta*, *Lemoniana*, *Mossii*, *Morlandii*, *Sehilleriana*, *superba*, *violacea*, *Wagnerii*; *Cologyne Lowii*; *Coryanthes macrantha*, *macrantha maculata*; *Cynoches barbatus*, *chlorochilum*, *Loddigesii*, *ventricosum*; *Cymbidium pendulum*; *Cypripedium barbatus grandiflorum*, *Lowii*; *Dendrobium alba sanguineum*, *calceolaria*, *cretaceum*, *sanguinolentum*; *Dendrochilum filiforme*, *glumaceum*; *Epidendrum alatum majus*, *cinnabarinum*, *maculatum grandiflorum*, *Phœnicum*, *verrucosum*, *vitellinum majus*; *Galeandra Bauerii*, *cristata*, *Huntleya*, *melegaris*; *Lelia Brysiana*, *elegans* v. *Warneri*, *flava*, *purpurata*; *Miltonia spectabilis*; *Mormodes citrinum*, *luxatum*; *Odontoglossum citrosimum*, *hastilabium*, *nævium*; *Oncidium divaricatum*, *longipes*, *luridum guttatum*, *pulchellum*, *pulvinatum*; *Peristeria elata*, *cerina*; *Phajus albus*; *Promenæa Rollisonii*, *stapelioides*; *Saccolabium Blumei*, *fureatum*, *guttatum*, *guttatum giganteum*; *Sobralia liliastrum*, *macrantha*, *macrantha splendens*; *Stanhopea area*, *Devoniensis*, *oculata*, *tigrina*, *tigrina lutescens*; *Vanda Batemanni*, *cristata*, *Roxburghii*, *teres*; *Warrea tricolor*.

Forcing Pit.

PINERY.—As pines colour, they should be kept moderately dry. Plants shy of fruiting should be kept dry for a while, to cause a check, and then be liberally soaked, and kept warm and moist, and the new growth will result in the production of fruit. But to check them before they are well matured may cause premature fruiting, and should not be done until the plants have had a long course of liberal culture. Young stock must be encouraged to grow strong, by allowing plenty of room in which to expand their leaves; give plenty of water, and repot as necessary.

VINERY.—In vineries great attention must be paid to keeping the foliage healthy to the last, as on this depends the maturation of the buds that are to fruit next season. Keep up a moist atmosphere, and watch vigilantly against red spider. Vines heavily laden with fruit must have the assistance of strong manure-water. Be careful not to cut away laterals too freely, as they are most useful in helping the maturation of the bunches. Be careful to keep the bunches shaded with a few leaves, by tying the laterals over where necessary.

Literature.

Our Own Fireside. Edited by the Rev. C. BULLOCK. Hunt and Co.—This admirably conducted monthly is ever fresh, interesting, and varied in its contents. The series of papers on life in the Arctic regions are rich in romance for the young, and most graphically depict the privations and trials to which Arctic voyagers are exposed. In the July number is an admirable paper on the life and works of Dr. Donne, just such a paper as we should regard as a model for a work of this kind. The Rev. F. O. Morris continues his fascinating stories of animal intelligence and resources. Mrs. Ellis's "Songs of the Garden" are weak, and appear to be without a purpose; and Mr. Round's compilations are heavy and spiritless. But such papers as that by the Rev. S. W. Christopher on Dr. Donne, or that on the Mouse, by C. A. H. B., atone amply for a few shortcomings; and no one now expects a magazine to be made of strong meat throughout.

British Grasses: an Introduction to the Study of the Gramineæ of Great Britain and Ireland. By MARGARET PLUES. Reeve and Co.—This compilation may be useful to many who do not care to enter into the subject thoroughly; but to the earnest naturalist it is of no use at all, and indeed is only addressed to beginners. Like the majority of beginners' books, it is not quite accurate in every particular, and the references and allusions betray very hasty and superficial study of the subject by the author. We read all that is written here about *Dactylis glomerata* without learning

that one form of it is in the foremost rank of ornamental plants employed in the embellishment of the parterre. The notice of *Holcus saccharatus* is far below what is required in a book published since the Hulletian revelations. The note on the botanical name of the Pampas grass is quite unworthy of a book professing to be scientific. At page 109 we are informed that there is a viviparous variety of *Aira caspitosa* "the seeds of which germinate without falling from the panicle." This is a wonderful revelation, and the strangest part of the story is that "the stem is comparatively short, but what it loses in height it adds in bulk." To be ungallant is very objectionable, but perhaps it would be still more objectionable to let this pass without challenging its truth, and asking if the author has ever seen the viviparous variety of this grass. One of the handsomest of all grasses, and the one which has always been so much admired as a pot-plant in the experimental garden at Stoke Newington, *Elymus glaucescens*, is dismissed with six lines in the chapter on ornamental grasses, and all we learn about it is that it "flourished well in Kew Gardens this year." *Arundo mauritanica* is said to require heat, which we were not aware of. Mr. Salter manages to grow the variegated form of it in the open ground at Hammersmith. As there are several references to the "Cottage Gardener's Magazine," we think it proper to say that there is not, and never has been a periodical bearing such a title. We forbear to grumble any more. There is of course much useful information in the book, and the pictures are very nicely executed.

A Handy Book of Meteorology. By ALEXANDER BUCHAN. William Blackwood and Sons.—Many handy books of meteorology have been published of late under various titles, and this is unquestionably the best of them all. The author presents a rare exception to the generally fanatical and visionary tone of writers on the subject, it being Mr. Buchan's especial gift to state clearly what he understands thoroughly, and without any admixture of superstition or speculation. This is a book for the meteorological worker as well as for the general reader, and we can without hesitation say that it will suit the majority of farmers and gardeners better than any other work they can purchase, for it is practical, business-like, and in great part taken up with considerations of the English climate and seasons. On the subject of weather forecasts, the author says, "No prediction of the weather can be made, at least in the British Islands, for more than three, or perhaps only two days beforehand, and any attempt at longer prediction is illusory. The principles laid down in the chapter on storms show the possibility and mode of making real predictions. Thus, if from telegrams of the weather it appears that barometers are everywhere high over Europe, then no storm need be dreaded for two days at least. That if on the following morning barometers begin to fall in the west of Ireland, and easterly winds blow over great Britain and Norway, and south-easterly winds over France, it is likely that a storm more or less severe is approaching the British islands. The indications ought now to be closely watched by the telegraph; and if the winds veer towards the south and west, and increase in power, and barometers in Ireland fall rapidly, a great storm is portended, the approach of which should be telegraphed at once to the seaports threatened by it. But if, on the contrary, barometers fall slightly, or cease to fall, and the winds do not increase in strength, the storm has either passed considerably to the north of the British islands, or its approach is delayed, and no immediate warning is necessary."

Old Jonathan; or, The District and Parish Helper, continues as attractive and varied as ever—one of the best of broadsheets for free distribution in villages, and amongst the poor anywhere. The issue for July 1st is almost wholly occupied with anecdotes and stories of animals, the principal object of the editor being to inculcate amongst those who have the care of horses, cattle, dogs, &c., the necessity and importance of kindly treatment. Some of the stories are amongst the best of the kind we have hitherto met, and we would instance particularly that of the intelligent pony belonging to Mr. Field, of Pimlico.

The Ladies' Treasury, edited by Mrs. Warren, continues to be entertaining and useful, and is so elegantly produced as to be a marvel of cheapness. There are plenty of good things in the recent issues for promoting industry and amusement in the schoolroom and the nursery, and thrifty housewives will surely be well repaid by consulting the pages devoted to domestic affairs.

RECEIVED.—*The Gospel Magazine and Protestant Beacon*, edited by the Rev. D. A. Doudney, D.D.; *The Watchmen of Ephraim*, edited by John Wilson; *L'Illustration Horticole*, Vetschaffelt, Ghent; *The Journal of Botany*, edited by Dr. Secman.

Correspondence.

NEW PLANTS FROM EQUATORIAL AFRICA.—As a constant subscriber to your valuable paper (the GARDENER'S MAGAZINE), I trust you will grant me space for my notice to your numerous readers. In the month of May, 1866, while on business in a colliery district in the county of Durham, I had the good fortune to make the acquaintance of a carpenter lately in the employ of Dr. Livingstone, the great African explorer, he having been sent home in consequence of losing his speech. I was lucky enough to obtain from him several very curious seeds, which, I was informed, the natives were in the habit of eating when on long journeys. After trying several plans, I have at last succeeded in cultivating them to perfection, which has caused me quite a business. I have already had several hundreds of visitors to see my wonderful plants, or, I should say, shrubs. As I dare not venture on your space to describe my mode of cultivation, I will in this instance only describe the plants themselves. In the first place, I can fearlessly say they are unquestionably new to this country. Those I have at present, which are seeding, have attained from six feet to six feet four inches in height, and a circumference of fourteen inches at the thickest part. The stalk is of a pure crimson colour, with here and there large fleshy protuberances of a yellowish cast, from which shoot the leaves, from five to seven in number, of a dark green colour, white nearer the edges at the top of the leaf for about a third the diameter, similar in appearance to variegated holly. The leaves are serrated at the edge, the flowers, of which there was an abundance, eclipse all in grandeur I ever yet beheld, being about twice the size of the tulip, the ground colour of the petals azure blue spotted with crimson, and streaked here and there with large yellowish streaks, feeling to the touch like velvet, the seeds of which I shall have some ready soon if dry weather prevails. I am informed by the giver they were used by them as pickles, and resemble in flavour gherkins. I shall be happy to let any of your numerous readers have a small quantity of seeds as soon as ready, the number to be

according to applications, providing they will pay for the trouble I may have in writing directions as to cultivation, finding stamps, paper, &c.; perhaps to make a small charge of one shilling or so to defray expence. I cannot supply any one with a large quantity. Hoping to be able to supply every applicant, in return for kindness received through your valuable paper, I subscribe myself, respectfully yours, &c.,

J. HESLTON.

3, St. Hilda Street, Hartlepool.

[We should like to see a plant, for it is not at all certain that this is new to science, though our correspondent may feel quite sure about it.—Ed.]

THE RED-BERRIED ELDER.—In the autumn of 1865 some discussion took place in the GARDENER'S MAGAZINE respecting the *Sambucus racemosa*, the scarlet elder, but which would be more correctly termed the coral-berryed elder, one of your correspondents—who was myself, under initials—observing, that no one who had not seen this shrub, as it is met with in many parts of Switzerland and Germany, can form any idea of its extreme beauty; and as it is perfectly hardy, it seemed extremely desirable that it should be introduced into and extensively planted in England; the only drawback—and it is a great disadvantage—being, that from its flowering very early, usually the latter end of March, the berries, which are freely formed, too generally wither or fall off; though I observed that on a young shrub which I then had a few berries had remained and ripened, and therefore gave hope that, in favourable seasons, on large shrubs some might generally do so. Another of your correspondents stated that he knew and highly valued the plant, which had been growing in his garden in Wales for several years, but from which the berries had uniformly fallen or perished, and therefore he deemed it useless to attempt its cultivation in this climate, though he thought it probable it might succeed better in Scotland, where it would probably flower later. Could it be acclimatised here, or got to flower, as our common elder does, in May, then in all probability it would retain its berries, as that does. In my garden here I have two shrubs—one purchased in England after my return from Switzerland in 1865, the other a seedling which sprang up unexpectedly in the following spring from the roots of a fern brought from thence. Both are now good-sized shrubs, and flowered freely this spring, and formed berries; but from the former they all withered up and fell off. Over the latter shrub I had some protection placed, and the result has been its retention of several of its berries, which have already assumed their bright coral colour. This shrub, in its present state, by no means conveys any adequate notion of its extreme beauty as seen abroad, but a fair notion can be obtained of its nature and character.

F. W. T.

PROLIFEROUS ROSES.—In the GARDENER'S MAGAZINE of this date is a reply to a correspondent, asking information as to the cause of the malformation of rose-buds, similar, I presume, to the one I enclose, which is one of many buds all alike, in several rose bushes scattered here and there in a gentleman's garden and grounds in this neighbourhood. On reading your reply, I thought it likely to be correct, until I noticed a bush with similar buds, one of fifty or sixty forming a bed in my own garden. Now this bed is full five, if not twice five years old. None of the other bushes in the bed are so affected; and I noticed that my neighbour's bushes and my own were all of the same kind of rose. In my own case, I do not think it can arise from over-manuring, or too fresh dung being applied.

J. R., Greenock.

[The sample sent in this case is of the kind which is most common. Those referred to last week were uncommon. That over-manuring will produce these monstrous growths we know, as the result of observation and experience; but we are well aware that such monstrosities occur where the soil may be suspected of poverty rather than excess of nourishment. The flower sent by J. R. is not expanded, but it appears to be a dark Gallica.—Ed.]

WHAT IS A VARIEGATED GERANIUM?—Would you kindly inform me, through the GARDENER'S MAGAZINE (for the information of the committee of the Peterborough Horticultural Society), if you consider *bicolor geraniums* to be, strictly speaking, *variegated*? and would a person competing for a prize offered for variegated geraniums, by exhibiting such varieties as Luna and Mrs. Longfield with tricolors, render himself liable to be disqualified? If you could let an answer appear in the next number, published on Saturday, the 6th instant, you would much oblige

Westgate, Peterborough.

JAMES W. EWART.

[Our opinion on this subject may be stated in a few words. The term "variegated" originally implied the presence in the leaf of a white or creamy margin, or a white or creamy disk, or otherwise a defect of colour. We strongly object to expand the meaning of such a term as "variegated," because custom should rule where there is no law. If, therefore, a schedule invites competition under the term variegated, Luna and Mrs. Longfield are disqualified. We could justify this opinion with a series of sound arguments, but have no time for it now. We will add, however, that if the term variegated is not restricted in meaning as we propose, it must quickly cease to have a meaning; for if you admit Luna because of its sulphur margin and cinnamon zone, you must admit Cerise Unique on account of its beautifully marbled leaf, and Commander for its radiate bars of two or three nearly distinct colours. It may be that schedules are indistinct on this point, but we must not for that reason play fast and loose with the technology of horticulture.—S. H.]

MR. MECHE'S MODE OF KEEPING POULTRY.—Do Poultry Pay?—That is a very proper question to ask, for I hold as a principle that everything that does not pay, directly or indirectly, should be abandoned as commercially and agriculturally wrong. I test this by the following propositions and comparisons:—It pays indirectly to produce cattle, sheep, and pigs; if so, why not poultry? It does not cost more to produce a pound of poultry, live weight, than a pound of meat, live weight. Well, then, do poultry sell at more or less per pound live weight than meat? The answer to this is, "A pound of poultry, live weight, always sells for much more than a pound of meat, live weight," and so the question is settled in favour of poultry. The average price of first quality beef is 5s. per stone or 7½d. per lb. for the whole carcass, net dead weight. The live weight price would therefore be 4½d. per lb., because, according to the best authorities, fat beasts lose 40 per cent. of their live weight in offal. The average live weight price of the best poultry is quite 9l. per lb., or double the price of beef, and not quite double the price of mutton. At this time of year poultry sells wholesale for much more than double the price of meat. Those I have sent to market recently have sold for 11½d. to 1s. per lb., live weight, against 4½d. live weight for beef, which is its present price. That settles the question so far, and the verdict is strongly in favour of poultry.

Poultry are evidently dear food to the consumer; but does it cost more food to produce a pound of poultry than a pound of meat, live weight? I answer, decidedly not; but the reverse. For my cattle and sheep don't eat worms and insects, whereas fowls consume them abundantly, and economize and apply every scattered seed or kernel that would otherwise be wasted. In another point of view, is the cost of attendance and shelter greater with poultry than with cattle? I reply, not. As to the production of eggs, that depends upon the quality and quantity of food administered, and the accompaniments of proper warmth and shelter. There is no fear of overstocking the market with either eggs or poultry; we consume daily one million of foreign eggs! I generally keep from 300 to 400 fowls. They have free access to every field during the whole year, and although they help themselves at harvest time when the corn is in sheaf, I always get my best crops of corn on fields adjoining the hen-house. I have this year two fields of wheat drilled, and only one bushel of seed per acre. They come within 10 to 20 yards of the fowl-house, and are a perfect plant, although the poultry have been scratching and cultivating the fields ever since they were drilled. We are apt to forget that fowls, like sheep, manure where they go. I must say I used at one time to feel nervous and angry when I saw them hard at work on the newly-sown corn, but I soon learned to feel confident that insects were their principal gain, and that my well and deeply-deposited corn escaped.

J. J. MECHE.

Replies to Queries.

P. F. L. S.—It is only in rare and exceptional cases we attempt to name plants from leaves. There are thousands of plants with such leaves as you send.

P. S. D. S.—1, *Selaginella brasiliensis*; 2, *S. formosa*; 3, *S. serpens*; 4, *S. denticulata*; 5, *A. Lomaria*, which cannot be determined without the fruit; 6, *Pteris cretica albo-lineata*.

Potatoes for Garden and Field Culture.—J. D. R., dating from Cobourgh C. W. America, asks for the names of two best early, two best second early, and two best field potatoes. He says (writing on May 29th), "Our spring is very backward; if it continues dry for about two or three days, I shall be able to plant potatoes, and vegetation is so rapid when the weather gets warm, that we shall be able to dig potatoes on or before the 15th of July." To name the two best for our correspondent is impossible; we might be many years engaged in tilling his ground ere we could say which were the two best of any class; but he cannot go far wrong in taking, for first earlies, Smith's Early, or Curly (it has two names), and Myatt's Ashleaf. For second early, King of Potatoes and Wheeler's Milk White. For field culture, Paterson's Victoria and the old Red Regent. The Skerry Blue is a capital field potato, and we have one called American Red, received this season from Messrs. Gibbs and Co., of Down Street, Piccadilly, which we believe will prove the finest variety hitherto seen for field culture and market. In size, flavour, and hardness A 1, but we have yet to learn if productive.

Corrosive Sublimate to destroy Earthworms.—Amicus.—The following is a recipe originally published in the "Garden Oracle for 1864": Corrosive sublimate 1 oz., common salt 1 tablespoonful, boiling water 1 pint; stir till dissolved. Pour the mixture into 9 gallons of rain-water, and water the lawn or the soil in flower-pots, wherever, indeed, the worms that annoy are to be found. We must confess we do not understand how any real difficulty about getting rid of earthworms can arise in any garden. Lime-water can be made with the least possible amount of trouble, and is always effectual.

Roses in Greenhouse.—Ib initio.—If your roses make long shoots in the house, it is a proof the house is not well adapted for them, or that they are kept too far from the glass. The sort of house that suits roses is one with a nearly flat low roof, and the treatment should comprise ample ventilation; and heat must be applied with the utmost caution, as any excess is a most serious injury. As you ask about mildew, we advise that you secure a good growth by means of a generous compost and sufficient water, for when roses grow freely they are but seldom affected by mildew. But for the immediate treatment of mildew there is nothing so effectual as dusting with flowers of sulphur. The plants you suppose to be eaten by earthworms are probably eaten by slugs; earthworms do not eat growing plants, and upon the whole are very beneficial, and should therefore not be recklessly destroyed. Of course they are a nuisance in flower-pots, but in the common soil and on grass lawns directly beneficial.

J. Stimson.—Your communication respecting distribution of tulips on the 1st of July came into our hands on the 2nd.

Ants.—S. W. B.—We have published a great many recipes for dealing with ants, and we really cannot offer you anything new. A few weeks ago we observed in a bed of flowers one particular plant in the process of being smothered in the way that ants do smother plants effectually and quickly. We placed close beside it an empty flower pot inverted, and with the hole stopped with a piece of rag. The ants discontinued their work of entombing the plant, and took to the empty pot, which now contains the nest. At any moment we can remove it, and consign the nest to destruction; but probably we shall leave them to enjoy their home undisturbed.

Thrip on Melons.—D. M.P.—The only safe course is to fumigate with good tobacco, and apply the syringe freely afterwards. Thrip and red spider are common pests of melons in consequence of a frequent mistake of cultivators. It is known that melons require less moisture and more sun than cucumbers, and some cultivators go to an extreme and allow their melons to be roasted, not knowing how to hit the happy medium.

Golden Balm.—Veritas.—This beautiful plant is at its best during April and May. In the course of June it becomes dull in colour and too strong in growth, and is sometimes eaten up by red spider. A pretty sure way of making a second display is to cut it down close about the 15th of June, and give it a heavy soaking of water a week afterwards.

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M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.			M. Imp. avrg. of 43 yrs. Growth	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain							
1867			b. m.	p. m.	b. m.	p. m.	b. m.	p. m.	b. m.	p. m.	ix.	min	ix.	mn.	ix.			
14	S	4th Sunday after Trinity	4 1	8 10	6 10	10 p.m.	2 17	11 m.	30.11	30.00	86	51	68.5	0.0	61.5	Bolbophyllum Henshall, 1	...	Java
15	M	St. Swethin.	4 2	8 9	6 57	"	3 2	"	30.12	30.08	84	52	67.0	0.0	61.5	Warrina tricolor, 1	...	Brazil
16	T	Bury St. Edmund's Exhibition, 16th to 19th.	4 3	8 8	7 39	"	3 52	"	30.09	30.34	78	52	65.0	0.0	61.6	Vanda tricolor, 1	...	Java
17	W	Dr. Isaac Watts b. m. 1674.	4 4	8 7	8 15	"	4 47	"	30.02	29.98	74	41	57.5	0.0	61.8	Stanhopea aurea, M	...	Guatemala
18	Th	Trim Horticultural Show.	4 5	8 6	8 46	"	5 46	"	30.03	29.92	74	42	59.0	0.0	62.1	Devonensis, M	...	Mexico
19	F	Rev. Gilbert White born July 18, 1720.	4 6	8 5	9 11	"	6 48	"	29.93	29.86	75	37	56.0	0.0	62.3	Cattleya amabilis, M	...	Brazil
20	S	Length of day, 15 h. 40 m.	4 7	8 4	9 39	"	7 54	"	30.16	30.00	73	49	56.5	0.0	62.5	superba, M	...	"

The Gardener's Magazine.

SATURDAY, JULY 13, 1867.

GOOD ENGLISH RAISED ROSES are so few in number that we ought to offer something like an ovation to MISS INGRAM, the charming beauty that made her *début* at the second great exhibition of the Royal Botanic Society, 1867. As we saw it on that occasion, it reminded us of Madame Alfred de Rougemont, but as we have since seen it at the Crystal Palace, and Birmingham Town Hall, and lastly at Stoke Newington, we would prefer to compare it to Madame Vidot, Madame Hoste, Mrs. Rivers, and to say, as the end of the comparison, that it is extremely likely to surpass all these roses in free growth, amplitude and beauty of foliage, and the perfect finish of its globular, thick-petalled, delicately-tinted, and odoriferous flowers. Although prepossessed in its favour in the first instance, when making notes on flowers that had travelled far during an arid and heated condition of the atmosphere, we were delightfully surprised when it came into our hands a few days since, under circumstances which afforded opportunities for leisurely inspection. One of the peculiarities of this beautiful variety is in its leafage. The leaflets are longer and more glossy than is usually the case in hybrid perpetuals; there is in the hard surface and the purplish leaf-stalks what cultivators would call a taint of China blood, and one might almost believe that the fresh and delicate odour of this rose had in it a dash of the true Tea fragrance. As a hybrid perpetual it may be regarded as in some respects peculiar, and as a rose for the garden and the exhibition table it may be regarded as in all respects desirable, valuable, and a triumph for Mr. Ingram, of Frogmore, the fortunate raiser, and an encouragement to English rosarians everywhere to apply themselves to the entertaining and exciting pastime of growing roses from seed. Miss Ingram will be one of the most renowned of the little family of English raised roses, a family of quite recent creation, but which increases fast, and with every increase confers a new honour on the land of its nativity. John Hopper, Princess Mary of Cambridge, Beauty of Waltham, Lord Herbert, Lord Macaulay, Lord Clyde, King's Acre, Queen Victoria, and Princess of Wales, are conspicuous members of the English family of named roses. We believe Miss Ingram will prove to be the most beautiful, most worthy, and the most generally favoured of the group, and most gladly apprise our rose-loving friends that in due time Mr. Turner of Slough will be happy to afford them the means of judging for themselves of the merits of the new variety, by that best of all tests, its cultivation in their own gardens.

DEATH OF MR. GEORGE PAUL, OF CHESHUNT.—It is our painful duty to have to announce the death of Mr. George Paul, the much respected head of the celebrated firm of Paul and Son, of the Old Nurseries, Cheshunt. Mr. Paul has been more or less afflicted during several months past, but lately he rallied, and resumed his wonted activity; and his demise on Saturday last was a sudden and unlooked-for event, although he had but so recently recovered from a long and severe illness. It is but proper we should associate with this sad announcement a word in testimony of the deserved esteem in which Mr. Paul was held by all who knew him. In the love of truth, in upright dealing, in business enterprise, and in practical skill and extent of useful knowledge, the deceased gentleman stood far apart from the average of mankind; and to enjoy an hour of his society at any time was to be assured that goodness and gentleness were not yet extinct. Wherever his name was mentioned in the horticultural world it was accompanied with expressions of respect; and we feel assured his loss will everywhere be felt as making a great gap in the circle of able and upright men who take the lead in the horticultural enterprises of this country. Mr. George Paul, hitherto the junior partner in the firm, but now its head, is too well known to need any introduction to public notice in this place. But we cannot refrain, while recording the death of the father, from testifying that the son is well fitted to walk in the footsteps of one who was loved at home and honoured abroad; and we can have no better wish for our friend than to wish him abundant prosperity, and a like share of the world's esteem to that enjoyed by his her.

No. 115, NEW SERIES.—VOL. X.

MR. MEECH'S FARM AT TIPTREE will be open to public inspection during the period of the Agricultural Society's exhibition at Bury. No introduction or cards of admission will be necessary.

A SHOWER OF PEBBLES.—A Belgian paper, the *Gazette de Mons*, relates that in the afternoon of June 24th, during a storm which broke over Frameries, a shower of small pebbles fell from the sky. Several of them were collected, and found to be about the size of a small nut. The composition is a sort of enamelled silex, resembling Jasper.

THE CRITICISM ON THE JUDGING OF THE AZALEAS shown by Mr. Turner and Messrs. Glendinning at Regent's Park, which appeared in last week's issue, contained a trifling error, which may as well be rectified. The competition and the judgment to which our remarks referred occurred at the first great exhibition, May 29th, and not to the second show of June 19th, as stated. The error does not affect the argument at all. It is but a slip of the pen, but we are nevertheless greatly obliged to a correspondent who has called our attention to it.

THE STEALING OF PLANTS FROM PUBLIC GARDENS in the metropolis is becoming so general that the managers of those places are compelled to adopt special means for the repression of the practice. A short time since one Thomas Linfield, a groom, was charged at Marlborough Street Police Office with stealing geraniums in Hyde Park, and Mr. Knox, the presiding magistrate, inflicted a fine of 40s. or one month's imprisonment. At Worship Street Office, Charles Lyles, a well dressed lad, was charged before Mr. Newton with having pulled up some geraniums in Victoria Park, and was fined 10s. or a week's imprisonment. Perhaps it may tend to lessen the number of such offences to make it known that in the present state of the law places of general resort are fully protected; they have been so, indeed, since a mischievous youth made himself hatefully notorious by smashing the Portland Vase. The flowers, trees, &c., in the London parks are considered by the law as the property of the Commissioner of Works, and he therefore has power to prosecute for theft or damage.

ROYAL BOTANIC SOCIETY.

THIRD GREAT SHOW, WEDNESDAY, JULY 8.

This, the last show of the season at the gardens of the Royal Botanic Society, was as interesting as any that preceded it, though many degrees less attractive, owing to the absence of azaleas, pot roses, and other subjects that contribute in a special manner to the enrichment of the earlier exhibitions. Ferns, palms, and cycads were abundant, and afforded a grand wealth of greenness and variety of form, and in respect of colour there was a glorious bank of pelargoniums, some fine collections of zonal varieties, a good bank of orchids, a fair sprinkling of heaths, plenty of cut roses, carnations, and pansies; and amongst the stove and greenhouse plants, Allamandas, Ixoras, Clerodendrons, Pleromas, and other showy subjects. The pelargoniums were arranged, as usual, on the long bank at the upper end of the tent, the orchids on a cross bank under the shadow of a bank of ericas; lower down, right and left, were banks of zonal pelargoniums; beyond these a pretty group of novelties from Messrs. Veitch; on the boundary banks every way the usual display of stove and greenhouse plants, wherein fine-foliage subjects were conspicuous for their abundance and beauty; and beyond all, the corridor, with a plentiful display of fruit and cut flowers. It would greatly improve such an arrangement if the orchids were favoured with a rear wall of green baize or a row of coniferous trees in pots, for when we walk between them and the bank immediately adjoining, the orchids show to a great disadvantage; in fact, the back view of anything, from an orchid to an elephant, is unfavourable to an agreeable first impression. The show and fancy pelargoniums were pretty much the same kinds as we have already reported on this season, and the principal exhibitors were Messrs. Fraser, Mr. Nye, Mr. Ward, and Mr. Wiggins. We made note of only two particulars in this department, namely, that Mr. Fraser's fancies were remarkably fresh and delightfully perfect in training and finish, and that Mr. Ward had, in a collection of good show varieties, one called the Rival, which appeared to be about as finely formed a flower as any in the whole of this fine display. In case this variety is not known to the generality of our readers, it may be as well to add that the lower petals are deep salmon colour overlaid with lake veins; the top petals maroon shading to black. From these we turn to the zonales, upon which we have made very few notes this season.

ZONALE PELARGONIUMS.—Mr. Ward, gardener to F. J. Wilkins, Esq., Leyton, and Mr. Catlin, gardener to Mrs. Lermite, Finchley, were equal first in the class for six with very fine plants. Mr. Ward had Madame Bouchardet, a fine salmon; Sobieski, intense scarlet; Louis Roeseler, in the way of Herald of Spring, but apparently lighter in colour, one of the finest plants in the tent; Rose Rendatler, superb in every respect, and the finest zonal of the day; Monsieur Rendatler, a splendid salmon-coloured variety; and the Clipper, a fine scarlet. Mr. Catlin had Smith's Excellent, Tintoret, Madame Vaucher, Monsieur Rendatler, Scarlet Globe, and Monsieur Martin. The last named showed too many sticks; all the rest were in perfect finish. As our country readers sometimes ask about the London style of growing these things, we took the trouble to measure Mr. Catlin's plant of Excellent. It measured four feet over, in a regular low convex outline, and had 66 trusses full open, not a withered flower visible, and every leaf in its place. Mr. Windsor, gardener to J. R. Ravenshill, Esq., Walthamstow, put up a grand six, the names of which we missed. Mr. Winter, gardener at the Elms, Golder's Green, Hendon, had a fine group in too flat a style of training; the varieties were Scarlet Globe, Gem of Roses, too shy for exhibition; Senator, Cerise Unique, a blaze of colour; Madame Vaucher, Charles de Mas, a green-leaved scarlet of good form and fine deep colour. Mr. Weston, gardener to D. Martineau, Esq., of Clapham, had nice small plants in an admirable condition.

SEEDLING ZONALES.—From Mr. Thorpe, Little Thorpe Gardens, Leicester, *Fairy Princess*, leaves darkly zoned, flowers white with pink centre, petals not broad enough; *Sparkler*, a zoned scarlet, of average good qualities; *Salmon King*, neat dark zone, flowers clear salmon, good form, nicely finished; *Starter*, a showy Cybister-like variety. From Mr. Pottle, gardener to B. D. Colvin, Esq., *Eastern Beauty*, a neat zone, flowers salmon, with wash of red; *Beauty Supreme*, a noscay variety, the flowers rosy pink. From Messrs. Downie, Laird, and Laing, *Countess of Rosslyn*, rose pink; *Seraph*, Mrs. Laing, deep crimson scarlet. These have been described and characterized as much above average merit. Mr. Hally, of Blackheath, sent two double-flowering varieties which did not appear to possess any particular merit. *Nimrod* is a brilliant scarlet. *Rose Queen* is a good scarlet colour. With these a single variety called *Hydrangea*, which appears to be a considerable degree inferior to Pink Beauty. A few tricolor-leaved varieties were to be found of course. Mr. C. Turner, of Slough, sent a beautiful variety named *Miss Turner*; the leaf is flat and round, margin yellow, zone chestnut and bright red; in every respect first-rate. Mr. Watson, of St. Alban's, sent *Enchantress*, a first-rate tricolor, in the style of Miss Watson. Mr. Bull contributed the entire collection of Mr. Will's varieties, which he is preparing to send out, and a magnificent lot they are. The following were noted in addition to those already described:—*Admiration*, probably the finest of all the bronze zonales in existence, the margin and disk rich sulphur, zone broad, the colour bright reddish brown. *Rosalind*, very neat habit, fine dark chestnut zone. *Compactum*, in the style of Luna, but with more colour. *Painted Lady*, disk and margin sulphur, broad zone of rich red brown with distinct shade of pure red, remarkably rich, and rather curious, too, in colouring. Mr. Thorpe, of Leicester, sent *Earl Howe*, a pretty tricolor, the leaf large, more or less rayed, zone broad with much rust-red and black colouring; good.

NEW SHOW AND FANCY PELARGONIUMS.—From Mr. Nye, *Archduke*, large and handsome, bottom petals carise red overlaid with lake veins, top petals maroon shaded to a rosy edge, clear white throat; fine. From Mr. Turner, *Woman in White* (Hoyle), lower petals pure white, top petals large deep rich crimson, with violet veins at the base; beautiful. From Mr. Kimberley, of Coventry, *Lizzie*, small, nice form and flat, lower petals pale lavender with rose veins, top petals lavender with rose veins and small black spot; novel, distinct, and pretty, yet not at all a desirable flower. *Grand Arab*, medium size, lower petals clear flesh with small bluish crimson spots, top petals blackish crimson with whitish edge; very showy and distinct, but not a well-finished flower.

ORCHIDS.—The Leicester lot shown by Mr. Brockhurst, gardener to A. Turner, Esq., took the lead in the class for fifteen, Mr. Penny taking second place, Mr. Wilson, gardener to W. Marshall, Esq., third, and Mr. Peed fourth. Mr. Brockhurst's plants were *Aerides affine*, *Odontoglossum Pescatorei*, *Saccolabium guttatum Holfordii*, *Cattleya Warneri*, *Saccolabium Blumei majus*, *Odontoglossum cordatum*, *Aerides Larpente*, *Phalenopsis amabilis*, *Lælia purpurata*, *Odontoglossum hastilabium*, *Cattleya Dowiana*, with two of its gorgeous purple, buff, and gold coloured flowers, suggesting what we may expect when this rare orchid attains exhibition size; *Vanda insignis*, *Cypripedium barbatum majus*, *Saccolabium guttatum*. Mr. Penny's plants were *Trichopilia crisa superba*, finely done; *Cypripedium barbatum superba*, *Cattleya Mossiae superba*, *Odontoglossum neivium majus*, a very fine example both in respect of the variety and the perfection of its cultivation; *Aerides odorata purpurascens*, *Aerides Lobbia*, *Cypripedium barbatum superbum*, *Odontoglossum cordatum*, *Vanda insignis*, *Saccolabium guttatum*, *Epidendrum vitellinum*, *Aerides crispum amethystina*, *Dendrobium filiforme*, with thirteen spikes of its curious and delicate flowers; *Aerides affine superba*, *Anguloa Ruckeri*. In Mr. Wilson's lot were *Phalenopsis Luddemanniana*, admirably done; the curious and rare *Cypripedium Stonei*, a good *Lælia purpurata*, *Oncidium pulvinatum*, *Oncidium leucochilum*, *Cattleya Mossiae*, *Dendrobium eburneum*, and others. The best group of eight came from Mr. Wiggins, gardener to W. Beck, Esq., Isleworth. This group consisted of *Cypripedium villosum*, *Cypripedium Hookeri*, *Odontoglossum hastilabium*, *Aerides virens major*, a very fine plant; *Aerides Schrederi*, with four spikes of flowers; *Epidendrum vitellinum*, *Cypripedium barbatum*, and *Aerides crispum*. From Mr. Hill, gardener to R. Hanbury, Esq., a good eight, in which were examples of *Cypripedium Stonei*, with two flowers; *Odontoglossum Schlieperianum*, with one spike consisting of eleven flowers, the colours green, yellow, and brown. Mr. Page, gardener to W. Leaf, Esq., Streatham, had a nice group comprising *Cypripedium Lowii*, with three flowers, and a good *Trichopilia crisa*. In the trade class, Mr. B. S. Williams took first place with *Cypripedium barbatum superbum*, *Lælia purpurata*, *Phalenopsis grandiflora*, *Anguloa Clowesii*, *Vanda suavis*, and *Aerides odoratum majus*.

CARNATIONS, PINKS, AND PICOTEES.—The names of the best stands of these will no doubt be welcomed by many of our readers as affording the best suggestions for the formation and improvement of collections. Mr. Turner, of Slough, put up the best collection of **CARNATIONS**, comprising *True Blue*, a new variety, of medium size, marked with heavy flakes of bright purplish rose, beautiful and novel. In the same stand Lord Clifton, Dr. Foster, Lorenzo, Fanny Gardener, Prince Albert, Merrimac, Duchess of Kent, Annihilator, Ruth Hannah, Flora's Garland, Young Milton, Earl Stamford, Justice Shallow, Lady of the Lake, John Keil, Brutus, John Rect, Cradley Pet. Mr. H. Hooper, of Widcome Hill, Bath, had *Venus*, *Beautiful*, *Stone's Venus*, *Mayor of Nottingham*, *Parker's Garland*, *Prince of Wales*, *Jefferson Davis*, *Gem*, *Duke of Cambridge*, *Grand Master*, *Oriana*, *Juno*, *Beauty of Woodhouse*, *Glory*, *Excellent*, *Diana*, *Neptune*, *Fanny Gardener*, *Standard*, *Victor*, *Florence Nightingale*.—Mr. Turner, of Slough, and Mr. Hooper, of Bath, exhibited **PICOTEES**. Mr. Turner showed Mrs. May, Miss Wood, Duke of Devonshire, Miss Sewell, Mrs. Dixon, Prince Arthur, Miss Williams, Eliza, Forester, Robin Hood, Eiris, Amazon. Mr. Turner took first place with twenty-four **PINKS**; the varieties were Rev. G. Jeans, Annette, Attraction, John Ball, Celestial, Titus, Marian, Device, Exhibitor, Charles Turner, Invincible, Bertram, President, Goliath, Alma, Delicata, Aurora, Purity, Blondin. Mr. Bragg, second, with Blondin, Purple Prince, Nonpareil, Mr. Bragg, Dr. Maclean, Hector, Device, John Ball, Ernest, Beauty, Attraction, Rifleman, Victory, Celestial, and ten seedlings. Besides these, Mr. Bragg presented *Nonpareil*, broad laced purplish rose, scarcely rich enough for its class. From Mr. Sbenton, Biggleswade, *Primrose Queen*, large primrose white showing much green at the base; bad. *Leviathan*, large, light rose lacing, blackish crimson at base of petals; this appears to be a good pink, but when we saw it it was falling to pieces, probably in consequence of the heat of the weather and the draughty place it was in. *Sultan*, small, very heavy lacing of maroon crimson; fine. *Ethel*, lightly edged rose, heavy

maroon crimson base. Mr. Pizzey, gardener to Mrs. E. Fulmer, of Slough, took the small silver medal for a beautiful dozen; they were Rev. G. Jeans, Blondin, John Ball, Attraction, Marion, Scarlet Gem, Device, President, Ernest, Bertram, Delicata, Cristabel.

PANSIES.—Messrs. Downie, Laird, and Laing, of Frederick Street, Edinburgh, and Stanstead Park, Forest Hill, took the first place in the class for thirty-six; the varieties were Kinleith, Attraction, Prince of Prussia, La Déb, Mary Lamb, J. B. Downie, Rev. H. Dombain, Invincible, Blink-bonny, Isa Craig, Ladyburn Beauty, Chancellor, Lavinia, Arab, Cherub, Princess of Wales, Lord Clyde, Jessie Laird, Francis Low, Countess of Rosslyn, Perfection, Miss Williamson, Novgorod, Czar, Peeress, Eclat, Cupid, C. W. R. Ramsay, Dux, Lady Lucy Dundas, George Wilson, Miss Hopkins, Gem, Village Maid, General Lee. Mr. Hooper, of Bath, second, with Attraction, Baroness, George Catley, a fine small dark self; Sunset, Lady E. Studley, Sir Launcelot, Ajax, Mr. T. Moore, Harry, New Colour, a self, curious rosy purple, with shade of puce, very beautiful; Randolph, Lord of the Manor, Mrs. Gladstone, Flower of Spring, Alexander the Great, Miss Williamson, Novelty, Snowball, Queen of Beauties, Princess Helena, a beautiful white ground flower; John Gray, Princess of Wales, Purple Perfection, Francis Low, Narcissus, Cream of the Creams, Countess of Rosslyn. Mr. Bragg put up a good thirty-six, and Mr. Adair, of Aliceville, Edinbrough, presented a pretty twenty-four, comprising Attraction, Miss Hill, Ladyburn Beauty, Invincible, Chancellor, Mrs. J. White, J. B. Downie, Arab, Princess of Wales, Cherub, Lavinia, Francis Low, Cupid, Miss Ramsay, George Wilson, Lady L. Dundas, Perfection, Eclat, Alice Downie, General Lee, Countess of Rosslyn, Miss Muir, Czar, Jessie Laird. From Mr. Hooper, of Bath, a new bedding pansy, called *Sunset*, medium size, bright gold yellow, with small dark central spot. **FANCY PANSIES** were contributed by Messrs. Downie, Laird, and Laing, the varieties being Maccaroni, Oriana, Black Prince, Mrs. R. Dean, Mrs. H. Northcote, Wm. Moffatt, Ninian Neven, Amy, Eola, Prince Napoleon, Magnificent, Indigo, H. W. Adair, Mrs. T. Scott, Striped Queen, Punch, Harlequin, Princess Alice, Figaro, Noemi Demay, Colleen Bawn, Jeanette, Pacha, Prince of Wales, Princess Matilda, Caffra, Earl of Rosslyn, Mrs. Montgomery, John McNab, Belle Lelloise, Emblem.

VERENAS.—Mr. Perry put up a splendid group of twenty-four varieties, the following amongst them being new varieties: *Emma Perry*, large pip, fine stout petal, colour pale flesh, with rich carmine eye. *James Birbeck*, very large, brilliant carmine with crimson shades. *J. C. Ward*, clear light purple, with gray eye; quite distinct from William Dean, and a very desirable colour. *Striking*, large, deep crimson, with red shade and clear lemon yellow eye. *Splendid*, a quite new colour, being as nearly as possible that of Lord Elgin cineraria, say clear vivid magenta. *Miss Turner*, white, with delicate rose eye. *Miss Mole*, purplish rose changing to slaty rose. *Interesting*, carmine scarlet changing to carmine red; large lemon coloured eye. These are all large finely formed flowers, and represent the highest type of exhibition verbenas. Mr. Perry having raised his strain of seedlings to a degree of perfection which we believe has no equal in this country. With these the following of previous years, from the same seed-bed: *Leab*, puoy rose pink, lemon eye. *William Dean*, deep indigo purple, primrose eye; one of the most splendid verbenas in cultivation. *Indispensable*, bright crimson purple; *Mazeppa*, intense scarlet, pale lemon eye; *Champion*, deep velvety crimson, with blackish shade, and small gray eye; *Delicata*, brilliant bluish pink, grayish eye; *Meteor*, deep reddish crimson, gray eye.

NOVELTIES AND MISCELLANIES.—The beautiful bank of plants from Messrs. Veitch and Son, in which were many valuable plants of recent introduction. Here we found the glorious *Cattleya Dowiana*, the splendid colouring of which fully justifies M. A. Verschaffel's showy picture of it; the plant had two flowers richly coloured buff and purple; it needs only time to take rank with the most popular of exhibition orchids, *Dendrobium Bensoni* is now well known to cultivators, and is certain to become a favourite. *Croton interruptum* is interesting and curious; the leaves are long and linear, the young leaves are rich green, with central gold yellow stripe, the old leaves bronzy green with dull red stripe. *Croton irregulare* has leaves an inch wide and a foot long, rounded at the base, some of them slightly twisted; all of them dark green, with gold yellow stripe. *Neirembergia rivularis* is a charming species, with tufts of neat grass green leaves, and pretty white salver-shaped flowers; quite a gem in this class of plants. *Begonia Veitchii* is one of the most distinct begonias known, the leaves small, dull green, in tufts from amidst which rise few-flowered scapes, bearing large flowers of an intense orange red colour. *Abutilon Thomsoni* has elegant sagittate deeply lobed leaves, the colours of which are grass green and rich gold yellow in about equal proportions; a charming plant for those who love elegance in variegated leaves. *Acalypha tricolor* is a plant of distinct and noble character, with large floccid leaves of a deep solemn bronze colour, occasionally overlaid with oblique bars of orange scarlet; a quite new style of leaf-colouring. *Blandfordia Cunninghamii*, a charming greenhouse plant, with tubular flowers of bright orange. *Leptopteris superba*, the richest habited of all known ferns. *Adiantum concinnum latum*, a bold form of a well-known fern. A pretty variety of *Irish Yew*, with golden-tipped shoots. A series of new *Gloxinias*, the best of which were *Prinse of Teck*, upright flowers, delicate carmine, whitish tube. *Madame de Smet*, soft lavender, white tube. *Vlaanderen*, richest carmine. *Topaz*, erect flowers, curious shade of red with shades of carmine; the tube slightly tinged yellow or buff. All first-rate except the last, which is showy, but scarcely equal to the demands of the present day. Mr. T. Thorpe, of Leicester, sent a new verbenas, named *Rev. E. N. Pochin*, the colour rosy purple; not good. Mr. George presented examples of his useful series of *Compactum Tropæolums*, but not in a very good condition. A new one of this series is *Le Grand*, a large bush-like plant, with large finely formed scarlet flowers. Mr. Thorpe presented a beautiful single *Petunia*, called *Single Beauty*; the form is all that can be desired; rich rosy purple centre, and rosy purple veins on a bluish ground; this is a valuable novelty. Mr. Bull presented *Petunia Official*, single, small, neat, rich rosy purple, with clear white stripe in the centre of each petal. *Madame Pisançon*, very large double; the form fine, colours white or bluish, with light lavender veins. *Interesting*, a single flower, beautiful in form, and distinct and novel in colouring, being equally divided with bars of bright purple and pure white. Mr. G. Smith, of Hornsey Road, sent a small plant of a new double-flowered *Fuchsia* of most charming character. The name is *White Unique*; the flower is rather small, corolla almost globular; most neatly and delicately put together; sepals broad, and set horizontally like wings, colour bright coral red. This is certain to become as great a favourite as any of Mr. Smith's valuable contributions to florists' flowers. Mr. Blston, gar-

dener to S. Lawrence, Esq., Clapham Park, sent *Panacratium fragrans*, a beautiful plant that has been more or less known to cultivation for half a century, but nevertheless well merits special mention, and much better appreciation than it has hitherto obtained. Roses were past their best, but a new variety was shown by Mr. Mitchell, of Piltown, which no true critic could pass by. The name is *Madame Hoste*. It is most beautifully formed, and comes nearest to *Madame Vidot* in character, but is larger, and, by the wood and buds that accompanied the flowers, appears to be a good grower, and very free to flower, qualities of which the charming *Madame Vidot* is deficient.

Fruit.—There was nothing new in this department, but some of the exhibits were exceedingly good. A grand collection came from Mr. Miller, gardener to the Earl of Craven, Combe Abbey, near Coventry. Mr. Rawbone, gardener to C. M. Campbell, Esq., Derby, another good collection. From Mr. Johnson, gardener to the Marquis of Aylesbury, a third good collection. Several other good collections besides these, all comprising good subjects well done. Pines good and in sufficient quantity. Grapes fine and abundant. In Mr. Miller's collection, Black Hamburgs huge in bunch and berry. Messrs. Lane and Son, of Berkhamstead, showed three bunches of Buckland Sweetwater weighing 9 lbs., one bunch of the three weighing 4 lbs. 8 oz. Mr. Standish showed Royal Asot Grape, a fine black grape with flesh and flavour not greatly differing from Black Hamburg, very handsome in bunch and berry. We must pass over other subjects, but reserve space to say that, in looking for subjects of special merit, we could not help noticing a dish of Dr. Hogg strawberry from Mr. Turner; the berries sumptuous in size and colour, far surpassing the finest Queens, and with the true Queen flavour. When visiting Mr. Turner in the Auricula season, we tasted samples of this strawberry forced, and thought the flavour scarcely inferior to out-door fruit. Lastly, Mr. Bennett, of Osberton Hall, Worksop, Notts, presented a dish of Vanilla planifolia, perfectly ripened and deliciously odorous. For this he received deservedly the small silver medal. Thus ends the season at the Royal Botanic Gardens, scarcely favoured by the weather, but admirably supported by practical cultivators and the horticultural public generally; a season by no means destitute of brilliant features, and upon the whole successful, as good management, and good feeling, and a liberal spirit deserve. May the Society never have a worse season than that of 1867. S. H.

THE BIRMINGHAM ROSE SHOW.

THURSDAY AND FRIDAY, JULY 4TH AND 5TH.

The Sixth Rose Show in the Town Hall, Birmingham, was not quite equal to some of its predecessors, yet it surpassed in both the quality and abundance of the flowers all the exhibitions of roses that have been held in or near the metropolis this season, and we may most properly pronounce it the most interesting and important exhibition of its kind of 1867. The Town Hall of Birmingham is admirably adapted for the purpose, being spacious, airy, well lighted, and in a central situation. The hall, the promoters of the show, the exhibitors, and the flowers, were all praiseworthy; yet the inhabitants of Birmingham do not support this exhibition as it deserves to be supported; the committee have no surplus to carry to a reserve fund, and financially this affair lives by the skin of its teeth, though in a floral sense it is one of the most successful undertakings of its kind in the country.

The getting up of this show was tasteful and effective, and we direct attention to a few particulars for the benefit of exhibitions generally. The vast space of the floor of the hall was divided into alleys or walks, by means of four long tables. On these the roses were placed in double rows, but the two tables next the central or principal space for promenading were additionally decorated with potted plants of the peculiarly striking variegated *Acer negundo*, the whitest of all white-leaved plants, and as graceful as it is peculiar, and potted plants of Maize alternating with the *Acers*. The whole of these had been grown under glass to enhance the delicacy of the colouring, and the result was a most delightful effect; the roses were enhanced in richness of appearance by the contrast, and the objectionable flatness of a great display of cut flowers was extinguished. Looking up from the centre of the hall, the orchestra at one end, and the gallery at the other were seen to be abundantly embellished with boxes of roses, vases, ornamental glass, and wire-work adapted to various horticultural purposes, one of these special features being a huge rose pavilion, with real roses trained to the arches, and showing abundance of fine flowers. The inspection of the numerous objects of beauty and interest in the galleries afforded a scarcely less agreeable entertainment than the view of the vast field of gorgeously coloured and powerfully odorous roses on the tables below. Yet with all this provided for their delectation, and with harp solos and a first-rate band, the people of Birmingham were languid in their attendance, and the committee will probably be scarcely able to make their incomings meet their outgoings, which of course are heavy, though, to the credit of the Corporation, it must be mentioned that the Town Hall is granted for the purpose free of all expense.

As to the roses, there was noticeable throughout an average goodness that gave general satisfaction to cultivators and connoisseurs of the Queen of Flowers. There were a few comparatively poor stands of course, but not one thoroughly bad; and as to good ones, they were the rule, and the leading collections were grand for quality, variety, richness, freshness, and skilful staging. That indescribable class of "practicals," who make a perpetual and wearisome fuss about the superiority of old over new varieties of garden plants, who will coolly insist that there are no roses, tulips, dahlias, or verbenas, now to equal those they were accustomed to grow and exhibit half a century or so ago, might, with some profit to their idiosyncrasy (into which word we might very properly introduce a τ), have gone round the show with a few old catalogues in their hands, with a view of finding old roses and establishing their superiority over new ones. We might almost say there were no roses shown but such as have been introduced within the past five years; certainly those of less than five years' place in our lists constituted the bulk of the exhibition, the simple reason being that, as a rule, old roses cannot be shown against new ones, the quality of named varieties having been so immensely improved of late years. Our lists of the winning varieties will show that whoever desires to have the best roses, must take the bulk of his selection from the newest kinds. New roses are not necessarily good, and the French send us annually a rather large proportion of second-rate varieties, but with them come beauties unsurpassable among existent catalogued varieties, destined, we may believe, to be surpassed in their turn, but for the present, and for some years to

come, certain to be regarded as types of the nearest approach yet made to the standard of perfection. Such old roses as *Madame Vidot*, *Mrs. Rivers*, *Jules Margottin*, *Gloire de Dijon*, *Devoniensis*, and *Lamarque* keep their place by right of intrinsic merit, and their once companions in the exhibition boxes would be with them now except for the little accident that they are beaten; and those that we name, and others that we might name as old, yet valued, must yield to better when better are presented. *Madame Vidot* is threatened with eclipse by *Madame Hoste*. *Jules Margottin* must submit to comparison with half a dozen new and formidable competitors, and in the rank of yellow roses *Maréchal Niel* has gone to the front rank already, and may occasion some indifference towards other roses of the same cloth. Exhibitions of roses afford to rosarians the best possible means of making fair comparisons of the merits of varieties, and useful notes on selection and culture; and seeing how rapid is the march of improvement in the most popular of all our garden flowers, a rose show almost merits the distinction of being considered of national importance; at all events, it bears immediate relationship to pursuits and recreations in which all classes join with fervour, and in its way and place sheds a light upon our domestic life, and for such and other reasons should be generally and generously supported.

The Birmingham schedule is a good one. Class A, for nurserymen, comprises five sections for seventy-two, forty-eight, twenty-four, twenty-four, and twelve respectively. Class B, for amateurs, comprises nine sections for forty-eight, eighteen, twelve, and six, and for residents within fifteen miles and four miles of Birmingham, and for others who have never before taken a prize. Class C comprises sections for new roses, moss, tea, and summer roses, bouquets, designs, and vases. Class D is for ladies only, and is instituted for a competition in dinner-table decorations. The entries were larger than they have ever been before, but many who entered made no appearance, owing doubtless to the hard winter and still harder spring having put them *hors de combat*. The competition, generally speaking, was spirited, and the flowers in the best collections were of very even excellence throughout, and that excellence decidedly above the average. At the Crystal Palace we could find faulty flowers in the best stands, not so here; but, on the other hand, in the midst of beautiful and perfect flowers we could find many of surpassing splendour, especially in the collections from Mr. Cranston, Mr. Keynes, Messrs. Paul and Son, Rev. P. M. Smythe, Mr. C. J. Perry, of Castle Bromwich, and Mr. Hunt, of Leicester. In the class for seventy-two (single trusses) Mr. Cranston, of King's Acre, Hereford, took first place, Mr. Keynes second, Messrs. Paul and Son third.

MR. CRANSTON'S FIRST PRIZE, SEVENTY-TWO.—Sénéateur Vaisse, Prince Camille de Rohan, Comtesse Chabillant, General Jacqueminot, this was an extraordinary sample of the General, diameter five inches, with solid globular centre, and huge shell-like petals, the colour nearly black; Charles Lefebvre, Horace Vernet, John Grier, Madame Heleze, Dr. Andry, John Hopper, Madlle. Bonnaire, Centifolia Rosea, very fine; Madame Brianson, King's Acre, good again, and quite a show rose; Peter Lawson, Black Prince, Maréchal Niel, one of the best ever shown, the colour rich; Madame C. Crapelet, superb in form and colour most beautiful, like the General, a shade or two darker than usual; Charles Verdier, America, a fine flower, much like Madame Willermoz; Triomphe de Villeceresnes, Mrs. Rivers, Claude Million, François Lacharme, Souvenir d'un Ami, Etienne Lecroisnier, Le Rhône, Madlle. Margaret Dombrain, a fine rose as shown in this instance; Deuil du Prince Albert, Jules Margottin, splendid for size, substance, and finish; Duchesse de Caylus, Joseph Fiala, five inches over without an eye, superb; Abbé Berleze, John Nasmyth, Louis XIV., La Esmeralda, Dennis Helye, Madame Knorr, Madame Boutin, Smith's Yellow, a lovely little rose, a sort of sculptured nugget; Eugène Verdier, Madame William, Vicomte Vigier, Devoniensis, Madame Hector Jaquin, Beauty of Westerham, a huge globular high-coloured flower, in the style of the General; Maréchal Souchet (Guillot); Duc de Rohan, extra grand; Margaret St. Amand, Le Baron de Rothschild, Gloire de Dijon, Madame Victor Verdier, Laurent Descourt, the finest dark rose in the show; Victor Verdier, sumptuous; Souvenir de Dr. Jamain, Madame Moreau, fine; Maurice Bernardin, Lord Macaulay, Madame Clémence Joigneaux, Madlle. A. Halphen, Beauty of Waltham, Baronne A. de Rothschild, Achille Gonod, Madame Vidot, Charles Margottin, Niphotos, Olivier Delhomme, Pætolus, Madame Rival, Auguste Vacher, most beautiful; Admiral la Peyrouse, Queen Victoria.

MR. KEYNES'S SECOND PRIZE, SEVENTY-TWO.—Madame Charles Wood, Abel Grand, very fine as shown in this stand; Alfred Colomb, Comtesse de Palikao, Madame Moreau, Madame Hector Jaquin, Pauline Lansezeur, Fanny Petzold, Fisher Holmes, Caroline de Sansal, Madame Boutin, Madame Caillat, General Jacqueminot, Sœur des Anges, Prince Henri de Pays Bas, Madame Knorr, Maurice Bernardin, Madlle. Margaret Dombrain, Baronne A. de Rothschild, John Hopper, quite a pancake; Madame Vignerot, Beauty of Waltham, Juno, Devoniensis, a lovely specimen, almost golden, and the buff shades peculiarly delicate; Madame Derreux Douville, Madame Pauline Villot, Comte de Nanteuil, Madlle. Marie Rady, Alba Mutabilis, Jules Margottin, Margaret St. Amand, very fine; John Standish, M. Berthe Levêque, Madame Julie Daran, Madame de MacMahon, like Madame Canrobert, but more colour; Duchesse de Morny, La Tour de Crouy, Sénéateur Vaisse, Hippolyte Flandrin, Madame Furtado, Clément Marot, Kate Hausberg, Madame Fillion, Prince de Porcia, Madame Hoste, showing an eye; Madame Victor Verdier, Souvenir d'Elise, Lacépède, Charles Rouillard, Lord Herbert, Souvenir de la Malmaison, Joseph Fiala, Alpaide de Rotalier, Gloire de Vitry, Pierre Notting, Victor Verdier, Dr. Andry, Semiramis, Madame Boll, Madame Canrobert, Anna de Diesbach, Xavi r Olibo, Princess Mary of Cambridge, Charles Lefebvre, Souvenir d'un Ami, Michel Bonnet, an extremely pretty rose; La Reine, Madame Amelia Halphen, this rose has a beautiful tinge of puce, and is the better for a little shading; Exposition de Brie, Madame Rival, Bernard Palissy, Madame Vidot, better in this lot than Madame Hoste.

In the class for forty-eight, the awards were, first, Mr. Keynes; second, Messrs. Paul and Son. In the class for twenty-four (threes), first, Mr. Cranston; second, Mr. Cant; third, Mr. Keynes. Twenty-four (single), first, Messrs. Perkins and Son; second, Mr. Joseph Jackson; third, Mr. Vertegans; fourth, Mr. Jennings. The principal exhibitors in the trade class for twelve were Messrs. Perkins, Mr. Vertegans, Mr. Pope, and Mr. Jackson, of Kidderminster.

MR. KEYNES'S FIRST PRIZE, FORTY-EIGHT.—Madame Charles Wood, Josephine Beauharnais, Madame Moreau, Madame Vignerot, Kate Hausberg, Margaret St. Amand, Alfred Colomb, Abel Grand, Charles Lefebvre, Alba Mutabilis, Prince Henri de Pays Bas, Madame Vidot, Madlle. Marie Rady, Caroline de Sansal, La Tour de Crouy, Pierre Notting, Pauline Lansezeur, Madame Berthe Levêque, Madlle. Margaret Dombrain, good; Dr. Andry,

Jules Margottin, fine; Souvenir de la Malmaison, Madame Knorr, Madame Victor Verdier, a glorious flower; Exposition de Brie, Madame Canrobert, Madame Boll, a saucer; Madlle. Pauline Villot, Madame Derraux Douville, Madame Fillion, Semiramis, John Hopper, Maurice Bernardin, Colonel de Rougemont, Fanny Petzold, Joseph Fiala, John Standish, Madlle. Bonnaire, Alpaïdo de Rotalier, Madame Furtado, Sénateur Vaisse, La Reine, Charles Rouillard, Princess Mary of Cambridge, Comtesse de Palikao, Beauty of Waltham.

The amateur's class comprised in all nine sections, and there were no less than thirty-four prizes awarded to amateurs in class B. Between the best and the worst of these there was of course a great difference, yet even the worst were meritorious, considering they had been grown under the very shadows of Birmingham chimneys, or at all events within the immediate influence of town smoke. In the schedules of the London shows there is no special encouragement afforded to Londoners to compete on terms that offer a chance of some gratification, for it is impossible the best roses that can be grown at Stepney or Brompton should compete fairly with the best that can be grown at Sydenham, Cheshunt, or in the soft air of Herefordshire. Our time was gone ere we could make a careful inspection of the town roses at this exhibition, but we saw them all, and must confess to a degree of surprise at their general good quality. We trust the town growers will be encouraged at Birmingham as long as the rose show shall continue to be an institution of the place, for it is no less important that floriculture should light up the homes of the people where they most do congregate, softening the hard outlines of town life and business with the beauty of flowers, and directing the minds of busy men to the great world of nature, with its exhaustless store of pleasures, instructions, and exalting thought. In the sections for amateurs, without respect of locality, the winners were Rev. P. Smythe, Solihull; C. J. Perry, Esq., Castle Bromwich; Mr. E. Hunt, Leicester; Mr. W. Brown, gardener to Mrs. Alston, Elmton Hall; and Mr. R. C. Chawner, Lichfield. In the sections for amateurs residing within fifteen miles of Birmingham, the winners were Rev. P. M. Smythe, Mr. W. Brown, C. J. Perry, Esq., and Mr. Cooper, of Moseley. In the sections for amateurs residing within four miles of Birmingham, the winners were Mr. Cooper, of Moseley; Mr. W. B. Mapplebeck, of Moseley; Mr. H. Lowe, of Edghaston; Mr. Winn, of Selly Oak; Mr. Fowler, of Erdington; and Mr. Arnold, of Moseley. In the section (twelve single trusses) for amateurs who have never previously won a prize for roses, the winners were Mr. J. P. Smith, of Coventry Road; Mr. John Parnell, of Rugby; Mr. E. Sarrington, of Leicester; and Messrs. J. F. and W. Lloyd, of Sutton Colfield.

THE REV. P. M. SMYTHE'S FIRST PRIZE, FORTY-EIGHT.—Madame Charles Wood, La Fontaine, Madame Boutin, Beauty of Waltham, supero; Margaret St. Amand, a had sample; Paul Desgrand, Madame Eugène Verdier, Madame Victor Verdier, Madame Caillat, Maréchal Vaillant, Louise Margottin, Professor Koch, Maréchal Niel, Baronne A. de Rothschild, François Lacharme, Caroline de Sansal, Alphonse Damaizin, Anna Alexieff, Louis Magnan, Prince Camille de Rohan, very fine; Baronne de Noirmont, Madame Craplet, Mrs. Rivers, La Reine, Charles Lefehvre, Charles Lawson, Vicomte Vigier, Madame Vidot, Duchesse de Caylus, La Ville de St. Denis, Sénateur Vaisse, Madame Clémence Joigneaux, Pierre Notting, Madame Knorr, a had sample; Madame Joseph Guyot, Gloire de Dijon, a fine sample, almost gold yellow; Lord Clyde, good; Gloire de Bordeaux, Maurice Bernardin, Anna de Diesbach, Madame Emain, Lord Macaulay, Céline Forestier, Duc de Rohan, Madame Boll, Duchesse de Morny, Comtesse de Chahrillant.

In the open class (C) there were two sections for new roses, namely, for best 24 sent out in spring of 1865-6-7, and for the best new rose sent out in spring of 1865-6-7. In the class for 24 the awards were—first, Mr. Keynes, of Salisbury; second, Messrs. Paul and Son, of Cheshunt; third, Mr. B. R. Cant, of Colchester.

MR. KEYNES'S FIRST PRIZE, TWENTY-FOUR (new varieties).—Madame Fillion, Comtesse de Palikao, Xavier Olibo, Belle Normande, Marie Baumann, Charles Rouillard, Alfred Colomh, Semiramis, Josephine Beauharnais, Madame Moreau, Abel Grand, Madlle. Marie Rady, Madlle. Margaret Dombain, Exposition de Brie, Dr. Andry, Fisher Holmes, Madame Hoste, fine; Prince de Poreia, Princess Mary of Cambridge, Comte Alphonse Serenye, a bold eye and loose petals; Margaret St. Amand, Monsieur Ponthriand, and two others, the names of which in our note-book we cannot make out.

In the class of best new rose sent out in spring of 1865-6-7, the awards were to Messrs. Paul and Son, of Cheshunt, first, for Alfred Colomh, and second, for Exposition de Brie; to Mr. Keynes, of Salisbury, third, for Margaret St. Amand, and fourth, for Princess Mary of Cambridge. The same varieties were shown by Mr. Cant, of Colchester.

In the class for six varieties of Moss Rose-buds there was a poor competition; this was one of the weak points of the show. Mr. Vertegans took second place, Messrs. Paul and Son third, Mr. Jackson fourth; the first prize was withheld, as none were thought worthy of it. The section for 18 varieties of Teas, Noisettes, and Chinas was scarcely satisfactory, judged by results; but there was one good collection from Messrs. Paul and Son, to which a first was awarded, and well they deserved it, for they were a very pretty lot, and the names were booked as necessary information for our readers.

MESSRS. PAUL AND SON'S FIRST PRIZE, EIGHTEEN TEAS, NOISSETTES, AND CHINAS.—Souvenir d'un Ami, Jaune d'Or, Madame Damaizin, Alba Rosca, Gloire de Dijon, Madame Maurin, Comte de Paris, Triomphe de Rennes, Caroline, Souvenir d'Elise, Devoniensis, Vicomtesse de Cézès, Madame Willermoz, Amahilis, Madame Falcot, Homère, Niphotos, Rubens. It will be observed that there were no Chinas of the Bengal class in this lot at all, and only one true Noisette, and that was Triomphe de Rennes. By many Gloire de Dijon is considered a Noisette, but it is always classed with the Teas, and one need not split hairs in a report.

In the section for twelve varieties of summer roses there was a thin show, and the second prize went to Messrs. Paul and Son, who put up the following:—

MESSRS. PAUL AND SON'S EIGHTEEN SUMMER ROSES.—La Séduisante (Alba), a flat-faced but pretty rose, the colours a mixture of pink and flesh, with tinges of salmon; Dr. Dieltheim (Gallica), rose shaded with purple; Blancefleur (Hybrid Provence); D'Aguessau (Gallica), rich crimson, large and showy; Unique (Provence), usually white, but in this case prettily barred, striped, and blotched with pink; Transon Gouhault (Gallica), deep but lively crimson, good form; Madame Soitmans (Damask) creamy white shaded buff; Columella (Gallica); Paul Ricaut (Hybrid Bourbon), rosy crimson, good form, one of the few of the summer roses that still keeps a first-rate place in competitions; Fillet Parfait (Gallica), white, with stripes of crimson, good; Louis Philippe (Gallica), dark, a fine rose; Botgavis (Hybrid Provence), the name is copied exactly from the ticket, we know nothing of it, and took note of its character; if we may trust to memory, ignorance is bliss.

This completes the classes for roses proper. Next week something must be said of the miscellanies and odds and ends, many of which were interesting and well worth a few notes before they pass into forgetfulness. The judges in the classes were the Rev. P. M. Smythe, Rev. R. Carter, Mr. Keynes, Mr. Cant, Mr. Gater (foreman to Messrs. Paul and Son), E. Tonks, Esq., C. J. Perry, Esq., Mr. William Dean, of Bradford, Mr. Shirley Hibberd. The usual and admirable rule was followed in appointing amateur cultivators to judge the nurserymen's classes, and nurserymen to judge the amateurs'. Let us hope that perfect justice was done; if it failed anywhere it was not for lack of attention and intention, and the judges had plenty of time for their work. S. H.

NOTES ON THE CRYSTAL PALACE ROSE SHOW.

This rose show forms one of the chief anticipations in the rosarian's calendar, and deservedly so, for in no place do the flowers appear to greater advantage than among so many kindred objects of taste and refinement, nor is there any place affording so much space and convenience for observation and criticism. Only one circumstance militates against its perfect success, which is, that it usually occurs a week too early to afford many growers an opportunity of exhibiting their flowers in full perfection; for, however large their collections, the possessors of cold deep soils are never up to the mark by the time the first show at the Palace occurs. And this brings us to a suggestion formerly thrown out by the writer, and since revived in several quarters, viz., that there should be a second show later in the season. There is little doubt that such an experiment would be attended with considerable pecuniary advantage to the Company, as well as encouragement to exhibitors, and the progress of the flower itself, many varieties, which are never seen in perfection in public, blooming the finest at a somewhat later period than others.

There is no doubt on the whole that, considering the date and the previous season, the show was a good one. There may have been fewer exhibitors and less extensive collections than of yore, but the flowers themselves were generally good—some, indeed, were of the first quality. Very many of the older varieties, such as Madame Knorr, Madame Domage, Jules Margottin, Madame de Cambacéès, the finest in foliage perhaps of all roses, and hardy to a degree; Auguste Mir, Souvenir de la Reine d'Angleterre, General Jacqueminot (this last always looking well),—appeared in the stands, showing their value as enduring kinds after the severe trial of the past double winter. Prince Léon also was in several boxes; this rose, although possessing fine points as a show rose, has been extensively banished from cultivation, owing to its uncertainty of growth: twenty buds may be put into as many stocks, and not half a dozen of them will take. Madame Furtado also was well done. This is another variety not to be depended on, otherwise it would be an unsurpassable kind. Madame Clémence Joigneaux was numerous exhibited, and was always fine. The same may be said of John Hopper, Madame C. Wood, and Xavier Olibo, which appears likely to make Prince C. de Rohan look to his regret. Maurice Bernardin, again, is still among the front rank. Indeed, the customary favourites of old and recent date were well represented, and I noticed in the stand of some provincial gardener a name I never saw before, equally euphonious with "Isabella Sprunt," namely, Anna Huck. The variety was worthy of the name. Many of the names were erroneously spelt. Even in the tallies of Paul and Son I remarked "Antoinetta" Ducher for "Antoine"; the lady for the gentleman.

The new rose, "Miss Ingram," raised, it is said, by Mr. Ingram, Her Majesty's gardener, and exhibited by Mr. C. Turner, struck me as resembling much "Mrs. Rivers," larger perhaps, and even more globular. It would have added much to the interest of the blooms had some of the shoots and foliage been shown with them, so as to give an idea of the growth and habit of the variety. If these are satisfactory, it will be an acquisition in a line of colour where few good and hardy roses are to be found.

Pot roses at this period of the year appear to be beneath the notice of professional competitors, and few other cultivators are in a position to exhibit in this class. What few were shown were not without admirable lessons in the carpenter's art, showing as much timber to stick out the branches as foliage itself. Yet what few were shown were not without instruction, being principally new varieties of the H. P's, proving that section to be as well adapted for purposes of forcing as Teas, to which the operation is commonly and most successfully applied.

In the amateur class, Mr. Hedge, of Colchester, appears still to carry all before him, and will probably remain without rivals in the larger classes till some rose-worshipping amateur likewise cultivates a number of plants equal in extent to an ordinary nursery stock. Hence we may learn what a necessary element number is in successful rose showing. Nevertheless, Mr. H.'s flowers are always put up with praiseworthy neatness and taste. It is much to be desired that these accessories to the stands were generally more prominently developed. The tallies in some boxes were almost illegible, badly written in pencil; in others the flowers were so cramped together that the cards with their names on could not be seen at all.

To exemplify what may be done by skill and judicious cultivation, the excellent twelve singles (amateur's), 1st prize, exhibited by the Rev. E. N. Pochin, Sibley Vicarage, deserve especial remark. They were twelve unexceptionable blooms, well set up, very equal in quality, and containing the best Xavier Olibo and one of the best Maréchal Niels in the show. The best yellow roses (mostly, by the way, below the average) were Maréchal Niel, L'Enfant Trouvé, Cloth-of-Gold, Triomphe de Rennes, Enfant de Lyon, Solfaterre, C. Forestier, Gloire de Dijon, Madame Margottin, now. From this list it will be seen there is little advance made in this section, nor is it much needed except in respect to hardness of constitution, unless we could obtain various shades of yellow in the hybrid perpetuals.

But, after all, a rose show, though one of the most charming spectacles that can delight lovers of beauty, as developed under the guise of flowers, is much of a delusion and a snare to many, as the gold eye-glasses and pencil-cases and embossed note-books in waiting round the tables find to their cost. A fine bloom does not always indicate a desirable variety, any more than a fine set of flowers indicates superior skill in the grower; both are materially modified by numerous adventitious circumstances known to the initiated, and must be merely considered as showing that any given exhibitor has such and such blooms to cut on a certain day. As an instance of this, I myself, on the Wednesday evening preceding the show, saw, in a ramble through Mr. John Fraser's rose quarters, much

finer blooms than any in his stands at the "Palace," and in a week later he will be in a condition to exhibit in all classes usually scheduled.

I do not know that I can utilize the subject better than by giving the names of the best varieties I noted on both occasions; in many cases they will be found to coincide.

At the Palace—Jules Margottin, Marguerite St. Amand, new, A 1; Madame Knorr, Madame C. Wood, John Hopper, Madame Clémence Joignoux, Marguerite Dombain, new, A 1; Marie Baumann, new, A 1; Madame Moroau, imbricated like the face of a double hollyhock, good, darkish; Alice Leroy, Leopold Hausberg, new; Joan Goujon, Thorin, new, promising, somewhat in the style of Crapelet; Charles Verdier, new, A 1; Madame Domage, Alfred Colomb, new, an improvement on Duo de Rohan; Xavier Olibo, new, one of the best, very dark flowers; Camille Bernardin, new; Victor Vordier, Duchesse d'Orléans, Comte de Nanteuil, Madame C. Crapelet, C. Lefehvre, and Madame Victor Verdier (these were not generally up to the mark, indeed, the first-named seldom is in true condition till late in the season); Madame Charles Wood, F. Laoharme, Pierre Notting, fine, dark plum colour; Claude Million, a dark hollyhock; William Griffiths, Lord Maoaulay; Kate Hausberg is not first-rate; La Ville de St. Denis, Exposition de Brie, new, not yet to be praised too much, I fear the centre; Maréchal Niel, Lafontaine, Marcella, new, not in condition, a singularly robust growing variety, with leathery petals, in colour resembling Nerium splendens; Madame de Cambacérés, remarked upon before; F. Louvat, purple bloom; Mons. Bonoenne, new, a darker Lord Raglan; Madame D. Douville, not up to the mark on this occasion; Madame Furtado, a magnificent variety; Princess of Wales, F. Laoharme, Antoine Ducher, new; Gloire de Ducher, new, very large, but coarsish; Charles Rouillard, new; Annie Wood, crimson, a first-rate novelty; Comtesse Palikao, François Treyve, new; Chevalier Nigra, new, A 1; Josephine Beauharnais, new; Charles Verdier and Abel Grand, new, light kinds, A 1; Felix Genero, new; Semiramis, new, good, light; Thérèse Levet, new; Souvenir de William Wood, new, dark. These varieties are all good, though they by no means exhaust the meritorious kinds.

The varieties I specially marked at Mr. J. Fräser's, omitting most of already established reputation, were Madame Baptiste Desportes, Madame Fillion, Abel Grand, Comtesse de Palikao; Charles Rouillard, Alba Mutabilis, Bertha Levêque, President Mas, I fear this will not turn out so fine as expected; Prince de Porcia, good garden rose; Antoine Ducher, hue and habit of Madame C. Wood; Souvenir de Madame Boll, Thorin, Madame Rival, after Auguste Mie; Madame E. Appert, Chevalier Nigra, Margaret de St. Amand, Madame A. Halphen, Charles Verdier, between Victor Verdier and John Hopper, smooth wood; Monsieur Noman, Madame Bellenden Kerr, an improvement on Bonnaire, and stronger; F. Treyve, Horace Vernet, Eugène Scribe, imbricated; Napoleon III., Madame Villeboisnet, Paul Verdier, Belle Normande. It will be seen these are all roses of the past three years; the exigencies of space require older kinds to be postponed till another occasion, as must also be the descriptive consideration of their shapes, colours, habits of growth, and general behaviour.

London Road, Clapham, July 2nd.

W. D. PRIOR.

GLEANINGS FROM THE R. H. S. ROSE SHOW.

Of all the flowers that are cultivated in our gardens, the rose is the most popular. It is everybody's flower, no matter what country, creed, or age. Yes, from childhood to manhood, from manhood to age, the rose is alike the favourite flower. To those even who are indifferent to the science of gardening the rose is a spell, a wonder, a thing of beauty, for it combines in its many qualities two of the greatest essentials in the attraction of flowers—fragrance and brilliancy of colour. It is most proper that it should be styled the "queen of flowers," as, from the earliest period of cultivation, it has been the theme of the poet's song, and the noblest flower in the garland of festivity and honour. Having within the past week visited the great rose show at the Horticultural Gardens at Kensington, some thoughts have been aroused within me respecting their culture, the reading of which may possibly expand in other minds to some things in relation to them far more useful than here hinted.

As we proceeded with our observations on the comparative excellencies of the flowers, we were particularly struck with the different degrees of colour in the same variety of flowers as exhibited by the various growers. For instance, some of the light-coloured flowers had assumed a somewhat deeper hue than naturally belongs to them, so as to be almost identified with other varieties, and yet this was not the result of their blooms being on the decline; quite the contrary. This is, then, a matter of some importance to those who are selecting roses. We are induced to ask, To what are we to attribute this variation in the shades of colour? We do not believe that it is influenced by soil, but it is caused by the means adopted for securing the blooms fit for exhibition, such as too much shading, which would rob it of its proper purity of colour; and then, on the other hand, the feeding of the roots with repeated doses of liquid manure, which would impart to them deeper shades of colour than we are accustomed to. I remarked to an exhibitor on the morning of the show on the dissimilarity in the shadings of some of the light roses in the several stands, and he concurred in my observation that the differences were owing to differences of treatment rather than to differences of soil. The Tea scented varieties did not present this variation, because the blooms are in the majority of instances cut from plants grown in pots, and have pretty nearly the same treatment everywhere.

Since my visit to the exhibition, a question was put to me as to the means by which the splendid blooms as exhibited were obtained. Not being quite prepared for the question, I did not afford so direct a reply as I am enabled to do on more mature consideration. On a close inspection of the numerous boxes of blooms, you could, without seeing the names of the exhibitor or having a knowledge of the class in which they competed, detect at once whether they were the production of an amateur or a nurseryman. There may be exceptional examples where the amateur may possess more than ordinary resources for an extensive cultivation. The spectator in viewing the magnificent display must not suppose for a moment that they have been selected from among a few hundred of plants; no, but from among thousands of all ages and sizes. In making choice of his blooms, the grower has the advantage of traversing along whole rows of the one and same variety, that he may select half a dozen flowers. In so doing he must stumble on many flowers and plants of an inferior quality. His best flowers are not obtained from plants that produce the greatest

quantity of bloom, but from very young heads or bushes, probably those which were only budded the year previous, and may in that case only have given two or three blooms, but those in every way remarkable for size and richness of colour. Then we have again to consider the means employed, and the sacrifice of buds often resorted to that extraordinary production may be obtained. It is so with all florists' flowers intended for exhibition—the pink, dahlia, chrysanthemum, &c. The inferior buds are removed, and only those that promise a vigorous development are allowed to remain, the number being in proportion to the strength of the plant. Then there is the after care of shading, watching for insects, &c., and all this extra labour is only bestowed on those flowers that are intended for competition.

There is another consideration in relation to successful rose culture which must not be overlooked, and that is the nature of the soil and the locality. It will be observed that wherever nurserymen are eminent for the growth of any particular class of hardy trees or shrubs, or any other kinds of out-door plants, that the spot on which the nursery is located is generally favourable to their thriving. As an illustration, take our principal nurserymen who are famous for the successful cultivation of hardy rhododendrons, azaleas, &c. So it will be found with the rose. The most of the cut blooms, both at Kensington and the Crystal Palace Rose Show, were the productions of growers residing a great distance from the metropolis, they having fixed on localities that are congenial to the well-doing of this glorious flower. In selecting standard roses, amateurs are too anxious to obtain plants with large heads, regardless of their age, present effect being their object; and what follows in the next season from such a selection? Why, general disappointment in regard to size and substance of bloom, though there may be plenty of it. A few years since I purchased some standard roses of a nurseryman who was celebrated for their growth. This happened to be about the middle of the month of February; the consequence was, that their stock had been greatly exhausted during the previous autumn, so that of the sorts I required there remained very few, save those which were budded the previous summer. From them I made my choice. The bed in which they were planted had been previously well prepared, by trenching it to nearly three feet in depth, intermixing with the soil plenty of decayed manure. In this their roots luxuriated freely; they were pruned back to about two eyes, and the same year, although planted so late as February 14th, they produced some remarkably good blooms, especially during the autumn months.

I must not forget to mention that my preference in selection was given to those that were budded on briars, and which possessed clean healthy stems. By removing the soil round them to the depth of several inches, and adding some good rich compost annually in November, they have gone on growing and thriving satisfactorily. My advice, then, is, never select old bushes in preference to those more recently budded plants, that is if quality is your object instead of quantity of flowers. I am often surprised that there are not more beds of dwarf roses grown, either budded on the Manetti stock or grown on their own roots; thus cultivated they make extraordinary vigorous shoots and fine blooms in abundance. I was forcibly reminded of this omission in the garden culture of the rose by witnessing, at Mr. Mickle's Nursery at Folkestone, many thousands of dwarf roses grown on the Manetti stock. Not only did they produce superb shoots, but also flowers that well matched their vigorous growth, while the standards grown in the same soil were meagre in comparison. I am further favoured in my advocacy of a more general culture of the dwarf kinds by what I saw in a visit to the beautiful but neatly kept grounds of Madame Stevens at Roehampton. This happened just after the severe frost we experienced last May, and I was astonished to find the beds of dwarf varieties, of which there are many planted in the roseries, not in the least injured as compared with the standards. In these remarks do not let it be supposed that I mean to infer that roses planted in the same soil for a number of years will not produce vigorous growth and quantity of blooms, because we have plenty of illustration in the affirmative throughout the breadth and length of our land.

In closing this paper, let me be understood by saying that there are some sorts of roses that are exceedingly beautiful when cultivated in the garden, but are totally unfit in the absence of size (though possessing every other claim) to make any display in an exhibition stand. If you wish to give exclusive attention to the growth of roses for competition, then select those varieties that give you large full flowers. JOHN F. McELROY.

MY ORCHID HOUSE.—No. XII.

THE AERIDES.

If I were to hazard an opinion upon the subject, I should certainly say that no orchid house, however well stocked in other respects, could be considered complete unless it contained several species of this magnificent genus. I fancy, too, that our exhibitors of large collections would experience a very great difficulty in getting such good collections as they now do were they deprived of it; for from what other source could we obtain such graceful habited plants, and such immense spikes of beautifully tinted wax-like flowers as we have in the Aerides? Moreover, very few plants at present known would be able to supply the delightful fragrance which pervades the orchid house during the early summer months, when the claims of this genus have not been neglected, but recognised and encouraged. We are told that the plant we have under consideration derives its generic name from the supposition of its being able to absorb its nourishment and support from the atmosphere alone. Undoubtedly it is endowed with that power to a certain extent, and in all probability as much as any other genus of orchids. To grow and flower the Aerides successfully, it will require what I may call a generous temperature of say 75° to 85° through the growing season, which will commence about April and should terminate by the end of September at the latest, if an abundance of bloom is expected or desired the following season. The amount of solar light we obtain in this country in the autumn is not sufficient to properly mature the growth made after September; and those kinds which flower rather late should be pushed slowly as soon as their beauty is past, to give them every oppor-

tunity of going into rest early. If the plants are all right at the roots, they will require plenty of water; and after the flowering is over a gentle syringing overhead once a day will be decidedly beneficial. A temperature of 60° to 70° through the resting season will carry them safely, with very little moisture at the roots at the same time. As the plants have no storehouse in the shape of thick fleshy bulbs to sustain them through that period, they must not be kept quite dry. The *Aerides* can be grown in pots or baskets, at the choice of the cultivator. It does equally as well one way as the other. If pots are used, they should be those with perforated sides, to enable the roots to derive every possible advantage from the atmosphere, and be well drained. As to soil, either good peat full of tough fibre or sphagnum will grow the plants well. I prefer the latter mixed with one-third part of cocoa-nut fibre, particularly as good sphagnum is generally speaking expensive. Propagation is effected by taking off the side shoots after they have thrown off two or three roots. They are to be potted in small pots, with a neat stick, to keep them firm. The undermentioned half-dozen species will not fail to be satisfactory:—*A. affine* and varieties, *A. crispum*, *A. Feildingii*, *A. Larpentæ*, *A. odoratum* and varieties, and *A. virens*.

GEORGE GORDON.

GARDEN CULTURE OF THE CHRYSANTHEMUM.

Although the Chrysanthemum is quite hardy, and will grow in almost every situation and soil, yet, inasmuch as it is a native of a land where the thermometer stands at 100° Fahr. in the shade during the months of July, August, and September, there can be no doubt that for anything beyond the most ordinary purposes a southerly aspect, as well as a prepared soil, are very desirable. When vigorous foliage and fine flowers are required, the soil should consist of two-thirds loam and one-third rotten stable manure, mixed with river or silver sand, to assist the drainage. This compost, if allowed to remain in ridges during the winter, will be in a proper condition to receive the plants in spring. Some persons prefer planting the suckers or offsets in autumn, but to this there are many objections, as they are liable not only to be eaten off by slugs and other vermin, but destroyed by frost, and if not actually killed, are so crippled as to be incapable of making handsome plants. When the plantations are made in April and May, no injury is to be apprehended from any of these causes, the temperature at this time stimulating a rapid growth.

Chrysanthemums in borders can be planted in double or single rows, thus:—



Pompons, on account of their height, being placed in the front. The number of rows may be increased according to the space devoted to the purpose; but, in order to ensure healthy foliage, and allow a free circulation of air, the distance between each plant should never be less than three feet. The intervening spaces will be filled up by the foliage long before the blooming season.

In forming such a plantation much care is required not only in the harmonious selection and arrangement of colour, but also in the gradual elevation or height of the plants, so as to ensure a pleasing *coup-d'œil* in November; this may easily be accomplished by planting each row with varieties of the same natural growth, and if any irregularity should occur during the summer or autumn, it can be remedied by careful training. It should be borne in mind that healthy spring-made plants, or suckers, produce larger and finer flowers than pieces of old roots, and that one, or at most two, are quite sufficient to form a large bush. Towards the end of June a stake should be put to every plant, each row differing in height according to its order; thus those in the second row should be six or nine inches taller than those in the front, and those again in the third row six or nine inches higher than those in the second. The main stem of the plant should, from time to time, be firmly secured during the growing season, the laterals also being kept in place by tying, and any unsightly branches removed. In September, the buds usually appear, and as one large flower upon each branch is preferable to several small ones, and amply sufficient to ensure a fine head of bloom, the disbudding should at once be commenced. Three or four flower-buds always terminate each branch, but only the crown or middle one (if perfect) should be left; all the others must be carefully removed. This practice was adopted by the Chinese upwards of a hundred years ago. Rumphius, in the "Herbarium Amboinese," tells us that, by this method, the flower was increased to the breadth of a man's hand.

The beauty of the foliage, and size of the blooms, may still further be increased by giving liquid manure frequently during September and October; this, however, must be discontinued as soon as they begin to expand.

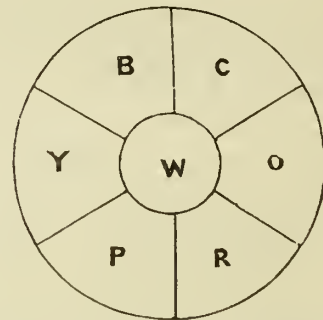
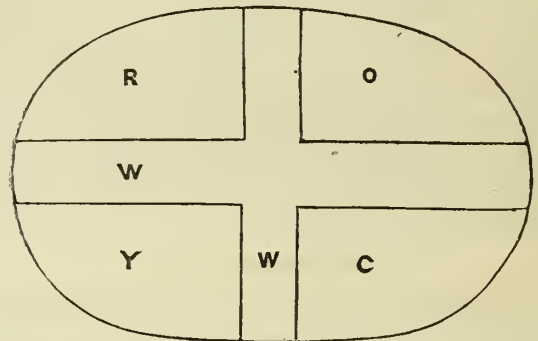
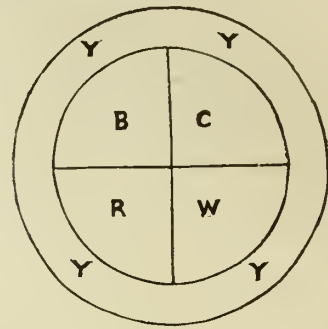
The success attending Mr. Broome's labours may be cited as an illustration of what may be accomplished in open garden cultivation even in the midst of the city of London itself; and his perseverance and zeal, in spite of smoke, fog, and other obstacles, have been rewarded by seeing the high appreciation in which his flowers are held by the thousands of visitors who, during the month of November, throng the Inner Temple Gardens.

The following varieties are adapted for open-air culture:—

Abbé Passaglia, Albert Helyer, Albin, Alfred Salter, Alma, Anaxo, Annie Salter, Ariadne, Attraction, Auguste Mie, Aurea Multiflora, Beauty, Bella Donna, Bernard Palissy, Beverley, Bixio, Bossuet, Cardinal Wiseman, Cassandra, Cassy, Cherub, Chevalier Domage, Christine, Cloth-of-Gold, Daphne, Defiance, Deucalion, Diadem, Dido, Don Quixote, Dr. Brock, Dr. Maclean, Dr. Rezas, Eve, Fair Rosamend, Florence Nightingale, Garibaldi, General Slade, Golden Ball, Golden Beverley, Golden Christine, Golden Cluster, Golden Hermine, Golden Queen, Golden Trilby, Goliath, Her Majesty, Hermine, Hercules, Jardin des Plantes, Jenny Lind, Julia Grisi, Julie Lagravère, La Bello Blonde, Lady Harding,

Lady Slade, Le Prophète, Little Harry, Lord Clyde, Lord Palmerston, Lord Ranelagh, Lord of the Isles, Louis Barrière, Madame Domage, Madame Poggi, Miss Slade, Mr. Brunlees, Mr. Murray, Mr. Wynes, Mrs. E. Miles, Mrs. Haliburton, Mrs. W. Holborn, Mulberry, Nell Gwynne, Nil Desperandum, Novelty, Pelagia, Pink Pearl, Prince Albert, Prince of Wales, Prince Alfred, Princess of Wales, Princess Louise of Hesse, Princesse Marie, Prometheus, Psyche, Queen of England, Queen of Lilacs, Quilled Beauty, Saccoi Vera, Sir S. Carey, Snowflake, Striped Queen, Sulphurea Superba, Talbot, Temple of Solomon, Trilby, Triomphe du Nord, Vesta, Virgin Queen, White Christine, White Queen, Zephar; with many others.

Pompons may be advantageously planted in many ways, either, as already mentioned, in front of large flowering varieties or in beds by themselves, by which means they may be made as ornamental in October and November as geraniums and verbenas are in summer and autumn. The size of the beds must, of course, be regulated by the amount of available space and the number of plants intended for the purpose. Their shape may be geometrical or otherwise, as taste and fancy dictate. Circular or oval beds with rising centres will be found very effective.



DIAGRAMS FOR BEDDING CHRYSANTHEMUMS.

The letters in the diagrams denote colours. B, blush; C, crimson; O, orange; P, purple; R, red; W, white; Y, yellow.

It should always be borne in mind that the general effect depends as much upon the harmony of colour as the masses of bloom.

Plantations should be made in early spring, each root being set at least twelve or eighteen inches apart. When the plants are about eight inches high they should be stopped—that is, the head of the leader taken off, to stimulate the growth of the lateral branches, and these when six inches long should be pegged down in the same way as the heliotrope, verbenas, and other bedding plants. This operation of stopping should be repeated from time to time until the beginning of July, when the branches must be carefully arranged, so as to leave no vacant spaces, the whole bed being in this manner covered with foliage. During the summer the plants must have a liberal supply of water, for if they are once allowed to droop it will be found difficult to recover them. Occasional syringing in the evenings will be of great benefit. In autumn the uneven branches should be regulated in order to ensure an equal surface of bloom. During the month of September liquid manure will be needed once a week. Mr. Dale was the first successfully to adopt this style of plantation, and his bedding Pompons in the Middle Temple Gardens have become the annual admiration of a multitude of visitors. The following varieties are most suitable for the purpose.

White or Blush.—Argentine, Cedo Nulli, Fairest of the Pair, Louiso Piton, Modèle, Madamo Eugène Demage, Miss Talfourd, Turris Eburnea.

Yellow or Orange.—Aigle d'Or, Aurore Boréale, Danaë, Drin Drin, General Canrobert, Golden Aurore, Golden Cedo Nulli, Golden Circle, Mr. Astie.

Rose or Purple.—Adonis, Durnflet, Florence, Hélène, Lilac Cedo Nulli, President Decaisne, Rose Pompon, Salomon, Trophée.

Red or Crimson.—Bob, Brilliant, Capella, Dr. Bois Duval, Madame Pepin, Miss Julia, Mustapha, Riquiqui.—SALTER on the Chrysanthemum.

PREPARING STRAWBERRY PLANTS FOR FORCING.

There are different methods adopted by different people in preparing strawberries for forcing; but there is only one that recommends itself to the notice of those who really desire to be successful in forcing this delicious fruit. This plan I propose to give in detail, to assist those who may desire some information upon the subject, after which I shall briefly refer to methods of preparation which some other cultivators adopt.

In the first place, I may state that, so far as my own observation goes, I find that strawberry runners are exceptionally late this season, and in the majority of cases I have seen they are very weak; consequently those who pot up plants by hundreds will need to use great vigilance and caution in securing the earliest and strongest runners. But the scarcity of plants should not tempt the cultivator to use any but the first plants made upon the runners, those formed at long distances from the parent plant being generally weak, and sometimes proving to be barren. As soon as sufficient runners are formed, get ready some soil consisting of three parts loam to one part leaf-soil. I prefer a rather heavy soil in this stage, because it will retain moisture much better, and so reduce the labour of watering. Let the soil be sifted and placed upon the potting bench; then fill a number of 60-sized pots, placing them on the hand-barrow as the work progresses. When the barrow is full, take it to the beds where the pots are wanted. Having selected the runners, place a pot under each, and secure it to the middle of the pot either by the weight of a small stone, or else use short pegs to keep it in its place; and in a short time they will emit roots. I can give no information as to the numbers required, as in some cases they are potted up by thousands, while in others a few hundreds will suffice. But I may remark that a few more than the actual number required should be got ready, as there are generally a few failures, either from weak plants or deformed crowns; and I may give a word of caution to the inexperienced reader against preparing more plants than he can house and care for properly, as it is a folly to prepare a thousand plants when the forcing room will only admit of five hundred; for when strawberry plants are properly prepared for forcing, they entail an immense amount of labour, and unless they are well done (especially for early work) they are sure to lead to disappointment. Having laid sufficient plants in the pots, and each one secured in its place, all those runners extending beyond the plants set in the pot should be pinched off, that all the strength may go to the plant it is desired to save. This done, the cultivator's only care for them for the next three weeks consists in keeping the soil in the pots well watered, that the roots may have every chance to grow, and to fill the pots full of roots as soon as possible. With the soil above recommended, watering must be attended to at least every alternate day, and in dry hot weather they would be the better for a good soaking every night. There can be no doubt it would materially assist the formation of roots in the soil in the pots if the pots could be plunged to their rims in the bed, as then the pots would not be exposed to the drying influences of sun and wind; and there can be but one opinion that the more moisture we can retain in the soil the more speedy will be the formation of roots. With ordinary care in watering, plants so treated will generally fill their pots full of roots in three weeks; that is, if the plants in the first instance are moderately strong. The young plants may then be severed from the parents, and be taken to some shady spot under a wall or fence. With abundance of water for a week in this spot, they will recover from the check received, and in a few days after will be in a fit condition to be placed in their permanent pots. But this part of their management I must leave for the present, while I detail other methods of preparation.

The method now to be described is practised by a few cultivators, and is upheld by them on the score that it is the most simple and speedy; which I do not deny; but I do say that it is not the most satisfactory, according to the results I have seen obtained from it. Those who practise this method use no small pots, but prepare in the first instance the pots in which it is intended to fruit them. The pots are well crocked and filled with earth, and then taken to the beds to have the runners placed upon them, exactly as detailed above for the small pots. They are watered, and of course properly cared for; and when it is thought that the plants have made sufficient roots to support themselves, the runners are cut away, and the pots taken to more convenient quarters for watering. In this plan, as will be seen, there is no more work of potting after the plants are once laid on the soil; and this will no doubt find favour with some of our readers. But the reader must remember plants so managed are by no means equal to those first raised in small pots and then potted, as when the young runners are merely fixed upon the soil to make the best headway they can, the crowns of the plants are often badly placed, sometimes almost

out of the soil, and sometimes with the crown completely buried; and these are all mistakes that must be guarded against by those who wish to excel in strawberry forcing.

Another plan is to specially prepare a small spot of ground on some warm border by the addition of loam, rotten dung, and coarse sand. This, well mixed with the staple soil, will prove eminently favourable for young strawberry plants. The ground being got ready, the earliest and best rooted runners are planted out on it twelve inches apart each way. They are protected during severe weather in winter, and potted up for late spring crops. By such management I have myself secured fine plants in the spring, and taken a moderate crop of fruit from them. But such plants as these are not adapted for early forcing, as if put into a strong heat they run out to leaves, with but little flower and no fruit worth gathering.

I have now detailed the principal methods by which different people secure a stock of plants, and now I must leave the reader to choose for himself, while I return to complete the details of preparation of the plan just noticed.

For potting those plants raised in small pots (or indeed any that are required for early forcing), the soil should consist of equal quantities of mellow fibrous loam and rotten dung from an old hot-bed that has lain by for twelve months in a heap. To these ingredients add one-third of coarse sand (the sharper the texture of it the better), and to every barrow-load of this soil add about one gallon of soot. Let the whole be well mixed, but not sifted; only broken up with a spade. The pots should be clean and dry, and well drained. I like a 32-size pot; and indeed they are large enough for all ordinary purposes, for setting aside the bulk and weight of larger pots, I am satisfied that plants well grown and judiciously forced in a 32 will produce results equal to those in a size larger. The principle to be aimed at in preparing the plants is to secure an early growth; that is to say, to give every possible encouragement to the plants to fill their pots full of roots before the cold nights and drenching rains of autumn set in. For unless they have done this, a weak succulent growth only is obtainable in the autumn, which every good gardener knows is not conducive either to health or fruitfulness. But with plants that have completed an early growth, with stout and prominent crowns exposed above the foliage, the chances are far more favourable, and the plants quietly go to rest with ample time to mature themselves, and to secure a season of dormancy before they are required for a more active life.

In potting there are two essential features to be observed. The first is to place the crown of the plant well up above the soil; the next is to make the soil firm and close round the roots. The object of placing the crown well up above the soil is to expose it to the action of the elements, that it may get plump and thoroughly ripened, which will greatly assist in the formation of the flower spikes for the crop. This is a process not visible to the cultivator; but there can be no doubt that when plants are in a high state of cultivation, and all the organs full of health and vigour, that when going to rest there is a process taking place in the interior of the plants, where the essential organs of fructification are formed in embryo ready to be developed when a suitable temperature is given them. Admitting this, we shall at once understand how important it is that we should secure an early growth in our strawberry plants for forcing, that there may be time for them to complete one of the principal processes whereby we secure a crop, and we shall understand, too, more readily the cause of failures in weak immature plants. The object of making the soil firm round the roots of the plants is to make sure that all the soil is well permeated with roots. That is to say, in a firm soil the roots will expand and distribute themselves as they work outward from the plants, and so fill the whole mass of soil as they push towards the sides of the pots; whereas, if they are potted lightly the roots will start out at once to the outside of the pot, and the interior of the ball of earth will scarce have any roots at all, and will remain so until the plants are taken in to force, when a little excitement starts the plants again into growth, and the roots also. They have then the unexhausted soil in the middle of the pot to work in, which starts the whole plant again into a vigorous growth, to the utter consternation of the cultivator, who does not want leaves but flowers. The result is generally barren but leafy vigorous plants that more nearly resemble cabbages than strawberries. The object of the cultivator should be to secure *pots full of roots*, and this is particularly important for early crops; for if the pots contain at the time they are taken in to force any unappropriated soil, the roots will work into it too vigorously, and the result will be a mass of leaves instead of bloom. Having potted the plants and given each a good soaking with water, stand them on a firm hard bottom fully exposed to all weathers until the end of October, when they should be taken under cover. Keep the plants abundantly watered until the end of September, when it may be slightly diminished. They should be occasionally weeded, and all runners picked off as they appear.

J. C. CLARKE.

CULTIVATION OF THE TURNIP.

Turnips are frequently a cause of disappointment in small gardens, but where there is a good open space, there is not a more useful or profitable crop. They do not require a rich soil, and will come well without manure on land that was manured for the previous crop; at the same time heavy manuring may be practised to advantage. They are hardy things; they follow nicely on the heels of summer things, such as potatoes, peas, &c., and may be sown at almost any season of the year. The use of liquid manure is strikingly exemplified in the culture of turnips, and on small farms—where improvements are not as rapid as they should be—it would always pay well to give the ground a good soaking with liquid manure, and then sow swedes at once. But as liquid manure is not everywhere obtainable, the good old plan of digging in good stable manure cannot be superseded. They would only want hoeing and thinning afterwards, so as to leave them finally at nine or ten inches apart, and a heavy crop would be certain; liquid manure renders this crop additionally profitable, and it is one that exhausts the land as little as any.

In garden culture, the first sowings may be made in February, either on a warm border or on a gentle hotbed, and they will come in for use during April. Early White Dutch and Early Stone are the best for this purpose. After the first of March, they may be sown at any time till the end of September. But for the winter supply, which is the most important, because the wether legs are then prime for them, a good breadth should be sown at the end of July, and if possible another at the end of August. These will come in during winter and early spring, and furnish greens as well as bulbs, at a time when both are prized. For all general purposes the Common White, Large Round White, and Early Stone are the best, but for allotment culture, swedes are the most profitable, and most generally useful, especially where there is a little live stock to be thought of. It is best to sow turnips in drills, dropping a few seeds along the drill twelve inches apart; but they do very well broadcast, and should be sown thinly, just after rain. When the plants have three or four leaves each, thin them out to ten or twelve inches asunder, and give the ground one good hoeing through. After that, the turnips will spread and choke all weeds, and need little further attention, except during drought, when they should have plenty of water or liquid manure. Just before Christmas, it is as well to take up a lot of the best bulbs, remove the tops, and store them in sand, though if the winter is not very severe, they will fight it out in the open ground. Since turnip-greens are much valued as a spring vegetable, I would suggest the use of swedes in gardens expressly for the purpose, for the green tops are more sweet and tender than any of the other kinds. Early in December, get some of the largest bulbs, and on a piece of rich mellow soil draw drills a foot apart, pack the swedes close together along the drills and soil them over with ashes six inches deep. They will sprout through the ashes, and may then be cut off close to the bulb; the ashes being clean, are easily removed for that purpose, and any uncovered and not cut must be covered over again. This plan will give you a supply of the most delicate vegetable you can eat from the end of January to the end of March, especially if some were got in a month or six weeks earlier, expressly for a first crop. Ordinary turnip-greens give no idea of the delicacy of these blanched stems, which are equal to asparagus, and invaluable when greens are scarce.—*Profitable Gardening by Shirley Hibberd.*

TREATMENT OF PINE SUCKERS.

Suppose a quantity of suckers to come under treatment about the end of August or beginning of September—the time when suckers are generally in a fit state to be taken from plants that have produced the summer supply of fruit—let them be carefully detached from the parent plants, cut their rugged base smoothly off with the knife, and remove with the hand those short scaly leaves which cluster round their base, and under which appear the young roots. The leaves should not be removed any higher up than where these young roots assume a brownish hue. As this operation is proceeded with, the suckers for convenience should be classed into two lots, the smallest and the largest being placed by themselves. The largest set, presuming that they are strong and healthy, are to be potted into eight-inch, and the smallest into six-inch pots. The pots, if not new, should have been well washed both outside and inside. The crocking should be efficiently performed with rather finely broken crocks with all dust sifted out of them. They should be arranged in the bottom of the pots to the depth of one and a half inches in the six-inch, and two inches in the eight-inch pots. Over the crocks should be placed a thin layer of dry moss or the most fibry part of the loam, and over all a sprinkling of fresh soot, which acts as a barrier to worms and affords a stimulant to the plants.

In potting the suckers, place them sufficiently deep in the pots to keep them steadily in their places; press the soil about them as firmly as it can be pressed with a blunt-pointed piece of wood, and leave it about three quarters of an inch from the rim of the pots, that there be no difficulty in watering them when necessary. It being presumed that a pit was previously made ready for their reception, they should be plunged at once to the rim of the pot; and should the bottom-heat be derived from leaves or tan, or both, and not likely to exceed 85°, the plunging material may be placed firmly round the pots; but if the heat is likely to exceed 85°, let the material be placed lightly and openly round them. Let the plants be arranged, as previously directed, according to the structure of the pinery, and in doing so avoid crowding them together, the consequence of which is to draw the young plants up weakly, and to make good plants of them afterwards is almost impracticable.

They must now be shaded from the sun during the brightest part of the day for ten or fourteen days, or, in fact, till it be found that they are making roots. In the afternoon, when the shading is removed, they should have a gentle dewing overhead through a very fine rose. The shading and dewing must not be abruptly discontinued, but by degrees, and entirely given up whenever the young roots can be discerned at the outside of the ball of soil. Then they should have a watering with water at 80°, sufficient to moisten the whole ball. After this they soon begin to grow freely, and air should be given early in the day when fine. A good supply of air, with as much light as possible, and a moderately moist atmosphere, with a very sparing use of the syringe, will prevent them from making a weakly-drawn growth.

From the time the suckers are potted the great object is to obtain a compact sturdy growth as one of the principal points of future success, and which will enable the plants to go through the rigours of winter with

impunity. This is dependent chiefly upon free exposure to light, a good supply of air without draught, and a moderate amount of heat and moisture both at the roots and in the air.

The night temperature for September should range from 65° to 70°, with 10° to 15° more for a while when shut up in the afternoon with sun-heat. After the middle of October the heat should be 5° less, and it should gradually decrease till, by the middle of November, it is 55° by night and 60° by day. During October the bottom-heat should not range higher than 75° to 80°; and for the three following months I consider 75° quite sufficient to keep the roots healthy through these dull months. In olden times, when every sucker potted in autumn was deprived of its black and lifeless roots in spring, it was considered that pines lost all their previous year's roots in the common course of nature. But there is no doubt whatever that the real cause of the evil arose from the common rule of renewing the beds in which the pines were plunged at the fall of the leaf, the consequence of which was a degree of bottom-heat which pine-roots cannot bear and live. The good pine-grower of the present time is not satisfied if, when September-potted suckers are shifted in early spring, their roots are not white and full of life, instead of black and shrivelled.

Under ordinary circumstances I would recommend that the suckers now being treated of should be kept quiet from the middle of November till the middle of February, and not encouraged to grow. To rest them thus a temperature of 55° is preferable to 60°, unless during very mild weather, but 60° should never be exceeded. The atmosphere should be dry rather than otherwise; and I have very rarely found that, when grown on a bed of leaves and tan, during these months they ever require any water at the root. The tan in which the pots are plunged is generally moist enough for the maintenance of pine-roots in a healthy condition, and the soil in the pots is regulated as to moisture at this season by the state of the plunging material. Where the bottom-heat is supplied with hot-water pipes in air chambers or tanks, the plants may require an occasional watering; but with the bottom-heat that I have named the waterings required will be very few indeed. With young stock there is little danger of their fruiting prematurely from being kept dry, if all else be right; and in all other respects it is much the best practice.

When the thermometer rises above 60° a little air should be put on, always at the highest point of the pit or house. But, unless during a continuance of dull damp weather, the temperature should not be purposely raised in order to admit of giving air. In most pineries there is a sufficient amount of circulation going on in the atmosphere through the laps of the glass and other chinks to render systematic air-giving, with the low temperature and dry atmosphere that I have recommended, unnecessary. It is therefore during only sunny days, when the heat is raised, that air-giving must be carefully attended to during the season of rest.

Under ordinary circumstances this is the winter treatment to be recommended as that which will give succession plants in the most robust and healthy condition in spring, and that can be grown into the very best fruiting stock by the following autumn. Scarcity of intermediate plants may, however, in certain cases, render it desirable to considerably increase the size of the plants in order to gain time. When such is the case, they should be kept gently on the move all winter by keeping the temperature at from 60° to 65°, with a little more moisture at the root than has been recommended. The highest temperature named should be given during the brightest and calmest weather, when it can be secured without anything like violent firing, and during weather the reverse of this the lowest is much the safest. This winter growth can only be pursued with success when the pineries are light and fully exposed to every ray of sunshine that can possibly be had. Otherwise the plants will become drawn and weakly, a condition which will more surely than any other defeat the object in view. It is only when there is a scarcity of good succession plants that I would advise these autumn suckers to be pushed on with the view of resting them in April and May, in order to start them for supplying fruit in autumn.—*DAVID THOMSON, Treatise on the Culture of the Pine Apple.*

PHOSPHO GUANO A PECULIARITY.

SIR,—Having been for a long time in the habit of using phospho guano for general, and, in juxtaposition with other artificials, for experimental purposes, I have observed several peculiarities in connexion with its use, one of which I herewith seek to describe for the consideration of others, as well as in seeking to be further enlightened myself.

Last year I used it as usual, chiefly as a *stimulant*, applied to the growth of a great variety of horticultural and some ordinary agricultural crops, when an accidental circumstance led to my discovering the following characteristic: shall I call it a peculiarity?

A small portion in the bottom of a bag remained unused, and left neglected on a hedge-bank, until it had become quite wet—in fact, like mortar—by the action of the autumn and early winter rains. In that state it remained until the frosts and snows set in, and although fully exposed to the rigour of the former, it never became hard nor frozen, when the hitherto soft ground beside it had become so hard as to be with difficulty broken up by a pick or a crowbar. I left it untouched until the dry weather of spring, it being still soft and damp. I wished then to use it; but to render it friable, or easy of distribution, I knew not, except by artificially drying it by fire-heat. This I feared doing, lest that in doing so I might liberate and expel its volatile ingredients, which, when valuable, I wished not to lose. So I had it mixed with dry earth and pulverized as best I could, applying the compost, if I may so call it, in proportion of the phospho of 1½ lb. per statute perch, on which I had early York cabbages and cauliflower plants transplanted, and the luxuriance of both now agreeably surprises me. Another, as to me appears, remarkable peculiarity in this manure was this—last August, when sowing cabbage seed, I used the phospho, as a stimulant, at the rate of 1 lb. per statute perch, or at the rate of 1 cwt. 1 qr. 20 lb. per acre. Two crops grew most luxuriantly, a considerable number of which I had transplanted out in shallow trenches on newly-trenched ground late in November, I feared so late as to be unable to bear a severe winter, without contemplating the great severity of that we have passed through. To my agreeable surprise, the plants grow on most luxuriantly, never suffering in the slightest degree from the hard frosts, killing some of the hardiest, long-established cabbages in the same garden, as well as the tender, luxurious broccolis.

Now, what I wish to ask you and your scientific as well as practical contributors is, (1) Have you or they experienced any such results from the application of this or any other artificial manure? and (2), If such discovery has been discerned, to what ingredient in the manure itself may be

justly attributed such results? I am the more anxious to see this and such subjects discussed, not alone because of the information I would hope personally to gain by it, but with the view of dispelling some lingering popular prejudices still extant amongst some excellent practical men, who believe, and perhaps not without just cause, that plants of various classes, particularly of the Brassica tribe, when sown in early, or, worse still, in late autumn, and stimulated to luxuriance by other rich putrescent manures, are rarely capable of withstanding even the frosts of ordinary winters, less intense than were those of the past. Another question I would willingly ask, assuming that my crude ideas of the power of phospho guano to resist the effects of frosts, whether alone or in its influence on luxuriant plants to be correct, but which I would not willingly bind myself to without further proofs, might not its application to the roots of other plants early in autumn have the effect; if such was the case in the cabbage plants with me, to ward off the injurious effects of frosts on half-hardy, indeed I might say hardy, as usually considered, plants, such as were withered, if not killed outright, by the frosts of last winter and early spring?

Whatever my notions of this theory may be, I fancy the matter is at least worthy of investigation, and hence the apology, if such needs be, for my having trespassed to such a length on your space by my prosy ventilation of this matter.

May 22nd, 1867.

EDWARD CARROLL.

[As our esteemed correspondent asks for our opinion, we venture to give it, with no little diffidence, as we should in the first instance prefer hearing, as he desires, what our "scientific and practical contributors" have to say. That phospho guano wonderfully stimulates the growth of plants, whether applied in the garden or on the farm, there is no doubt, but that it or any other manurial agent could give them any peculiar frost-resisting power, except by rendering them more vigorous and healthy, we would be slow to admit. It is with plants as with men: the weakly and blanched will suffer from the influence of cold, when the vigorous and healthy will but enjoy it. We would rather look for a solution with regard to the immunity from injury of our friend's plants in the direction of his shallow trenches, and transplanting so very late in November. It is a well-established fact that recently transplanted roses, shrubs, &c., resist frost, while their established fellows beside them are killed. Why they do, no one knows better than our correspondent.—Ed. *Irish Farmers' Gazette*.]

Calendar.

WORK FOR WEEK COMMENCING JULY 13.

Kitchen Garden and Frame Ground.

CELERY.—The early crops to be earthed up as soon as the plants have attained a good size. If the ground is dry, give a heavy soaking of water the day before intending to mould them, and be careful that the soil is nearly dry, or at most only moderately moist, when the moulding is to be done.

Sow cabbage, green curled endive, lettuce, round spinach.

WINTER GREENS to be got out in plenty now, as peas, potatoes, and other crops are taken off. Collards, Brussels sprouts, and other quick-growing subjects that will mostly be used before Christmas, to be planted in manured ground; but those to stand till next spring, to furnish sprouts, not to be manured, as it renders them less able to withstand severe frosts. Continue to plant broccoli, Brussels sprouts, Scotch kale, and everything else of the kind from the seed-beds.

LETUCES FOR WINTER AND SPRING.—To have these in perfection during autumn, and from the middle of April to the end of May, sow from the 20th of July to the 10th of August, the full batch to be sown on the 25th or 26th of July. The best sorts to sow now are Hammersmith, Brown Silician, and Brown Dutch. These are the hardiest, and make capital saladings, and they do not need so rich a soil as the crisper kinds. In order to be very distinct, we should advise a sowing in a bed of fine rich soil, on the 20th of July, of true Bath Cos, which will supply good lettuces in October and November, and the smallest plants left will stand the winter. On the same day sow also, on a bed which was manured for the last crop, Brown Silician and Hammersmith. In the course of a fortnight make up a piece of extra rich soil elevated a foot above the level, and prick out the strongest plants of Bath Cos upon it, a foot apart every way, and keep them shaded and watered till they make a start, when remove all shading, and encourage them to grow with the help of liquid manure. If old frames are plentiful, make up a few reserve beds in them above the general level of the ground, and into these beds plant the weakest plants from the seed-bed, six inches apart. These frames will serve a twofold purpose. As soon as the plants are strong, remove every other one to a sloping bed under a warm wall, where shade and water, and let the others remain. The strongest plants will come into use during October, when we shall suppose the whole batch will be consumed. Those under the wall will succeed them; and if a smart frost should occur early in November, they may escape it through being high and dry; and if frost and wet destroy them altogether, the reserve stock in the frames will keep up the supply till Christmas, as any covering that will exclude frost and wet will suffice to protect them; and if they are kept in darkness two or three days together they will take no harm. In a mild season this plan will carry the supply—supposing the breadth sown to be sufficient—far into January; and it must be remembered that lettuces are always esteemed, and are as elegant on the table as they are refreshing to the palate. On the 25th of July, and again about the 10th of August, sow Hammersmith, Brown Silician, and Brown Dutch. These are all hardy kinds, and it is safer to sow a pinch of each than three times the quantity of any one, as if the winter should be severe there is a better chance of saving a few for spring use. On a good holding loam, without recent manure, if the beds are raised a trifle above the level, there will be a reasonable chance of these surviving the winter, and proving eminently serviceable for spring saladings. At the final planting they should be ten inches apart every way, and instead of hastening growth by liquid manure, they should have only just so much help after planting as will enable them to take root safely. Keep the ground clear of weeds, but use the hoe as little as possible, so that the surface may become hard and firm. It must be remembered that winter and spring lettuces are valuable, and when grown for market will always pay for glass. If a supply during winter and early spring is a matter of

some importance, all the spare frames and lights should be got ready at the end of October, filled with light sandy earth, the plants taken up carefully with good balls, and planted nine inches apart in these protective beds. Water them in, keep the lights off as long as possible, and when the plants in the frames must be consumed at last, tie a few every week to blanch, and keep them dry during severe weather, and they will pay for the care and the space they have had. Now that orchard-houses and ground vineries are in use almost everywhere, there may be made to pay their cost in keeping up a stock of saladings for winter. Grow the plants in open beds, and at the end of October or early in November transplant them carefully and keep them under glass, moderately dry and with as much air as possible, according to the state of the weather.

Flower Garden.

PROPAGATING PHLOXES AND PENTSTEMONS.—The only satisfactory way is to take cuttings, and get them rooted with as little aid from heat as possible. They may be multiplied in autumn and spring. The usual practice is to propagate pentstemons in autumn and phloxes in spring, but these last may be done in autumn with the others, if young shoots can be got from the base. If the season is a dry one, however, very few can be obtained, but in spring phloxes throw up shoots from the root freely, and if these are taken off when a few inches long, and potted round the sides of pots, and placed in a gentle heat, they soon make roots, and must then be potted singly. Pentstemons generally produce plenty of nice shoots at the base in autumn, and if these are potted, several together in a pot, and put in frames, they may remain till spring, and be planted out direct from the cutting pots to the places where they are to bloom. If the stock runs short, all the plants may be topped in spring, and will root quickly in a gentle heat. When it is intended to propagate largely, it is best to take up all the old stools, and pot them in large pots, and keep them in frames. By this means a large crop of cuttings may be obtained early in spring, and they may be multiplied *ad infinitum*. The plants produced in this way do not, of course, attain to any great size, but they produce fine flowers, and those who grow for exhibition should follow the practice of propagating annually. It would be well to mark while the plants are in flower all those it is intended to propagate, as the time for taking cuttings of pentstemons is near at hand.

AGANTHUS to have abundance of water while throwing up flower-spikes, and until the bloom is over; then to be shaken out and parted, and the strongest crowns selected for next year's bloom. Pot these singly in small pots, removing with a sharp knife any of the straggling roots that cannot be got into the pots. The soil should be sandy loam, rotten dung, and peat, equal quantities. Shut them up, and re-shift as soon as the pots are full of roots. The small off-sets and the fleshy roots may be used for increase of stock. Plant in shallow pans of sandy peat, and place in a gentle bottom-heat for a fortnight; then separate them, and pot singly in sixties.

TALL-GROWING BEDDERS need a little care now to protect them from high winds. A very effectual and expeditious method is to insert strong stakes, and run a few lengths of stout tarred string amongst them, so as to form a support to the back and front of every row. Small forked branches will serve the same purpose where the plants are not sufficiently regular to be supported with string.

CHRYSANTHEMUMS in the open ground to be topped again, and the soil between them lightly pricked over with a small fork, and some quite rotten dung worked in. It will be found that they always root near the surface, and a dressing of dung will greatly help them, and save the labour of watering.

CINERARIAS coming up in seed-pans to be pricked out as soon as large enough to lift, and have separate thumb-pots, with light rich compost, and be put in a frame to grow on. By securing a vigorous growth from the first they will be less troubled with fly, and make fine specimens. Those who have not sown seed yet must do so at once, or it will be too late.

Fruit Garden and Orchard House.

PLUM TREES in orchard-houses are in many cases covered with fly. If this is not checked, the trees will be barren next season. Make a strong infusion of tobacco, and at the same time dissolve a little glue; mix them together, and add water in a large tub, and into the mixture dip the trees. Any that are too large to be dipped must be laid on their sides and well syringed. Those dipped must also be syringed the next day. If the labour can be found, it will be more effectual to paint with a soft brush every leaf, under and upper side, with a mixture of one pound of dissolved glue, one pound of tobacco, and four gallons of water. The leaves will appear after the operation as if varnished, but not a leaf will fall, and it will make an end of the vermin. After a few days syringe them freely.

FIGS producing a second crop to be fed liberally, and have a top-dressing of quite rotten dung. The top growth must be pinched back.

Greenhouse and Conservatory.

FUCHSIAS must be syringed twice a day, and have moderate shade. Fine plants in comparatively small pots will be greatly benefited with weak liquid manure every three or four days. The stock must be propagated now in quantity for next year's supply. The smallest cuttings make the best plants, and there is no need to cut to a joint. A mild bottom-heat will hasten the formation of roots, but it is not needful, as if shut up in a cold frame and kept shaded and regularly sprinkled they will be well rooted in a fortnight. It is a saving of time in the end to put all cuttings singly in pots at this time of year, as they can be allowed to fill the first pots with roots, so as to grow strong from their first start. In preparing pots for the cuttings, use smallest sixties or thumbs; put a mixture of turf and old dung over the crocks, and fill up with half sand and half leaf, in which the cuttings will root as quickly as in sand alone at this season, and have something to live upon while filling the pots with roots. This is the best method for amateurs who are much away from home, as the single cuttings require less care than when dibbled into sand only in shallow pans.

HARD-WOODED PLANTS requiring a shift this season must have it at once, or the time will go by for them to derive full benefit from the operation. The most important matter of all is to secure good drainage, and to use the compost in as rough a state as possible consistent with the size and nature of the plant. Whenever the cultivator is in doubt about the best soil for any hard-wooded plant, he will be pretty safe in using half peat and half loam, both in a turfy and sweet condition, the more elastic the better.

PELARGONIUMS, as they go out of bloom, to be cut down, and placed in a warm, sheltered, and rather shady place for a week, then to be put in the full sun, and kept rather dry at the root, with occasional sprinklings of the stems and leaves till they break, and then to be repotted back into small pots with sound lumpy turf to make their new roots in.

Stove and Orchid House.

ORCHIDS.—The general collection may be kept in perfect health now without fire-heat by shutting up early, and sprinkling the floor of the house to cause a humid atmosphere. Do not shade over-much—generally from ten to three will be quite sufficient from this time till shading is dispensed with altogether. Small specimens of Stanhopeas should be now shifted into large baskets, in which they can push their flowers downwards. The best material to fill the baskets with is chopped moss, and the tough felt-like fibre of good peat, with all the soil removed. The baskets should be shallow. After shifting, keep them well supplied with atmospheric moisture, but only moderately moist at the root. Specimens that do not require a shift are to be encouraged to grow as soon as they have done flowering, in order to assist the completion of their pseudo-bulbs, and then they must be reduced to a state of rest by gradually withholding water, or to have but little until they again begin to grow. All the Stanhopeas will grow in either house.

Forcing Pit.

MELONS swelling fruit to have plenty of weak manure-water; those ripening their fruit to be kept tolerably dry, but if kept too dry will get infested with red spider, so endeavour to keep them in good health on the smallest possible supplies, and give plenty of air. Those that have borne good crops may be cut back, and set to work again with the help of linings to the beds. Keep these rather close after pruning in, and frequently sprinkle the sides of the frames and the surface of the bed, and give only moderate waterings at the root. Never allow water to fall on the main stems. If the plants cut in appear rather poor, let them break moderately, and then remove a portion of the soil from one side of the roots, and replace with fresh turfy loam. When the roots have run into the new stuff, do the same on the other side, and they will swell a second crop admirably. This is a first-rate season for melons, and if they have not a good flavour and their proper colour, it is the fault of the grower only.

PINES.—The bottom-heat must be kept up, and there must be plenty of room between the plants for a free circulation of air. Maintain a moderate humidity among all advancing crops and young stock, and in giving air guard against drying winds and draughts by keeping one side close while the other is open. Where the fruit is swelling nicely, sprinkle the surface of the paths and soil frequently; but where the fruit is changing colour, discontinue the sprinkling, and give only just enough moisture to keep the plants in health. After cutting fruit, earth up the stools, and give a brisk bottom-heat and plenty of moisture. Beds in which pines are plunged must be kept constantly moist, as the heat will not rise through any dry material.

VINES now require air night and day from the time the grapes are gathered, unless they are in poor condition, and the wood very green. If so, shut up early, and in another eight or ten days the wood will be getting hard, and then there may be air on night and day. Grapes ripening not to be syringed, but to have a moderately moist atmosphere and plenty of air.

PEACHES AND NECTARINES must be fully exposed to the atmosphere as soon as the fruit is gathered. Where the fruit is still banging, give plenty of air, and every morning a light skiff with the syringe over the leaves. Stop the strongest shoots a few at a time, to swell the ripe buds. Wall-trees are generally loaded with superfluous wood, through the prevalence of a delusion in favour of plenty to choose from at the winter pruning. Choose now, and remove all that will not be wanted, and what is left will ripen properly.

PREPARATIONS FOR WINTER FORCING must commence in good time. Look after strawberries, potted trees, &c., &c., to ensure having them in condition for forcing, when required.

NOTES ON POULTRY KEEPING.

"The countryman's farm or habitation," wrote Mortimer, "cannot be said to be completely stored or stocked without fowl as well as beast, which yield a considerable advantage by their eggs, brood, body, and feathers. Any poor cottager that lives by the highway-side may keep them, they being able to shift for themselves the greatest part of the year by their feeding on insects, corn, or anything almost that is edible by any other sort of animal; and therefore they are kept to great advantage at barn-doors, or other places where corn or straw is scattered. As for cocks and hens, I shall not enter into a description of the several sorts of them, only advise you to choose those that are the best breeders and the best layers; but no sort will be good for either if they be kept too fat. The best age to set a hen for chickens is from two years old to five, and the best month to set them is February, though any month between that and Michaelmas is good. A hen sits twenty days, whereas geese, ducks, and turkeys sit thirty. Observe to let them have constantly meat and drink near them while they sit, that they may not straggle from their eggs and chill them. One cock will serve ten hens. If fowls are fed with buck or French wheat, or with hemp-seed, they say they will lay more eggs than ordinary; and buckwheat, either whole or ground, and made into paste, is a grain that will fatten fowls or hogs very speedily, but the common food to fatten them with is barley-meal wet with milk or water; but wheat-flour is better." So amusingly and shrewdly wrote one a hundred and fifty years ago, who would be eminent nowadays as an agriculturist were he alive. Still information so indefinite will hardly suit the modern amateur. Then must our "prentice hand" essay the subject.

For myself, I have a partiality for the elegant *game fowl*, which, moreover, have the recommendation that they feed a good deal on grass-seeds; leading a gipsy life more than any other kind; encamping in the open; concealing their nests, as the landrail, &c. The black *Spanish* have a charm with many, and certainly they deserve credit, if for nothing else, for the extraordinary whiteness of their immense eggs, being in wonderful contrast, whether intended or not, to the glossy black of their plumage. To the *Dorking* and the *Cochin-China* I have the same objection that I have to a musty gossip. They may be a very good sort of animal—profoundly maternal—a useful, hospitable, routine running class—but, as I am penning

my own feelings, I must confess my aversion to the sort. A serviceable cross for the table is bred between the *Game* and *Dorking*, of which I saw some magnificent specimens in the straw-yard of Mr. Booth, of Warlaby, about the only cross-bred stock he has about his interesting place. A *bantam* or two well chosen, black or golden laced, give a finish to the stable-yard—a style and stamp as the rim of plaited straw along the hunters' stalls. Curious, if correctly stated, is the plan mentioned by Richardson, whereby that ingenious nation the French get extra duty out of their hens in the way of eggs. We are informed that at an early period after hatching they band over the young brood to the care of a fattening capon, whose services they enlist as nurse. The way 'tis done is this: The last-named unfortunate they catch and divest of his nethermost feathers; the denuded part they whip with a rod of nettles, and then turn him, smarting and affrighted, into a darkened room, into which they introduce also a brood of young chickens, not less than he conternated at being torn from their mamma. He looks, however, kindred, and they immediately make for him cowering in the corner, and, from instinct, crowd for refuge under his wings. By the close subsidence of the downy little fellows, the poor bird is so eased of his torture, that out of very gratitude he comes to behave towards them as the parental hen would. By the time his affliction is abated there is a sympathy established between them, and he is loath to take a lively interest in his protégés, and performs for them with a will all the numberless little offices, such as scratching for grain and grubs, chuckling to them to come and share, &c., which he remembers to have been done for himself in infancy.

As for *geese*, I abhor them; their cackling is abominable; their grease alone to be valued, as a first-rate specific for many purposes upon the farm, such as rubbing a bard udder, &c. Their meat is indigestible, and endurable only for the sweet apple slop's sake in which it is the mode to envelop each morsel. During life, besides hissing at your horse's heels, and chasing you their lord and owner, every three of a flock will consume as much pasture as a sheep, besides spoiling with their dirt and feathers I don't know bow much more, not to mention the green, muddy, unwholesome slush to which they rapidly reduce your stable-pool. But if you have a fancy for the like, most gentle reader—and I suppose he may be reckoned a goose who has not—then, for the best sorts to begin with, you must consult Mr. Bailly, or Mr. Fowler, or some equally distinguished (if there be any) presiding genius of the clan. However, I can tell you that the sooner the better they commence laying in the spring, as they may then have a second brood. They will inform you that they are laying by carrying straw about in their bills, as pigs do before rain, or when about to farrow. At once, then, batch their nest over for them with a tent of straw. They lay twelve to sixteen eggs. They sit usually thirty days, but if the weather be fine and warm, you must not be surprised to find the young ones introduced a few days sooner. For a "*green goose*," you must take them a month old and stuff them, keeping a little rack of fine hay beside them, which they will nibble at, and by the termination of the second month they will be ready for the table. Our plan is rather to go to an old woman who has hatched them under her bed, and buy a brood just advanced to jacket and trousers about stubble-time, when they will at once take to gormandizing kindly on the sheaves' debris, and will be ready to kill by the time the fields are picked. Carrots cut small, or sliced swedes, alone will fatten them, or barley-meal and milk; but best, 'tis said, of all, malt mixed with beer.

"But in fattening of all water-fowl," writes our sagacious friend, "you may observe that they usually sit with their bills on their rumps, where they suck out most of their moisture and fatness at a small bunch of feathers, which you shall find standing upright on their rumps, and always moist—with which they trim their feathers, which makes them oily and slippery more than other fowls' feathers are, that the water may slip off them—which, if cut away close, will make them fat in less time, and with less meat, than otherwise." "Tell that to the marines!" I hear an impatient comment. Well, I know but what I read, and I have presented you on purpose with the original text. With this weeping spring, then, and its incumbent plume, it may be as well for you to make yourself acquainted, if you be given to the nurture of geese. It is at least an ingenious adaptation of native produce that is surely worth trying. Midsummer, he tells us further, is a hard time for the constitution of the goose. Can this be, I wonder, that little boys are then at home from school for the holidays? And now, as I suppose you don't much care to go in for shearing and plucking geese, or half-roasting them before a slow fire, for the sake of pâtés de foie gras, or, indeed, for the perpetration of any such kindred barbarity, we will, by your leave, say here, Good night to Marmion, and proceed upon the even tenor of our way.

But the turkey's "my darling, my darling, my darling!" White, copper-brown, or barred, they are a gentle, profitable fowl, not excluding the grand Turk himself, who slices magnificently at Christmas-time, if well foddered in life, and in death well carved. But the hen—so sweetly waning in the long-tongued bombast of her Cleon-like spouse—if you seek to watch her to her nest, she walks so leisurely, with an air so ladylike and well-bred, so gracefully nonchalante, just pecking indifferently at the grass-seeds as she passes; no vulgar cunning about her, no sly bucolic tricks; one is almost ashamed to sneak along behind the fence and dog her to the retired spot, where she glides up noiselessly into the hedge, and, picking off the dry leaves with which she had concealed them from the crow, resumes her solitary guard in the far-off fence upon the fine, delicious, delicate, pink-spotted eggs, so frequently, alas!—unless removed to quarters nearer home—to disappear by the knavery of Reynard.

When hatched, if you find the wee ones pining, their dear little wings trailing helplessly along the ground, and their whole air depressed, then whip them up, and having conveyed them within the bright kitchen, administer to each a small pill of ground pepper, bread, and port wine—some give a peppercorn in its entirety alone—and let it warm its feet in a spoonful of good whisky (they are so tenderly exotic). Next wrap them in some wool in a basket, and shortly they will be all right. This was taught me by a clever lady, who, during a kind of duty exile with her husband, who had charge of the dispensary attached to Lord Breadalbane's quarries in one of the Western Isles, had bent her gifted mind to the collection and combination, for culinary and household purposes, of the native resources of the island, after a most Crusoe-like fashion, which was intensely delightful to my schoolboy feelings; flesh, fish, herbs, all treasures of the deep, the very flowers on the hill, all came to hand convenient for the manufacture of pickles, wine, preserves, or dyeing material, until, to one's lobbledeloy vision and appetite, her sanctum appeared an absolute Fortnum and Mason's dépôt.

For ducks, I suppose, the white Aylesbury and the brown Rouen are the

most profitable to keep. The black East Indian (whose polished plumage, heaving as they bask asleep in the sunlight, glistens with a wot-like, shoeny look, that seems the very idea of the Pindarie *bygdv vōtov*) I believe some find us paying as ornamental. Our own weakness (to which I recommend not the reader to lean) is for the native wild duck. A nest or two of eggs are easily procured from the nearest fen and hatched under hens. When the young ones appear, mind and keep them under cover with their foster-mother for some days. When their feathers are sufficiently grown, catch and pinion one wing—that is, with a sharp knife cut off the end joint. Their offspring will be sufficiently domesticated for you to forego this operation. I love to watch them, about nightfall, wing their way round and round the homestead, their pinions whistling as they pass overhead to settle down again quietly as ever, as though nothing had happened, upon the pool, drinking up the water so enjoyingly, and coming at call to feed even from my hand.

They are small when dressed for the table, but their flesh is peculiarly delicious. Three-parts grown ducks are useful to turn into gardens or a turnip-field, where they will do good service by swallowing up the destructive slug and caterpillar hordes. Their nests of down they make under a heap of thorns, with which I have a high rocky bank beside the pool covered, or in a hedge not far away. They cover them so carefully with dry leaves when they leave them, that it requires a keen eye and some practice to detect them. It is best done—though that consumes time—by watching the duck return. While sitting, her bright eye will discover her, when you would not have noticed her plumage amidst the brown herbage—so much her own hue—wherein she as ensconced herself. Take the eggs when they have reached the number of twelve or fourteen, and set them under a hen. The duck will make another nest shortly. Under any circumstances she is a bad mother, leading her little ones at once to the water, which, oddly enough, is about the worst that could befall a young wild duck domesticated; the hatch getting rapidly thinned, and perishing oftentimes altogether from the combined assault of oramp, pike, rats, and an occasional, but invariably most voracious, crow, whose young, clamouring on their platform of cross-twigs in some neighbouring elm (they are very faithful to the same spot year after year if not got rid of), it is your first duty to destroy, if you have any respect for your poultry's welfare. An egg prepared by the chemist with a taste of strychnine, set out upon a wall in a field (where it must be watched) will infallibly attract and instantaneously tumble over the old birds. Mind you do this before you destroy the nest, or they will but remove a short way, and give you the same trouble again.

Let me conclude with a few practical hints, which I have bought by sad experience.

In the first place, beware of strewing the spar of lead mines as gravel upon your walks, for fowls will occasionally find their way where they should not, and will pick it up for gizzard service. It lacerates the intestine, they pine gradually away, and die.

Old fowls, as pigeons, may be used up, and found at least as palatable as the brood-hen of Wolf's Crag, if you administer a strong dose of vinegar to them a little before they are delivered to the headsmen.

And, young housekeeper, know that if you would delight your grand-mamma's heart with a devilled chicken leg of superlative excellence, let it be out of the raw fowl to be dressed, and not be the remnant of yesterday's dinner. It is the second cooking that makes them obstinate food.

Keep your hen-house most particularly clean, and often whitewashed. The nests should be made of dry heather (*Erica tetralix*)—the badge, by the way, worn in the bonnet of the Macdonald—and small branches of hawthorn, covered which white lichen. (*Richardson*.) You will so cheaply save your sitting hens much torture: the effect of the frayed hoary bark produces a large amount of powder, which is as drops of stingo to the plaguy parasite, whose name is legion, that is ensconced within the feathers of the unhappy fowl, attempting to relieve themselves of which you see hens roll so in a dust-hole when they can. If by any accident—and accidents will happen in the best regulated families—a fowl or a duck should break its leg, having washed the wound and set the bone, a bit of elder twig, hollowed of its pith, and split, affords a capital pair of splints. For further information on this head consult "Ferguson's Practical Surgery," and forgive me the bother this reading has cost you.—Rev. W. HOLT BEEVER, in "Notes on Fields and Cattle."

ABOUT WEATHER PROPHECY.

It is with a view of implanting in the mind of the little world to whom the weather is of importance, and that in the very direct way of bearing upon their very lives, that I am induced again to "take up my pen and write these few lines to you."

Some time ago I wrote at length a theory of the weather, which was part of that inculcated and accepted by the late Admiral Fitzroy—that part which more especially bears upon our situation in this temperate but uncertain climate. Since that time there have appeared two modes of foretelling the weather, upon which I shall speak, but to carry out and apply the former theory will be my especial object.

Now, I must premise that the reader is aware of such a thing as this—to prophesy a particular sort of weather, and, never minding what follows, to select such propitious moments as happen to coincide with the prediction, and then say, "Ah, I told you it would be so."

Now this is all very well, and may quite satisfy the "ruck" of people, but we must not let it satisfy us. It is in consequence of this easy and natural perversion of our reason that you may find so many of the old moon people still; and this leads at once to the point.

I often wonder what people would pick up for a cause of weather changes if the earth had happened *not to have had a moon*; what then of all the sapient observations, and mysterious shakes of the head, concerning the change of the weather most likely to follow on the next new moon? Why, half the happiness of life would be gone at once. So now, perhaps, the reader is beginning to find that I don't quite "see" the moon theory. But we will speak of the other—a military officer's theory I think it was. Well, this was a moon theory too, and one which to me seemed tolerably reasonable, inasmuch that I took the trouble of looking over my register for the last twelve months to see how it agreed. By this theory we were to take off the fourth, fifth, and sixth days of the moon, and, dividing the rest of the time into three periods, judge of them by these indicating days. The thing seemed so far reasonable that you might imagine it to take three or four days to let the change of the moon take proper effect.

The result of the examination was as follows:—Giving a mark to each third part of a lunation, I find to fourteen marks in favour of the theory

there are seventeen against it, and six doubtful. Now, the only argument I can see for the moon people to take up would be that of an impostor who said he was a shipwrecked sailor, and when he encountered an old salt who asked him which was the port side of a ship, he looked up, then down, waited a while, and then faintly muttered, "They don't call it that in America." So it may be that in America, or perhaps in some other favoured spot, the weather is very obedient, and does as the moon tells it; but, black for this ill-fated island! the weather here is evidently (as was shown in a pithy little article which appeared in the papers a short time since) loyal to Her Gracious Majesty, and does not care a bit about the moon; at any rate, concerning the latter part, I believe that all facts are so dead against the theories of the moon's influence, that if any man, knowing all this, still believes, or pretends to believe in them, I should next expect him to plant his cabbages roots upwards, and do other similar diversions. Now, mind, it is only to save time that I have missed the other theory, set down by Sir John Herschel as "based on scientific principles." You see, if it is all nonsense, then all the worse for Sir John Herschel, and all that have had to do in the making of it, for the sun, rain, and wind do not respect persons.

I will now as quickly as possible proceed to the other parts, and at the commencement I wish to say, Let no one think the thing intricate or difficult, for if he once gets at the principle I know it will pay for the trouble; I say this because I know many people go groping about with not a tittle of that knowledge of things which they ought to have, just because they have, thinking it troublesome to get it, got bold of a habit of saying in a supercilious way, "I don't understand it; I don't pretend to know anything about it." The intelligent reader will not fail to perceive that this is very foolish; so now to business.

The first lesson was to see that the polar and equatorial currents were constant things, and somewhere or other came into collision, but now we will see the meaning of their direction more clearly. Now the two currents are naturally north and south, but the rotation of the earth causes the south current to turn to the south-west, while the same cause makes the north current turn north-east, the one overleaping the motion of the earth and the other lagging behind it. So, if a north wind becomes diverted until it is due east, it is a sign it was a very weak one; and if a south current becomes turned due west, it is a sign it also is very weak. But as these are more north or south so are they stronger or more persistent; remember this.

Second: If the wind is generally easterly, it is, as I showed in the former paper, a sign that the winds are convex towards the west, and that therefore the south wind is at the time stronger than the north; so, too, if the wind is generally westerly, it is a sign that the two winds are convex towards the east, and therefore the north wind is stronger than the south.

It is as a consequence of this simple and easy theory that the sailor says: If the wind goes with the sun, all will be well; but if it goes against it, it will be had weather; because these are the only natural true changes of the wind, and if it is diverted from them it is a sign of a great disturbance somewhere.

Thirdly: I showed that the north wind always kept to the ground, while the south wind always kept up high by preference. From this at once you see that, if a north wind obtains on the ground and also right into the upper currents of the air, it is very bad; it is both strong because north, and powerful because deep. Such is the case now, June 28th. Also, if a south wind is very deep, and near south at all levels down to the ground, it is a good sign, in the same way. Now remember all these things, and we will continue our inferences from them.

We never want telling what the weather is. What we want is to know the time and nature of the next changes. Now this varies according to the time of the year, and, secondarily, according to the kind of season; yet, generally speaking, these two currents are very plainly shown during autumn, winter, and spring. During the summer they become more broken up, and it is at this period that prophecy is more difficult.

Beginning with spring, then, and taking this last spring as an instance: the winter broke up on January 22nd, the wind moving bodily round from E. (where it had been for two days) to S.W., but it was weak, and therefore fluctuated. On the 29th a strong S.W. wind came to its assistance. On February 3rd began a prodigious fall of the barometer, and on the night of the 5th a furious gale from W. The wind then weakened, and fluctuated W. to E., and S.E., E., S., and W. from 20th to 26th (indicating a convexity eastward and a stronger N. wind). The wind was then E. until March 9th, and varied between N.E. and S.E. until the 22nd. Thus the west wind was truly prophetic. A new S.W. wind came then, and was strengthened on the 24th and 27th. It then softened, and kept W. from whence on April 8th there was a strong gale. Until the 24th the warm wind prevailed, varying from N.W. to S.W.; but then came a singular change—one which I believe very seldom happens. The warm wind was met so exactly in the face by the cold wind, neither of them being very strong, that until May 11th was a time of almost perfect calm. The weather was fine, as the currents were not of a mixed kind, and so we had that excessively hot weather so much wondered at. Calm weather being always favourable to heat, because the hot air near the ground does not get the cold air above forced into it by the wind, or rather when there is no motion there is no mixing.

Any one observing would feel the danger of this state of things, and could be prepared for it—at least, I was myself. The cold wind came again on the 12th, no doubt accelerated by the collapse which followed on the thunderstorms of the 10th and 11th. On the 18th the cold wind seemed to slacken, and promise a release; but early on the morning of the 21st we about London were greeted with a bitter cold wind, as usual ushered in by a wretched rainy day. Then came those killing frosts which did such havoc amongst the young planted bedding stuff. On the 24th it went E.; on the 25th it was S. This easterly change was very light, showing that there was scarcely any convexity westward, and that, therefore, the weather was not yet to be trusted.

A moderate south wind then came up, lasting till June 13th, latterly inclining far too much westward, and, although the weather was very hot at the time, I was much afraid. On the 14th came another N. wind, and with it those choice curiosities for which our English climate is, I should think, quite peculiar, namely, *midsummer frosts*. There were two at least, perhaps three; but my geranium petals being once nipped, would not show any more. Then until the 28th the wind was N., and getting more and more parching and dry. On the 29th it went southwards *by west*, or, as the sailors would say, "against the sun." Perhaps before this reaches the hands of the reader we shall have again seen the truth of this apt old saying. Like most summer disturbances, it has threatened more and more

until now. On the night of the 1st of July it looked very likely to produce something.

I think I have written enough; this I say in conclusion, that the more any one studies the subject in a rational way, the more encouragement he will find to go on.

I shall some day show what is the proper sphere of the barometer's indications, and also what a deal more is to be found without its aid, if you use your head, than with it if you do not.

A. DAWSON.

THE POTATO DISEASE.

Here in the west the potato disease has shown itself severely for the last fortnight past. All the early crops are already sadly affected amongst the tubers, and the later crops have received a severe check in their growth—indeed, to such an extent that many of the cottagers are pulling them up, and filling the ground with winter greens, as this is their only chance of turning their garden plots to a profitable account.

Having carefully noted the appearance of the potato disease for some years past, its early appearance this year has somewhat surprised me, because there has not been, as far as my own observation goes, those favourable conditions of the elements for its production which I have hitherto observed as the sure forerunner of its appearance amongst us; therefore I am more than ever perplexed to understand its origin, and less inclined to accept some of those opinions that have been advanced as pointing out the sure cause of the disease. My own opinion I have already made known in these pages; and although cause and effect may be opposite to each other in this case, the cause would not be so serious were the effect less disastrous.

J. C. CLARKE.

Replies to Queries.

Ditty and Son, Cottenham.—Your seedling verbenas are good, and if bedders in habit more than good, and valuable. No. 1 is a deep scarlet crimson flower, with small primrose eye, very stout and large pip, truss small. No. 2 a pleasing shade of rosy purple with gray eye, a stout pip of good size, truss small. No. 3 extra large pip of velvety substance, and a fair sized truss, colour indigo purple shading to plum, large primrose eye. No. 4 maroon crimson, large primrose eye. Having been grown in small pots accounts for the small size of the trusses; grow them again, and more liberally.

G. C. S.—Yours is the true *Viola cornuta*. There is a form of *V. calcarata* in cultivation under this name, but it is at once distinguishable by its long spur.

H. H.—Your strawberries have not come to hand to this date. Should they now arrive they will of course be past all condition for judging.

Novice will find at page 454 of last year's issue (October 6, 1866) directions for the profitable use of tan in the formation of hotbeds.

G. F., Gateshead.—We can have nothing to do with your purchase of peat. We are simply advisers, not agents. You had best take counsel of some respectable nurseryman of your own district.

J. C. Crussel.—We can give no opinion on *tropæolums* the size of a mouse's tail in thumb-pots with one flower each.

Verbenas for Exhibition.—W. S.—Lord Leigh, L'Avenir de Ballant, Perry's William Dean, Perry's Snowball, Annie, Perry's Delicata, La Grande Boule de Neige, Mrs. Elphinstone, Warrior, Antonia, Azorea superba, Perry's Gem.

Celery for Exhibition.—W. S.—It all depends upon the system of judging which are the two best for exhibition. If size is to be the most important quality, Manchester Red and Cole's Crystal White are perhaps the best. But if beauty and flavour are to be considered, we should vote for Turner's Incomparable White and Hood's Imperial Red.

Lawn Mower on Rough Ground.—Old Subscriber.—We must decline to name which of the many good lawn mowers we should prefer for your particular work. We should be always in hot water, and deservedly so, if we were to recommend traders, and we never do so except there are peculiar circumstances to justify it. If the surface of your newly made lawn is so rough that the roller rattles in going over it, the scythe would be the best mower for the present; but if the roughness is in the nature of undulations, or such as we may call a wavy surface, a mowing machine may be used with perfect safety, and the cutters should be set as high as possible. It is best to mow while the grass is dry, no matter whose machine is employed, but any good machine will mow wet grass if it is not extravagantly long.

Peas.—A. B.—The peas that came up so well "as not a seed seemed to miss," but which afterwards turned yellow and perished, were probably in poor ground, and got burnt by sun-heat before they had time to make good roots. If you refer to page 338 of last year's volume (July 28, 1866), you will learn how peas are treated on the trial ground at Stoko Newington. And again, if you will read the weekly notes for kitchen garden work which appear under the head of "Calendar," you will be frequently advised on the subject. To grow peas well a trench should be opened for every row, eighteen inches deep and two feet wide. Plenty of good rotten manure should be spread along the trench, and be dug in and mixed with the soil. The earth taken out should then be returned, and the line put down for the drill. The drill must be drawn with the hoe, and should be full three inches deep. Along this drill the seed should be scattered regularly, sorts that are comparatively weak growers rather thick, but strong growing sorts two or three inches apart. Draw the earth over the seed, and leave all alone until the peas are pushing through the ground, and then dust them with the fine stuff from a heap of charred rubbish, or with wood-ashes, or with lime, and as soon as they are three or four inches high draw the earth to their stems, and put stakes to support them. The "Rose Book" is published by Messrs. Groombridge and Sons, 5, Paternoster Row; the price is 5s. The "Florist's Journal" has been for many years past discontinued. We do not remember any other letter of yours.

Asparagus Beds.—C. T., Aberpergwm.—When we recommend the application of manure to asparagus beds, we are dealing with asparagus beds generally, and not with any particular bed in any particular garden. If your asparagus grows strong enough already, and manure is not needed, all

you have to do is to save the manure for something else. From the description you send, we think you may very well dispense with the application of manure this season.

Vine.—G. W., Lea Bridge.—The egg-like excrescences on the growth of the vine are not at all uncommon. They do no harm, but their appearance is usually an indication that the vine requires more air and less moisture. This is one of the many ways in which plants speak to us in respect of their well-re and requirements.

Liliums in Devon.—Florida had best allow the offsets of *Lilium giganteum* to finish their growth in the ground, and then they may be taken up and re-planted, and probably amongst them may be found some bulbs that will flower next season. There is certainly no better method of growing this magnificent lily than in the open ground, especially in your Italian climate. *L. auratum* is hardy in Herefordshire, Middlesex, and Sussex, as we know by several instances. We may conclude, therefore, that it will be hardy in South Devon. The best soil for these lilies is tough fibrous peat. Do not on any account give them liquid manure, but you may give any quantity of pure water while they are in active growth. The gentleman to whom your note is addressed is an amateur cultivator. We have forwarded the letter, sincerely hoping it does not contain an order for plants.

Acacia.—Sibley.—The tree commonly known as the Acacia in English gardens is that known in books and botanic gardens as *Robinia pseudo-acacia*, a tree of majestic growth, light green pinnated leaves, and a half weeping habit. The flowers are produced abundantly in the month of May; those of the variety commonly planted are white, but there is a variety with red flowers. This is the celebrated "locust" tree, which Cobbett regarded as the best of all trees to plant for profit, but which has never acquired any degree of importance as a timber tree in this country, though for gate-posts and rustic furniture it is invaluable. It is a good tree to plant in a town garden, though it makes a litter beneath it all the summer long.

Vines doing badly.—Ben.—Your vines appear to be in a badly made border, and to have an excess of atmospheric moisture. You do not say what sort of border they are planted in; we should suppose it to be too wet, too fat, and perhaps too cold. The leaves have the appearance of having been grown in a close steaming atmosphere.

J. Chambers, Westerham.—Your plant is *Lycopodium inundatum*, a rather common plant in marshy places in the south of England. We do not answer queries of this kind privately.

Delta.—Your Maréchal Niel roses are on Manetti stocks, so you will know how to deal with them. No better way of learning the difference between Manetti and Maiden's Blush than to grow them both for a few years in some out of the way spot. The second of the two named will give you flowers well worth having.

Enquirer.—Any cheap alkali, such as soda or potash, or a few drops of hartshorn, will soften hard water.

Removing a Swarm of Bees.—H. B. makes the following inquiry: "Wishing to remove a swarm of bees about sixty miles by rail, I should be obliged for your opinion as to which is the best way to do it, as I cannot start before the middle of the day, when many of the bees are out. Should I stop the opening the night before with perforated zinc?" It is very unfortunate that the removal cannot take place after dusk; but as it must be done by day, the only safe course is to stop the opening by means of perforated zinc the night previous. This must be done *securely*. Before removal the hive must be firmly bound to the floor-board, and made so safe in every respect that there will be no chance of the bees escaping at any crevice. If the hive has been supered, it would be well to remove the super a day or two before the hive is taken away, and reduce the affair to the smallest possible compass. In the process of conveying it to its destination take care it is not subjected to any jar or shock, and on arrival place it at once where it is to remain, and do not remove the zinc from the opening until the evening, when it is nearly dark.

Correspondence.

PAMPAS GRASS AND ARUNDO CONSPICUA.—I shall be glad if you or some of your readers can inform me what are the natural conditions under which Pampas Grass and the Arundo conspicua flourish—whether these plants are, in their native haunts, growing all the year or dormant for a time, and whether they are found on the banks of streams or in the open plain. A year or two back I had a number of seedlings of Pampas Grass; some were put out in a border, and some were put in pots and left standing on the border in the open. To my surprise, the plants in pots grew much faster than those in the border, though no care was taken of them beyond an occasional watering. This could only be from the pots getting hot in the sun. I was led to examine the roots of a large plant which I had in a border with a southern slope. I found that there were no roots extending behind where the earth was damp, and shaded by the grass and by surrounding shrubs, but abundance of roots in front on the exposed and therefore comparatively dry part of the bed. This satisfied me that in this climate additional heat was much more wanted than additional moisture.

I have a plant of Arundo conspicua on the same border sloping south. It was only planted this spring, but at present it does not seem likely to flourish as well as the Pampas Grass.

It may be useful to some of your readers to know that the latter plant appears to flourish almost as well in a suburban garden as in one where the purest air is present.

W. R. WILLS.

Edgbaston, July 6th, 1867.

AMERICAN CEREALS.—Wheat was first sown in the North American colonies in 1692, on the Elizabeth Islands in Massachusetts, by Gosnold, at the time he explored that coast. That has been just 252 years ago, and since that time so great has been the increase of this cereal, that in the year 1849, according to the census of 1850, the product amounted to 100,503,800 bushels. Up to 1610, and perhaps later, England supplied the colonies with the greater part of their breadstuffs. How changed is it now! All Europe is looking to us for bread. The bread sent to the colonies in 1610 was not cast upon the waters never more to return. Two hundred and forty years afterwards it rolls back in a continuous stream, to gladden the hearts of half famished millions in England, France, and Belgium. The descendants of man originally lashed and scourged from their shores, and forced to make their future habitations beneath the uninviting sky—more humane than the taskmasters of their fathers—are now striving to return good for what was considered an evil, by supplying them with bread.—*American Paper.*

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. Imp. avr. of 1871 Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D
			rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain.	Growth.						
1867			b. m.	b. m.	b. m.	b. m.	30.10	59.08	78	46	62.0	.00	62.5	Cattleya crispata, M	1867	
21	S	5th Sunday after Trinity	4 0	8 3	10 5	p. m.	30.11	59.04	75	39	57.0	.00	62.5	lobata picta, M	21	
22	M	Battle of Salambon, 1811.	4 10	8 2	10 50	"	30.35	59.07	71	45	58.0	.00	62.5	M Morlandi, M	22	
23	T	Length of day, 15 h. 37 m.	4 11	8 0	10 50	"	30.08	59.09	67	50	58.5	.00	63.5	Schilleriana, M	23	
24	W	Sec-nd French Rvolution began, July 25, 1830.	4 12	7 58	11 24	"	30.19	59.17	63	40	51.5	.00	62.3	Dendrobium alba banyulicum, I	24	
25	Th	Peterborough Horticultural Exhibition.	4 14	7 56	11 28	"	30.15	59.95	70	51	63.5	.00	62.2	formosum, I	25	
26	F	Duchess of Cambridge born, 1797.	4 15	7 54	a. m.	"	29.81	59.68	67	47	57.0	.04	62.1	Cyclogyne Lowii, r...	26	
27	S	Thomas Campbell born, 1777.	4 17	7 53	0 37	a. m.									27	

The Gardener's Magazine.

SATURDAY, JULY 20, 1867.

EXHIBITIONS OF ROSES WILL GRADUALLY DECLINE from their present popularity unless invigorated by the introduction of features tending to render them less exclusive and restricted in their purpose. We have not the least fear for the Queen of Flowers, that her votaries will become weak in their attachment or treacherous in their zeal, for as long as floriculture shall have any claim on the thoughts and feelings of mankind the Rose will have its admirers and pains-taking cultivators, and self-sacrificing exhibitors, anxious to influence by their example and their works the general tone of public taste. But a rose show depends for its success on the approbation and support of the general public. The select circle of rosarians are insufficient in numbers to constitute a public large enough for any exhibition held in a place of general resort, such as the Crystal Palace, Sydenham, or the Town Hall, Birmingham. And if they were, it would be very undesirable for them to keep the exhibition to themselves; one of its objects should be to present the flower in the best possible condition, and with the best possible accessories and surroundings to the eyes of the multitude, or say, to all who are willing to pay a trifling fee for the enjoyment of a gorgeous spectacle. We consider it one of the essential features of a scheme for an exhibition of roses that it shall appeal in some way to the masses of people for support, and prove so attractive and gratifying to the general public as to derive from thence the support needed for its continuance and prosperity. Taking this view of the case, we repeat the statement with which we commenced these remarks, that exhibitions of this sort will decline from their present popularity unless their boundaries are enlarged, and the public are invited to something more than a special exhibition.

In support of the position we take in respect of this subject, it may be proper to observe that special exhibitions have never been successful except in peculiar and exceptional cases. A powerful local influence may sometimes suffice, at other times class interests prevail, but the general public have little sympathy for peculiarities of taste, and will neither be persuaded nor abused into supporting a project which is professedly of an exclusive nature. It is but a few weeks since we directed attention to the threatening decay of the Amateur Tulip Society, and to the extraordinary fact that on the occasion of its last exhibition it was honoured with only one visitor, the rest of the company consisting solely of exhibitors. In some cases it may suffice if cultivators meet and compare their productions, and enjoy a few hours of social intercourse; but if such meetings are intended, the public should not be invited to participate; that which is to be private in fact should be so in theory, and if it is intended to invite the general public to an exhibition, something should be done to render it attractive to persons who have not been schooled to the fine enthusiasm and minute criticism characteristic of the general florist. We hear little of special exhibitions of pansies, auriculas, tulips, and gooseberries; they are too exclusive in character for the public to take any care about them; and so long as the cultivators and connoisseurs of such things are content to hold meetings that are attractive only to persons whose tastes are kindred with their own, there can be no reason for finding fault with them; indeed, we consider such exclusive class meetings to be eminently useful in their way, for the restriction of their objects adds to the earnestness with which those objects are pursued. Nevertheless, in respect of these meetings it will be granted that our postulate is sound—if the public are wanted for their smiles, plaudits, and subscriptions, we must prepare a broad programme, and offer more varied attraction than any one class of exhibition subjects can possibly afford.

Exhibitions of roses are always regarded as feasts open to all comers, and suited to the universal taste. No sane person would openly avow a distaste for roses, but a great many who are reputed to be sane take good care never to pay a shilling to see them. The Crystal Palace can command a company for a rose show, for the holders of season tickets are alone sufficient; but the Crystal Palace Rose Show is less crowded than of yore, and the impartial observer—shall we say, the philosophical observer?—cannot fail to notice that the novelty of the thing has passed away, and that it is gradually dropping into the hands of the florists, and will in time come into their hands completely and exclusively, unless invigorated by the introduction of features tending to render it less exclusive and

restrictive in its purpose. We may point to Birmingham in further illustration. The receipts of money at the doors amounted, we believe, to less than a hundred pounds during the recent magnificent rose show. What shall we do—abuse the people of Birmingham for their lack of taste, or enlarge the programme by admitting other subjects than roses, yet still reserving to these last the leading place and the principal share of our attentions? The first alternative may gratify a passing feeling of anger, but can do no good in the end; the second may result in securing that recognition of the beauty of the rose we are so desirous of promoting, and so may be made subservient to the special purpose we have in view in entertaining the idea of a rose show at all. We advocated the enlargement of the programme of Chrysanthemum shows some years ago, and have now the satisfaction of knowing that the societies who were advised in time have prospered, and that the combination of a show of fruits and miscellaneous plants with chrysanthemums does not detract from the importance of the leading features, but rather enhances it, by rendering the chrysanthemums more attractive by suitable surroundings. We would suggest to the promoters of rose shows that fine-foliaged plants, fruits, and florists' flowers generally can be shown in great variety and the best possible condition at the same time as the roses; and a judicious combination of these several objects, the roses to be the leading feature and main attraction throughout, might prove more attractive than roses alone. And let it not be supposed that it is any degradation of art to consult the tastes of the public, while seeking also to educate those tastes to the appreciation of the highest forms of beauty. The preacher can do no good without an audience; the florist may as well keep his flowers at home as stage them where there are no spectators. It is more reasonable to provide the public with what it wants than with what it does not want; and when support is withheld from any entertainment, we may fairly conclude it is of a kind that does not satisfy a public want; if it did, the public would accept and support it.

CONDITION OF THE CROPS IN THE WEST OF ENGLAND.—Our Somersetshire Correspondent writes as follows:—The apple crop, especially in the lower part of Somersetshire and the borders of Devon, is partial. In some districts they are very thin, but in no instance have I heard of or seen a heavy crop, although there was in every case a wonderful show of bloom. The strawberry crop has been an average one, while all kinds of bush fruits are plentiful. The potato disease has made sad havoc in some isolated districts, having made its appearance quite three weeks earlier than usual; but I am happy to add it did not generally appear thus early. It is, however, to a close observer, showing itself now pretty generally; but as all the early sorts are nearly ripe with us, I do not anticipate any serious loss, except it may be amongst the late kinds. In elevated positions the want of rain has been much felt to assist the pasturage and the turnip crop; and fortunately we have lately had a good fall of rain, and the country has suddenly acquired a new tint of delightful greenness. Travelling a fortnight ago into Devonshire, I noticed large fields with an excellent plant both of mangolds and turnips; but the hay harvest in that district was not more than half over, as I noticed several large breadths still uncut, and still larger breadths to be carried to the ricks. All corn crops are looking most promising; oats on some warm well drained spots are ready to be cut, and only need fine weather. The hay harvest in this part of Somerset is nearly over; the weather has been excellent for such work for the last three weeks, and the crops generally speaking good, although not heavy. A slight storm occurred on July 12, but it did not last long enough—only merely to lay the dust in the district from which I write; but since Sunday we have had a liberal supply, and turnips and grass are growing prodigiously.

MR. B. S. WILLIAMS, OF VICTORIA NURSERY, HOLLOWAY, has been entrusted with the decoration of the Guildhall of the City of London on the occasion of the visit of the Sultan and the Prince of Wales; and also with the decoration of the Agricultural Hall for the Ball in honour of the visit of the Belgian visitors. Our readers will not need to be assured that these undertakings have been carried out with great spirit, and that our numerous visitors will be convinced by what they see that during the reign of St. Swithin, in this dark and changeable clime, we are enabled to produce and preserve some of the noblest forms of exotic vegetation. The palms, cycads, ferns, dracænas, and dasyliorions, which are prominent features of Mr. Williams's magnificent groups of plants, are among the finest the country can produce, and it is a fortunate circumstance that such plants are available to add to the splendour of these receptions.

RIVAL SYSTEMS OF GRAPE-GROWING.—Mr. Cannell, having been assailed from all sides, and occasionally misrepresented, has announced his intention of publishing a pamphlet on the subject. This is judicious, and we are quite sure he will find thousands of purchasers. Since the publication of our remarks on the treatment of the grape-vine by the restrictive and extensive methods, there has been a tedious discussion of a matter which admits of being compressed into a nutshell, and we look forward to the publication of Mr. Cannell's pamphlet as likely to close a paper war with an honourable peace, in which it may become apparent that the contest was not all in vain. Persons desirous of obtaining Mr. Cannell's pamphlet must send stamps to the amount of one shilling for every copy required, to Mr. Bryce, publisher, 47, King Street, Woolwich, Kent.

FRUIT FLAVOURED AT WILL.—A gardener of Gand has, after many trials, succeeded (writes *Galignani*) in giving any kind of fruit the flavour he pleases while it is still on the tree. Let us take an apple, for instance: he pricks it rather deeply in four or five places with a large needle, and then lets it dip for awhile in a bowl containing a liquid possessing the flavour he wishes to communicate. After a few seconds this liquid will have penetrated into the pulp; and this operation being repeated two or three times, at intervals of eight or ten days, the apple is left to ripen on the tree, and will subsequently be found to have acquired the taste either of strawberry, raspberry, cloves, &c., according to the liquid employed. Those who believe this can be done may be expected to believe anything. However, now is the time to put it to the test of experiment; and when we obtain a ripe apple with the flavour of a peach, we will confess that the flavouring of fruit at will is possible. Even then the question will arise, *qui bono?* The time spent in spoiling an apple might possibly be spent in growing a peach. These horticultural wonders usually appear after Parliament has been prorogued: are the editors of newspapers in need of sensations to counteract the wearisomeness of the debates on the Reform Bill?

MISCELLANIES AT THE BIRMINGHAM ROSE SHOW.

Though the roses were the principal attraction, and the foundation of the exhibition, there were many interesting, beautiful, and useful objects of various kinds presented to public notice, garden furniture being the most important of these miscellaneous contributions. A few words upon the subjects which most immediately attracted our attention may be useful to our readers.

Messrs. Mapplebeck and Lowe, of Birmingham, contributed liberally. A pair of huge cast-iron vases from this firm added much to the beauty of the display on the ground floor of the hall; they were of quite simple but bold design, without ornamentation, painted stone colour. Mr. Job Cole, of Birchfields, very generously filled these with roses, and rendered them sumptuous decorations. From the same firm came mowing machines, rollers, watering engines, garden seats and tables, all in the best workmanship, and those that should be elegant really so in every detail of construction and embellishment. The least pretentious, though not the least worthy, of the articles in this collection was the "tubular flower tray," which the judges singled out from a mass of more costly and elaborate articles for commendation. This is a shallow tin tray, made in the fashion of a soup-plate, with small upright tubes set in circles within it. When skilfully filled with flowers it is an elegant table ornament, and, because of its extreme cheapness and simplicity, should be in constant demand.

From Mr. G. Baker, of Chester Street, Aston Road, Birmingham, came an extensive collection of articles of use and ornament in wire-work. On the orchestra platform a rose pavilion, elegantly constructed in a series of arches opening to a central dome, the compartments filled in with trellis-work for the training of climbing roses over the whole exterior of the structure. This the judges highly commended, which was the only mode of marking their special approbation of any object beyond the schedule allowed to them. Had there been prizes offered for such, Mr. Baker's rose pavilion must have come in for a first-class position. From the same a large collection of wire garden chairs, bird-cages, and other useful objects connected more or less with the enjoyments of rural life. The judges selected a peculiarly elegant garden chair, called the "Ne plus Ultra," for special commendation; this might be as appropriately styled "Temptation to Indolence," for the very sight of it makes one feel disposed to rest and be thankful. The arms and back are bent in easy curves exactly to fit the anatomy, so that the metal supports are as easy to the back and shoulders as feather pillows, and the seat is the shape of a prostrate letter *o*, and being of elastic wire yields to pressure as freely and agreeably as an air-cushion.

Messrs. Crichley, Wilde, and Co., of Cannon Street, Birmingham, sent a number of beautiful objects, conspicuous amongst which were some tables suitable for the garden house, breakfast pavilion, entrance hall, or drawing-room. These tables are made of cast-iron and porcelain, or of more costly materials; the designs are extremely elegant, and they are finished to represent bronze or gilded metal, and elaborate coloured marbles. One of these, marked £2 15s., consisted of a beautiful plinth with scrolls in imitation bronze, and a revolving circular top, about 30 inches in diameter, in imitation in-laying of costly marbles. Realities are to be preferred to imitations, but probably real bronze and real inlaying equal in its way to this superb imitation would cost thirty times as much as the price charged in the present instance.

Messrs. Tindall and Maude, of Mansfield, contributed a curiosity, in which elegance and ugliness were combined with singular infelicity, and the result a grotesque illustration of *utile cum dulcè*. This very distinctive object consisted of garden seat and garden roller all in one! The seat, looked at apart from the roller, was elegant and comfortable, but the huge roller, to which the back of the chair served as a handle, and which would be made additionally weighty by wheeling it about while a fat friend took a nap in the chair, made a burlesque of the artist's anxiety to prove himself ingenious. There may be occasions when such a thing would be useful, but at the first glance it suggests that one of Mr. *Punch's* artists has tried his hand at a caricature.

Mr. Thomas Woolley sent a series of most elegant epergnes, vases, and glass bouquet holders. It is impossible to describe these things, and even figures are but a partial aid to the conveyance of correct impressions respecting them. But, seeing many such things in our travels, we must do Mr. Woolley the scant justice of saying that we rarely meet with glass receptacles for flowers better fitted for the purpose than such as he presented to public notice on this occasion. The judges selected a bouquet-holder consisting of a small tube of cut and gilt glass for special commendation, which it well deserved.

DINNER TABLE DECORATIONS, &c.—The schedule properly permitted the use of any kind of foliage, but restricted the selection of flowers to roses only in the competition in dinner table decorations. The first prize in this class was awarded to Miss Evans, of Shrewsbury, for an elegant and rather novel construction, which was admirably finished. The base consisted of a zinc pan, containing earth and planted with *Selaginella*; the exterior rim of this receptacle was finished with a circle of leaves of Irish ivy, firmly fixed on. The stem was formed of wire, and bent in such a way as to represent the stem of a tree, the wire being covered with lichen, and a spray of small-leaved ivy twined around it. The stem was surmounted by a zinc pan, furnished in the same manner as the

base with *Selaginella* and ivy-leaves, but was, of course, smaller in itself and its accompaniments than the base. The flowers were introduced in a manner at once elegant and appropriate to the purpose the ornament was intended to serve. In the pans filled with *Selaginella* small tubes of zinc were inserted, and in these the flowers were placed, with enough water to keep them fresh in a hot room during several hours. The rugged stem and the ivy leaves may suggest to some readers an *outré* degree of rusticity, but there was a peculiar elegance and brightness about the whole affair that rendered it acceptable on its intrinsic merits, and additionally acceptable because a departure from the style that has become almost as fixed for these things as the laws of the Medes and Persians. We sincerely hope that Miss Evans will favour a London company with an example of her style of rustic work for dinner tables; it would give a new direction to those ideas which have become tame through being moulded to a groove, which, in fact, are imitative rather than inventive. Had we been aware so pretty a scheme would appear in this exhibition, we should have adopted measures to secure a sketch for the *MAGAZINE*, but there was no time for anything of the kind in our unprepared condition. The second prize went to Miss Mort, of Stafford; third, Miss Cole, of Birchfields; fourth, Miss Twigg, of Stafford. There was a class for "best design or basket of roses and rose foliage, arranged suitably for entrance hall or room decoration," in which the first award went to Mr. Thomas Lloyd for a bold and showy pyramid of roses well adapted for an entrance hall. In the lengthy and admirably-written report of the show which appears in the *Midland Counties Herald*—a report very different in tone and purport from those miserable penny-a-lining sketches that Mr. William Dean has lately so properly castigated—it is remarked that the award must have been made because of the absence of design, but this was not the case; the stipulation of adaptiveness for "entrance hall" took the competition out of the category of table elegancies, and this big pyramid, all a-glow with circles of fresh roses set between circles of green leaves, would look well in almost any entrance or on any sideboard, but for the table it was unsuitable, being destitute of design and grace. The second prize went to Mr. Vertegans for a pretty basket of roses, good enough for the table, but not showy enough for a hall; in fact, if placed upon a hall-table or sideboard, it would suggest the idea that a visitor had left it there by accident, or to be called for again, or that it was to be sent away presently as a gift to a friend. The terms of schedules must never be forgotten, and perhaps this part of the schedule might be improved. An improvement in it might perhaps be accomplished by removing the restriction as to foliage, for the leaves of roses are not well adapted for designs in which it is sought to incorporate distinct and elegant features. Third, Mr. Cole; fourth, Miss Mort. In another class for vases with roses and rose-foliage Mr. Cole was first, Mr. Vertegans second.

BOUQUETS suitable for the hand were as usual too large and too elaborate. Yet there were many extremely beautiful bouquets of the orthodox pattern, the flowers packed firmly together in a hemispherical mass. Mr. Job Cole's was undoubtedly the best, and had the first place, Miss Mort second, Mr. Cranston third, Mr. Vertegans fourth. In one of these we noticed a bloom of the old Austrian copper rose, shining like a new coin of the "red, red gold." Mr. Cranston's bouquet was extra large in size, and fit for the hand of a giantess in process of exhibition at a fair, and it consisted of half open buds of teas and noisettes of most exquisite beauty, all of them pale yellow or white, or blush, the very absence of colour increasing rather than detracting from its uniqueness. As a bouquet it was almost nowhere, but as a bunch of rose-buds it was as rich as cream and honey combined. Probably it was placed there just to show what the King's Acre Nurseries could do in the delicate way, and with none of the colour that made the 72 from the same place so glowing and glorious. Oh that some genius would step into the ranks of the exhibitors of bouquets, and give us something new—say half a dozen flowers instead of fifty, a few sprigs of elegant leafage or grasses to make a green or purplish haze amongst the colours, and perhaps a leaf (or leaves) of some sort in place of the perforated paper, a leaf suitable to embrace the whole, and finish it with a boundary rim of colour! We may here, perhaps, most properly notice two beautiful contributions. Miss Johnson sent a basket filled with paper roses that no one could distinguish from real roses without touching them. They had this peculiar merit that they were portraits of varieties, and comprised *Gloire de Dijon*, *Rev. R. Hole*, *Madame Falcot*, *Blairi No. 2*, *Jules Margottin*, and one or two more. This was art imitative, and beyond such imitation we believe art cannot make another step. Miss Brewer sent a case of dried ferns, arranged in a mass on a flat surface, with a glass to cover them like a picture. In all their lineaments and colours they were perfect, and the arrangement was such that every one was seen in its true character, adding to the beauty of all the rest. This was a most elegant group.

VERBENAS.—There were two fine stands of verbenas for which no prizes could be awarded, but which were highly commended. Messrs. Perkins sent *Warrior*, *Geant des Batailles*, *Blanche de Castile*, *Lord Leigh*, *Magnificans*, *Grand Eastern*, *Beauty of England*, *L'Avénir de Ballant*, *Exquisite*, *Firefly*, *Fairy*, *Ida*, *Lord Houghton*, *Indispensable*, *Abundance*, *Annie Schurer*, *Attraction 1867*, *Henrietta*, a good white; *Cato*, *Attraction 1865*, *Majolica*, *Monsieur Jonteau*, superb deep cobalt blue; *Madame Hardy*, *Black Prince*. C. J. Perry, Esq., of Castle Bromwich, sent a splendid collection of his own varieties of past years, with a few of 1867. Amongst the latter were *Samuel Morton*, *Madame Tonnetier*, *Miss Turner*, *James Birbeck*, and *Sunbeam*, all of them novel, distinct, superb in form, and every necessary of quality of first-class show flowers, but not now to be described, because they are to be dealt with in another manner, and we must avoid as far as possible repetitions.

FINAL GATHERINGS.—Mr. C. Turner, of Slough, sent a box of *Miss Ingram*, but the judges were compelled to pass it by on account of the shabby condition of the flowers by travel. But the stout petals, the beautiful globular form, and the delicate colouring, were all preserved for eyes that could see, and we are glad the amateurs of Birmingham were afforded an opportunity of judging for themselves as to the place this beautiful rose is likely to take in future competitions. Mr. Watson of St. Albans sent two of his new tricolor-leaved geraniums, *Miss Watson* and *Mrs. Dix*, but the last named only was considered worthy of a certificate, and obtained the highest distinction of the kind that could be awarded. Miss Watson appeared to lack colour, whether owing to the same plants having been over-much exhibited, or for what other reason we do not know, but certainly it did not make so favourable an impression as on former occasions this and last season. We wind up this report with a thankful recognition of the service rendered by Mr. Job Cole, nurseryman,

of Birchfields, who grow the collection of white-leaved acers and maize plants for the tables, and rendered many other services equally valuable and original. It was an act of patriotism and self-sacrifice of no small importance, and was rendered additionally appreciable because, although he had done so much, and had removed himself almost entirely out of the competition, and had nothing to gain by it in prizes, he nevertheless kept his name out of sight, and made no excoise of the occasion for advertising himself. Not that we blame a tradesman for putting his name on his goods at an exhibition; it is not only just to himself, but frequently of the greatest service to the public; but when the work is so nobly done, and no praise and no trade is sought thereby, we can believe that it was done for the advancement of art and the good of the town, and we gladly finish with honourable mention of Mr. Cole's name, as we commenced with praise of his decorative plants.

S. H.

THE MOST BEAUTIFUL WILD FLOWERS: WHERE TO GATHER AND HOW TO CULTIVATE THEM.

THE IVY-LEAVED CYCLAMEN, or the common Cyclamen (*Cyclamen hederacefolium*), a native of Southern Europe, but not supposed to be truly British, has been found in several places, apparently wild, and as such is generally included among British plants. Being a very beautiful one, it is in all respects worthy of a place. You cannot, in all probability, find it wild in England, but it is not difficult to obtain, and a lovely plant it is when seen in flower. A ring of it planted round a small bed of choice shrubs forms a beautiful sight. I am not certain that it would do so well about London as in the western and the southern parts of the country, but it is everywhere worth trying. Like those of all the Cyclamens, the flowers are singularly pretty, and being densely produced in low masses, both in rosy purple and pure white, they are invaluable ornaments to the autumnal garden, though very seldom grown. The Water Violet (*Hottonia palustris*), which bears such handsome whorls of pale purple flowers, sent up on its erect stems from its leafy dissected leaves submerged under the water, is a choice plant for a fountain-bed or such like. Though usually supposed to grow under water, I have seen quantities of it growing on soft mud-banks, left dry by the water no doubt, and probably flooded a few weeks after; but I never saw the plant half so luxuriant as on those mud-banks, which were darkly and richly green with its dense cushion of rosettes of leaves, always straggling when in the water, and I regretted much that I had not the pleasure to see such healthy spreads of the water violet in full beauty. There is no doubt, then, that it may be grown on soft muddy spots as well as in water. To grow it in a fountain-bed, or such position, the best way would be to plant it in a pot, and place it so that its rim was an inch or two below the water. The Money-worts, or *Lysimachias*, are sufficiently ornamental for cultivation; *Nummularia* being the Creeping Jenny of the London streets, and a most useful plant it is for that purpose, trailing its luxuriant leaves where few other plants would be so well content. The upright-growing species *L. thyrsoflora* is very desirable for the margin of water, in consequence of the curious way it has of hiding its flowers in among the green of its leaves. A mass of it by a river or pond or ditch looks very distinct and pleasing. Finally, we have in the Primula order the beautiful *Trialialis* of the north, a wood plant, and somewhat difficult to cultivate, but one that is frequently gathered for that purpose.

Of the Thrift family, certainly the most valuable plant is a deep and charming rose variety of the common Thrift (*Armeria vulgaris*). Everybody knows the Thrift of our sea-shores, and of the tops of some of the Scotch mountains, with its pale pink flowers; but the variety I allude to is of a deep and showy rose, and one of the sweetest things you can employ in the spring garden as an edging plant, or as clumps here and there in borders. This kind is sold and known as *Armeria vulgaris rubra* or *A. rubra*. The common kind is not worth growing beside it, but the white variety is. Any of the British Statice that may be collected are worthy a place in a collection of wild flowers. In the Goosefoot and Dock order, *Atriplex portulacoides* and *Polygonum bistorta* will be found the best. The first is a silvery-looking shrubby herb, frequent on the sea-shores; the second a showy herb, most plentiful in the north. *Euphorbia Lathyris* is the distinct-looking and handsome Capser Spurge, which is established here and there among us; it is worthy of a place, though not for the beauty of its flowers. Nor must we forget the common Hop, *Humulus lupulus*, which I need hardly say is very ornamental when well developed over a bower, or in any other position where it may have an opportunity to become finely developed. The beautiful Pheasant's Eye or "poet's Narcissus," *Narcissus poetica*, hawked about the streets of London so abundantly in spring, is generally included among native plants, though not considered truly British; but whether it be so or not, such a distinctly beautiful plant should be in every garden. The Snowflake (*Leucojum aestivum*) occurs in several of the south-eastern counties, and makes a handsome border bulb; the dwarf, sweet, and fine vernal Snowflake has been recently found in Dorsetshire in some abundance; while the common Snowdrop is perfectly naturalized in various parts of the country. These, it need hardly be said, should all be in any living collection of British wild flowers,

and with them the Daffodil and the Wood-tulip (*T. sylvestris*). This last is found most frequently in some of the eastern counties of England, but may be had readily from the nurserymen, who sell it as *T. florentina* and *cornuta*. *Lloydia serotina* is an extremely rare and pretty little bulbous plant, found in North Wales, but scarcely obtainable, I fear, by any of your readers. It is also known as *Anthericum serotinum*.

A Gladiolus (*G. communis*) has recently been found in the New Forest, near Lyndhurst; it is worthy of culture, and indeed is, or was, a favourite plant in many gardens before it was discovered as a British plant, having been brought to England in old times to our gardens from central and southern Europe. The spring Crocus (*C. vernus*) is abundant in the neighbourhood of Nottingham, and other parts of England and Ireland; and the less known but equally beautiful autumn Crocus (*C. nudiflorus*) is also naturalized in Derbyshire, about Nottingham, and in a few other places. It is quite needless to praise either. The blue or normal form of the vernal crocus is, or ought to be, in nearly every garden; but the autumnal crocus is quite of rare occurrence in gardens, and should be introduced to all, because it opens its handsome flowers when most others are perished or perishing, and closes the season of flowers so well opened by the spring crocus. Equally easy of culture with the spring crocus, but, being so much scarcer, deserves to have a good position, good soil, and some watchfulness, to prevent its being dug up by careless workmen, that it may increase, and become a conspicuous autumnal ornament in our gardens.

We will next go with the reader to the margin of the cool water, for it is warm and pleasant, and a chat about hardy water plants will not be sufficient to cause the reader to shiver. The embellishment of the margin of a bit of water is really much more of an important subject than is generally supposed. It is true that by following the directions of the garden books, or even the best examples that we see of water in our public gardens, nothing to boast of can be done, but nevertheless, by a tasteful selection of really good and hardy water plants, and above all a judicious disposition of them, a great deal of exquisite beauty may be produced. Hitherto this thing has been very badly performed by the designers of pieces of water, or by those who plant the margins of such. Usually you see the same monotonous vegetation all round the margin if the soil be rich; in some cases, where the bottom is of gravel, there is little or no vegetation, but an unbroken ugly line of washed earth between wind and water. In others aquatics accumulate till they are a nuisance and an eyesore; and I do not simply mean the below-surface weeds, like the *Anacharis*, but the white lily when it gets too profuse. Now a well developed plant, or group of plants, of the queenly Water Lily, floating its large leaves and noble flowers, is an object not surpassed by any other plant in our gardens; but when it increases and runs over the whole or a large part of a piece of water, and thickens together, and the fowl can't make their way through in consequence, then even the queen of British water plants becomes a nuisance. No garden water, however, should be without a few fine plants or groups of the water lily, and if the bottom did not allow of the free development of the plant, a lot of scrapings or rubbish might be accumulated in the spot where it was desired to exhibit the beauties of *Nymphaea*, and thus arranged it could not spread too much. But it is not difficult to prevent the plant from spreading; indeed, we have known isolated plants and groups of it remain of almost the same size for years, and where it increased too much, reducing to the desired limits is of very easy accomplishment, either by cutting off the leaves or by getting at the roots in the bottom. The yellow water lily, though not so beautiful as the preceding, is worthy of a place; and also the little *Nuphar pumila*, a variety or sub-species found in the lakes of the north of Scotland, if you can get it. In collecting those things, the true and the only way is to get as many as possible from ordinary sources at first, and then exchange with others having collections, whether they be the curators of botanic gardens or private gentlemen fond of interesting plants. With a little perseverance every good thing may soon be collected in this way.

One of the prettiest effects I have ever observed was afforded by a sheet of *Villarsia nymphoides* belting round the margin of a lake near a woody recess, and before it, more towards the deep water, a fine group of water lilies. The beauty of this *Villarsia* is very insufficiently developed in garden waters. It is a charming little water plant, with its nymphæa-like leaves and numerous golden yellow flowers, which furnish a charming effect on fine days when the sun is "out." It is not very commonly distributed as a native plant, though where found generally very plentiful, and not difficult to obtain in gardens where aquatics are grown. It is in all respects one of the most serviceable of hardy water plants.

Not rare—growing, in fact, in nearly all districts of Britain—but exquisitely beautiful and singular, is the Buckbean or Marsh Trefoil, with its flowers elegantly and singularly fringed on the inside with white filaments, and the round unopened buds polished on the top with a rosy red like that of an apple blossom. In early summer,

when seen trailing in the soft ground near the margin of a stream, this plant has more charms for us than any other, and we take care to have an abundance of it. It will grow in a bog or any moist place, or by the margin of any water. Though a rather frequent native plant, it is not half sufficiently grown in garden waters; but, indeed, these are invariably neglected.

If you have ever seen the flowering rush (*Butomus umbellatus*) in flower, you are not likely to omit it from a collection of water plants, as it is conspicuous and distinct. It is a native of the greater part of Europe and Russian Asia, and dispersed over the central and southern parts of England and Ireland. Plant not far from the margin; it likes rich muddy soil. The common *Sagittaria*, prevalent, very prevalent in England and Ireland, but not in Scotland, might be associated with this; but there is a very much finer double exotic kind to be had here and there, and which, though not British, I must name here. It is really a fine plant, its flowers being white, and resembling, but larger than, those of the old white double rocket. It grows in abundance in the tea or pleasure gardens of the Rye House at Broxbourne, where it fills a sort of oblong basin or wide ditch, and looks quite attractive when in flower. It has a peculiarity of forming large tubers, or rather receptacles of farina, and I have found that in searching for these that ducks, or something of the kind, have destroyed the plants.

Among bold and picturesque plants for the water-side, nothing equals the great Water-dock (*Rumex hydrolapathum*), which is rather generally dispersed over the British isles, has leaves quite sub-tropical in aspect and size, becoming of a lurid red in the autumn. It forms a grand mass of foliage on rich muddy banks. The Bulrushes must not be omitted, but they should not be allowed to run everywhere. The narrow-leaved one is more graceful than the common one. *Carex pendula* is very fine for the margins of water, its elegant drooping spikes being quite distinct in their way. It is rather common in England, more so than *Carex pseudo-cyperus*, which grows well in a foot or two of water, or on the margin of a muddy pond. *Carex paniculata* forms a strong and thick stem, sometimes three or four feet high, somewhat like a tree-fern, and with luxuriant masses of falling leaves, and on that account is transferred to moist places in gardens and cultivated by some, though generally those large specimens are difficult to remove and soon perish. *Scirpus lacustris* (the "Bulrush") is too distinct a plant to be omitted, as its stems, sometimes attaining a height of more than seven and even eight feet, look very imposing; and *Cyperus longus* is also a desirable thing, reminding one of the aspect of the Papyrus when in flower. It is found in some of the southern countries of England. *Cladium mariscus* is also another distinct and rather scarce British aquatic which is worth a place.

As for the ferns, it is needless to mention them, considering the immense attention that has been paid them of late years. Whole nurseries are now almost exclusively devoted to the production of British ferns and their varieties. My object is to encourage the culture of things that are comparatively neglected, and however graceful and beautiful ferns may be, and however indispensable the fernery, as an adjunct to the flower-garden, your readers have but to attempt the culture of the handsome British flowering plants, combined, if the cultivator so desires it, with the best alpine, spring flowers, and herbaceous plants of all countries, to find infinitely more enjoyment therefrom than ferns are capable of affording.

But though ferns are not in need of a good character, their allies the Equisetums are, some of them being of graceful and distinct habit. One of the most strikingly distinct and elegant plants in the Oxford Botanic Garden grows profusely along by the wall, in the shady fern border, in that very old and most interesting botanic garden. It is the British *Equisetum Telmateia*, or "Great Equisetum," which grows pretty commonly in the greater part of England and Ireland, attaining its greatest development in rich soil and in shady spots. It there attains a height of three or four feet, and the numbers of slender branches depending from each whorl look most graceful. It should be planted in a shady place, near water if convenient, but it thrives famously in deep moist soil, in any position in a garden where ferns thrive, and as it associates well with them, in or near the fernery will be found a good position for it. The wood Equisetum (*E. sylvaticum*) common all over Britain, is considerably smaller than the preceding, but even more graceful; indeed, sufficiently so to warrant its being grown in pots, though it thrives well in any shady moist position. The long simple stemmed Equisetums, or Horse-tails, also interesting to cultivate in wet or marshy spots, or by the sides of water, but not so graceful or ornamental as the species above named, which are as well worth growing in a garden as the costliest productions of tropical climes, which entail endless work and a perpetual cost to retain.

CYPRIPEDIUM CALCEOLUS.

ANNUAL REPORT ON STRAWBERRIES, 1867.

Notwithstanding the severe frost of the 23rd, 24th, & 25th of May last, the strawberry crop has been better than the anticipations of cultivators, who saw their promise of a crop well-nigh ruined by that unseasonable weather. True, in some few cases it was more severe than generally, and in those instances rendered the crop nearly useless, on account of the deformity of the fruit. But, as a rule, many have been agreeably disappointed in seeing a fair average crop where they expected none. I know from my own observation that some gardeners had, after the frost of the above date, given up all idea of getting any fruit, and had therefore not attempted to put down the usual mulchings to keep the fruit clean. Happily some ten days' more experience brought with it more cheering prospects, for although many of the first flowers were killed, the after flowers showed very promising, and in the majority of cases a good crop has been obtained. The most unsatisfactory cases which I have seen have been in those places where the frost was less severe, where the flowers were injured but not killed. The production of deformed fruit in these cases seems to point to some disturbance of the generative functions by an excessively low temperature, the result being imperfect fertilization of the stigma and imperfect progeny. I suppose deformities and monsters generally, in both the animal and vegetable kingdoms, are the consequence usually of defective impregnation. But I leave the further consideration of this subject to others, content with having called attention to the fact that deformed strawberries have been more than ordinarily abundant this season.

The frost of the 23rd, 24th, and 25th of May last has given us one useful lesson, from the fact that, except with the very late sorts, which were not then much in bloom, not one variety was injured more than another: of course, I am only speaking now as far as my own observation goes; but I saw many different gardens, both before and after the frost, and of course I saw them under a variety of circumstances, both skilfully and unskilfully cultivated. But in no instance did I see one variety injured more than another. As regards their cultivation, if ever I felt grateful for anything worldly, it is for the opportunities which a kind employer and a liberal editor have given me of seeing them under so great a variety of circumstances. I have seen many good gardens, as the readers of these pages already know, and I have seen the strawberries in some places, not noticed in my tour of inspection, where they have been literally killed by over-crowding and other varieties of bad management. I have heard the cultivator complaining of non-success when, if only the dictates of common sense had been followed up, success would have been certain. But so darkly stubborn are some men's minds against receiving the advice or adopting the practice of others, that they would rather go on for years in their old unsatisfactory track than condescend (!) to be benefited by adopting any method, good or bad, that did not originate with themselves.

How different is this from many other places which I have seen, where the directing mind is ever seeking to be benefited, not only by his own practice but by that of others! Under such men, I have seen the strawberry cultivated in a masterly manner, and from their free and expansive minds I have learned many useful hints as regards their management in peculiar soils or situations. Thus in one case I learn that it is necessary to make fresh plantations every third year, and that the ground, being light and porous, must be trenched to the depth of two feet, placing a good layer of rotten dung, twelve inches under the surface, to encourage the roots to go downwards, that they may not feel the effects of a severe drought. In another case I learnt that in cold stiff soils soot and lime are excellent spring dressings, and that treading upon such land during wet weather is fatal to the extension of the young roots in early summer; and also that a free and judicious use of the hoe, or a light fork, to frequently stir up the surface increases both the warmth and fertility of the soil, and that it is not desirable in such cold soils to put on anything with a view to keep the fruit clean until it becomes positively necessary, as it has a tendency to shut out the warmth which an uninterrupted exposure to the sun would give it. I learn too that early mulching with long dung, such as I am in the habit of using in early spring (or rather was in the habit of using), is found by others as well as myself to be best when put on about the middle of May instead of the early part of April, as if put on too early, say at the beginning of April, it encourages root action at the surface more than is desirable, and also prevents the sun from warming the soil as much as it would otherwise do.

Then as to the best crops, taking favourable and unfavourable soils together, there is no further doubt but that the more liberal the treatment the better the result; as, for instance, the distance of two feet apart each way from plant to plant is the most productive as regards narrow planting; but there are many, and I may say very many, positions where the crop would be still more productive at three feet apart each way, and this will apply with great force to strong deep loamy soils. If I wanted to convince any one of

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this, I should refer them to the gardens of Coombe House, near Croydon, where Mr. Page, an esteemed friend of mine, is gardener. The soil there is light, with a gravelly subsoil, and he plants at two feet six inches; and I will undertake to say that he has picked no less than three quarts of fruit from each *plant*, or could do so from a bed of Sir Charles Napier which I saw there early in June. But then he is one of those sensible cultivators who are in the habit of making observations, and he has learned what his soil will do and how to treat the plant upon it. Indeed, the condition of all his crops shows that he is not one of those haphazard unobserving men who has wasted a lifetime without receiving some benefit from experience. I wish I could say as much for the majority of British gardeners.

Apart from my own experience, which I have previously detailed in these pages, there is no doubt but it is a mistaken notion to suppose that we need to wait two years for a crop from a new plantation, as, if we are inclined to give the necessary time and means, a fair average crop can be secured the first year. But in the first place, if we have to purchase plants, they must be got early; that is to say, good strong plants must come to hand very early in August in good condition for planting. In the second place, the spot on which they are to be grown, to produce such early results, must be well and liberally prepared by deep trenching and by the addition of manure and fresh soil, if the old soil is at all exhausted. But when the cultivator can raise his own plants at home, he will do wisely to lay them in 4-inch pots the same as for forcing, and plant them out as soon as the pots are full of roots. I have practised this method myself, and with such varieties as the Empress Eugénie and the British Queen I have secured very good crops the first year, but of course better the second.

As to varieties most suitable to be grown, there are two things which must guide the cultivator in this matter. In the first place, the flavour of some sorts does not suit the taste of some individuals; as, for instance, the acid flavour of the Empress Eugénie and Trollope's Victoria is positively obnoxious to some, while by others these varieties are greatly appreciated. Then again some palates prefer the old Keen's Seedling, and in almost every instance the superior flavour of the British Queen takes first rank.

The next thing which ought to influence the gardener in his selection of sorts should be their adaptability to the soil of the place, as some will do much better than others in different soils. I know a good gardener at the present moment who is continually grieving because he cannot grow the British Queen in his light soil; but no efforts on his part will induce it to succeed. But for heavy loamy soils there are none to beat Keen's Seedling, Goliath, British Queen, Elton Pine, and Trollope's Victoria; while for light soils I should recommend Sir Charles Napier, Black Prince, the Princess of Wales, President, Eclipse, and Carolina Superba.

As regards the introduction of new varieties, it is astonishing how slow they make their way into public favour, and it is equally astonishing to the seekers after novelties how many of the old sorts still hold their ground. Look at the old Keen's Seedling, for instance; why I know of several noble lords who will have no other sort upon their tables, and see how it is still esteemed by nearly every forcer of early strawberries! This should act as a warning to young gardeners and inexperienced people not to speculate rashly, but in moderation and caution, in new varieties; although I do not mean to say but that some of the new kinds are in advance of the others, and I may instance particularly the *President* and *Premier*. These are both superb varieties for those who like a change, and are exceedingly useful for late forcing, as is also the *Princess of Wales*, for early work. But for myself I still cling to the opinion I gave in this work several years ago, that in a suitable soil I can undertake to supply a gentleman's table all the time strawberries are in season with the Black Prince as the first, the Keen's Seedling as second, and the British Queen as the third; and you will not find three better flavoured strawberries on the list: but the Black Prince *must be ripe*, not sent to table, as they usually are, not more than half ripe. To enjoy it in a legitimate manner, remember its name, *Black Prince*, and wait till it is black before you eat it.

J. C. CLARKE.

SUBSTITUTE FOR ASPARAGUS.—Mr. J. Ransley Tanton, in speaking before an audience at Croydon upon the productions of the vegetable kingdom, thus alludes to a British plant called Sea Holly. He says:—"Among the most useful farinaceous plants known in the vegetable kingdom, is one whose valuable properties appear but little known. The plant in question is the Sea Holly (*Eryngium maritimum*), a native of our own isle. This plant, when fully developed, measures 1½ to 2 feet high, bearing in July a conspicuous blue flower. Its roots are oblong, of a trailing habit, are sweet and aromatic. They are candied, and sold in the shops of Sweden under the name of Eriugo roots; but the chief feature possessed by this plant, and to which I wish to call especial attention, is that of its young shoots, which, if gathered in their early growth, when about 8 or 9 inches long, and cooked in the ordinary way, are superior in taste to and possess greater nutritious qualities than asparagus. I therefore think market gardeners may derive some profit by growing this plant for the purpose of forming boundaries, when its young shoots may be gathered and marketed for the purpose assigned.

MR. C. J. PERRY'S VERBENAS.

During my brief stay in Birmingham I went over to Castle Bromwich to see my friend C. J. Perry, Esq., and to make a few notes on his verbenas, as I might happen to find them at home. It is very well to see novelties at exhibitions, and in the majority of cases that is the only way in which we can see them. But when we go into a raiser's ground and see his stock, his specimens, his collections of other varieties besides his own, we can form a far better estimate of the value of his contributions to the classes in which he labours, than by the best he can do any day or every day at exhibitions. It is a delightful drive from Birmingham to Castle Bromwich, a distance of six or eight miles from the smoky town, through well cultivated and well timbered land, past a lovely common with scarps of gravel and sheets of furze, and blotches of picturesque brake and fine elm and oak trees—just such a ride as on the morrow of a day's hard work freshens one up for new rounds of duty, and gives one an appetite for such a bountiful and *recherché* luncheon as Mrs. Perry led me to with a genial welcome which is her own peculiarity. There I met my much-valued friends Mr. J. C. Ward, the landscape painter, who knows the value of indigo distances and fuzzy foregrounds better than any of us talkative gardeners, and Mr. William Dean, prince of florists and most catholic of horticulturists, of Bradford. They had come on the same errand, first to enjoy the social sunshine of Castle Bromwich, a spot exempted from the operation of the laws of eclipses, and is therefore independent of the Greenwich sages and the Nautical Almanac, for the sun is never obscured *there*; and they had come also to see the charming garden, with its leafy greenness one side and its tapestry of colour on the other. By way of acknowledgment, I shall take the liberty to say that our host and hostess secured us a happy hour, during which I am sure we all forgot our cares, and in a pleniudo of talk (and better things, including a dish of Wheeler's Tom Thumb lettuce, *true*), made sport of time and business, and journalism and each other! At last we turned out to see the garden, and once more I enjoyed the quiet lawn, with not a flower visible on or about its glad expanse of softest yet brightest green, but with beautiful coniferous trees dotted about at wide distances, showing all their noble characters, and in a state of health and beauty that cannot be surpassed by similar sized specimens in any garden in the land. And to place on record that in the garden of a man so widely known, and so highly esteemed for his skill and taste in floriculture, as Mr. Perry, a large space is set apart and separated from all the rest for verdure *pur et simple* is, I think, a matter of some public importance. If he were to cut this turf into scrolls, or sugar-plum it over with a geometric pattern in bright flowers, it would not have the charm it now has in its exquisite beauty and repose, its permanency of interest, or its true homeliness and quiet. Those three famous conifers, *Picea nobilis*, *P. Nordmanniana*, and *P. amabilis*, were here in the greatest beauty, though small specimens. Of Wellingtonias there are many, all of them models of symmetry. He called my attention to one as exemplifying how much gratification a man may derive from such things by observing their growth, and seeing them attain to the dimensions of timber, or something approximating thereto, a memorial of the planter's care and a record of his work, while at the same time, and increasingly so as time passes on, a standing reminder that our days are as the weaver's shuttle, and that a tree may outlive many generations of men. The tree to which my attention was directed was planted by himself, and when planted was just the thickness of his favourite rifle, which never misses fire, and is always well directed. It is now nearly as thick as his own body, and spreads its leafy branches on the ground in a splendid sweep, a great green tent with one pole that would give shelter from a most stormy blast. Good trees and good turf are the primal elements of a good garden; where neither are to be found, flowers are a mockery; they are like cake ornaments when there is no cake, or jewelry lost for want of a wearer.

The grandest feature in the way of flowers here is the compartment appropriated to roses on their own roots, pegged down. The ground is literally carpeted with roses, and the plants never become old; they renew themselves from the roots by means of fat shoots, that in their turn are pegged down like the long-rod system of grape growing, only we train the grape-rods up instead of fixing them to the soil. The glorious leafage of these roses would tell one without the help of flowers that they are in perfect health and tremendous vigour. I suppose that after St. Swithin many of these make shoots of six to eight feet in length, and that what has been said about the growth of the experimental own roots at Stoke Newington might need to be quietly suppressed if we were to institute severe comparisons. Mr. Perry makes no comparisons; I never met with a first-class cultivator who takes the whole affair so coolly as he does; he makes no boast of his work, and unless he had practical men constantly to visit him would perhaps scarcely know that what he does he does well—so well that we may travel far and wide to find its equal. In another part of the garden is a large compartment filled with dahlias, and this piece is enclosed with a square of brier roses, in beautiful health and flowering superbly. As Mr. Perry is an extensive and most successful exhibitor, it may be proper to state that he cuts from his standards and his dwarfs pretty equally, and that he scarcely practises disbudding, trusting rather to good growing for fine flowers than to excessive thinning. I forbear to enumerate the varieties met with, because the collection comprises all the best, and just now lists of roses occupy much room in our columns; and I will just add that in the lower part of the garden there is a great plantation of small Wellingtonias, set out in rows, nursery fashion, presenting a most beautiful appearance. And now we will go amongst the verbenas.

Mr. Perry is the best man in the country with these things, and especially in the breeding of varieties that make huge trusses, large, round, flat flowers of great substance and the most various and beautiful colours. It is true that verbenas, geraniums, petunias, and many other subjects are commonly judged as to their merits for hedging solely. It is a depraved taste that hedges in the judgment in such a case; but the fact remains, and we can only deplore, we cannot remedy it. The time will come perhaps when finely-formed flowers will be more generally appreciated, but the tremendous spell of the bedding mania has for the present paralysed the hands and blinded the eyes of many who should be ready to welcome intrinsic excellence in florists' flowers. But no matter; there are some who love them and understand them; and as diamonds and rubies are the property of the few, so the noblest flowers must be content with a limited circle of admirers. *Quality* is the characteristic of these verbenas. There may be, and doubtless there are, many first-rate bedders

amongst them; but Mr. Perry breeds for a class who, while not indifferent to colour, look for something more in a flower considered worthy of cultivation. The phlox-like concave pips of Madame Tonnelier; the enormous flat disks of Samuel Morton, glowing with rich shades of red and pink; the perfect outlines of Miss Turner, delicately tinged with rose on a bluish white ground; the majestic truss and deep compound of cobalt and indigo in William Dean, and the large circular rosy crimson flowers of James Birbeck,—are types of the superb strain Mr. Perry has originated by careful cross-breeding and judicious selection, carried on year by year in hope and confidence that practical truth would be found in the expression of the poet, "Nature never did betray the heart that loved her!" It need not be said that myriads of verbenas are grown to be destroyed. That is the case everywhere in the gardens of originators of new varieties; yet amongst the condemned, dozens, doubtless hundreds, of varieties may be found of a quality such as would tempt many a dealer to "send them out," confident that he was thereby adding to the joys of florists and the beauties of the world. The severe process of selection secures to the public from this source varieties of the highest character hitherto attained in this class of flowers; and when we went through the verberna houses wherein were the specimen plants of the selected kinds, we were astonished at the splendour of many that were doomed to be destroyed, but of course more astonished and intensely delighted with those set apart for our opinion, and for the interesting process of nomination, or, in other words, by us to be named. Mr. Dean had the lion's share in this task—and the lion's share is proper for a lion—for he went to Castle Bromwich over night direct from the rose-show dinner, and prepared by the fresh morning air of the lovely garden to do his spiring gently, and with the rare judgment that with him never fails. We had a thorough feast of comparing, admiring, and note-taking, being greatly helped therein by Mr. Ward, who is as sound a florist as he is a gifted painter,—and rather strange that, because as a rule painters abhor florists' flowers, and love the wild rose or the single pink better because of its picturesqueness than all the refined forms established by the florist. A spike of single hollyhock may look fine in a picture, especially if the subject be one that requires a cottage flower, but in a good garden it is another matter. Mr. Ward has the breadth of mind to compass both ideas, and it was delightful to have a painter assisting in the criticism, for usually we have these things too much to ourselves, and go all in a groove together like ants in a garden path. Here is the result of the floral congress, and its solemn decisions:—

PERRY'S SEEDLING VERBENAS TO BE SENT OUT IN SPRING, 1868.

Miss Turner.—White shading to bluish, with very large pale rose centre, very fine pip and truss.

Mrs. Mole.—Deep shaded lavender, large and finely formed pip, and beautiful truss.

Mrs. Perry.—Rich blue purple, with large light eye; very fine form.

G. P. Tye.—Lighter than Mrs. Turner, with a deeper coloured centre; a compact growing kind, with very fine pip and truss.

Interesting.—Pale scarlet, with distinct light eye; finely formed pip and truss.

Samuel Morton.—Shaded rosy bluish, with large dark centre; very fine pip and truss.

Emma Perry.—Bluish white, with large dark rosy red centre; very fine pip and truss.

Shirley Hibberd.—Intense dark violet, with small white eye; a rich looking flower of great substance and fine form.

John Wilson.—Rosy carmine, with a violet tinted centre; very fine truss and habit.

James Day.—Shaded light violet, with white eye; fine truss.

Little Clara.—Shaded pink, with dark carmine centre; fine form and fine truss.

Hercules.—Rich rosy carmine, with dark centre; very fine form.

James Birbeck.—Very large, rich, glowing light rosy scarlet deepening to crimson; light eye; extra fine.

J. C. Ward.—Light purple, with light eye; fine form and truss.

OLDER KINDS.

All marked thus * raised by Mr. Perry, and are fine exhibition flowers.

* *Delicata*.—Pale rosy pink, light eye, fine truss.

* *Indispensable*.—Shaded light purple; well formed truss.

* *Harry Law*.—Distinct rosy lilac, with large white eye; very fine pip and large truss.

* *William Dean*.—Rich violet, with darker centre and distinct clear white eye; finely formed pip and truss; extra fine.

* *Exquisita*.—Bright reddish pink, with large lemon eye; fine pip.

* *Snowball*.—The best exhibiting white, but not a pure white, and with a faint tinge of pink.

* *Nemesis (Smith)*.—Rich light scarlet, with small lemon eye; fine truss; fine for pots.

Annie (Cooley).—Dark pink striped.

Princess of Wales.—Light pink striped.

Marquis de Chateaubauf.—Purple striped.

* *Auricula*.—Rich shaded purple, with large light eye.

* *Firefly (Miller)*.—Lighter than Mazeppa; very fine pip and truss.

* *Leab*.—Pale shaded rose, with large dark centre and large white eye; very fine pip and truss.

* *Pink Perfection*.—Bright reddish pink, with light eye; a most valuable kind for pots or beds, also good for cut blooms.

* *Majolica*.—Shaded pale rose, with large white eye surrounded by a dark ring; very large pip and truss.

* *Wonderful*.—Shaded crimson, with white eye; extra fine in pip and truss.

* *Meteor*.—Rich glowing scarlet, with lemon eye; small but well formed truss.

Cato (Smith).—Bluish shaded and marked with pink, with dark eye; a good exhibition kind.

Rose Imperial (Boucharlet).—A glowing rosy pink, with large scarlet centre; very fine truss.

* *Mrs. Turner*.—Bluish shaded with pink, with a large deep rosy pink centre.

* *Mauve Queen*.—Shaded mauve and lilac, with large light eye; very distinct.

* *Cleopatra*.—Rich dark rose, with white eye; extra fine.

* *Charles Perry*.—Rosy lilac, with large dark centre and light eye; very fine truss and compact habit.

* *Champion*.—Rich crimson, with small dark centre and yellow eye, extra fine.

* *Mazeppa*.—Brilliant deep orange scarlet, with clear lemon eye; large pip and truss; extra fine.

* *Harry Turner*.—Shaded bluish and lavender, with a bright pink centre; very large well-shaped truss.

* *Novelty*.—A very fine kind when sent out three years since, but now beaten by Charles Turner.

Magnificans (Boucharlet).—Lilac shaded with pink, large dark centre; very large truss, and a fine back-row flower.

Apollo (Smith).—Bluish shaded with pink, with dark centre; very large truss.

* *Lilac Queen*.—Distinct from "Mauve Queen," and very distinctly marked; fine truss.

S. H.

PALMS FORM SEED.

SINCE my last notes on palms I have travelled far and wide, and have seen evidences of a fast increasing taste for plants of noble character. I am told that a great many palms and cycads have been sold in consequence of the few humble words I have said in their praise, and on the simple treatment they require. It is the common opinion, not in England only, but with all men, that, if they see some strange plant or animal, they conclude it requires a life-long-learned experience for the keeping of such, though the practical person could say that to keep a rare palm or a rare parrot, or even a bird of paradise, requires only such skill as may be soon acquired by those who have real taste in such matters. Of course I am well aware that there are some who are ambitious to do great things, and always fail because they have not the genius for the carrying out of the ambition with which they are fired.

Generally speaking, the unskilful kill their pets by doing too much. If we say, This plant requires much water, it is presently treated as an aquatic; and if we say, Keep it rather dry, they proceed to treat it as if perfection of cultivation consisted in baking it in an oven. I remember seeing a pet bird look very meagre, and refuse its food. I advised the lady to whom it belonged to give it a little hemp-seed. A fortnight afterwards she told me she had followed my advice, and her bird was dead. I asked a few questions, and soon learned that she had given the bird hemp-seed only, and it had got fat, and died through the disease of the heart, which is common to tame birds that become over-fat. Well, to apply this, I hope that the many amateurs who have read these papers, and have been purchasing palms, will bear in mind that there need be no excesses of heat or cold, or wet or dryness, in the cultivation of them. When we say they must have plenty of water, we do not mean that they should be drenched two or three times a day; and when we recommend shelter from sun and wind, we do not want them to be shut up in dark sheds and closets. I have just paid a visit to my friend the Editor, and have seen how simple is the culture of palms in one aspect of the case. He showed me plants of *Chamærops humilis*, *Latania Bourbonica*, *Chamærops excelsa*, and some others, that have been out of doors in a not very sheltered spot since the early part of April of the present year, and the growth of this season is quite satisfactory. I asked why they should be put out so early, and was very promptly answered, Because there was no room for them and many other good things under glass any longer; they must rough it, as several good ferns were doing that are generally kept under glass all the summer. I was told also that these very palms had been exposed to 8° of frost (Fahrenheit) in the past winter on one occasion, and were none the worse for it. So much for the idea that palms require to be coddled, as if unable to bear a breath of the common air. Of course, I am well aware—for has it not been my business to tend upon them in every stage of their history?—that palms from tropical regions must have heat; but I shall shortly give a list of hot palms that are worth particular attention, in the same way that not long ago I gave a list of palms adapted for cool treatment.* But, for the present, I will say a few words about raising palms from seed, for that is an amusement in which any amateur may most reasonably delight. As to procuring the seed, I can only say that I have purchased of Messrs. Carter and Co. large quantities of the seed of *Chamærops humilis*, for the purpose of growing small plants for the market, and I dare say, if I wanted other sorts, I should be able to get them either here or on the Continent. The seeds of palms preserve their vitality a long time, and therefore, wherever the seed is obtained, it is pretty sure to be good.

Take, then, the seeds of a palm; the stones taken out of ripe dates will do to begin with for experiment. If you have a good stove or forcing-pit, or any means of keeping the plants growing all the

* Mr. Prosper's list of Palms adapted for cool treatment will be found at page 5 of the present volume (January 5, 1867).

winter, sow the seeds whenever you can get them. But if you are in a small way, and must keep your young plants through the winter in a cool house only, just safe from frost, you must not sow the seeds till January. Then prepare a first-rate hotbed, or adopt such other means as will secure a heat of 80° for at least six weeks, and by the aid of this heat, with moisture, you are to germinate the seed. Now I know that there are many different ways of doing the same thing, but I shall tell you the best way for this business. If you put your seeds two inches deep in pans or pots, or in a bed of good leaf-mould or peat, and keep them always moist, and in a temperature of 80°, many will come up and make nice plants; but not all, for more or less will rot, and be heard of no more. But this is the usual way of proceeding, and I can tell the reader it is not the best way. By the plan I shall describe every seed that has vitality will germinate, and if we have much trouble to obtain the seed, we ought not to resort to means to kill it.

Now, then, make a bed of sufficient size. It may be made in a box, and the box may be placed on a tank or hoibed, but about all that use your own judgment. The bed should consist of the cleanest leaf-mould, not quite decayed. How shall I convey an idea of my meaning? Suppose, then, a heap of leaves has been laid by one year. When you turn it over, you find fine black mould and

together, with moss between them, on a tank or bed of the temperature of 80°, and twice a day give them a gentle fall of dew from the finest syringe, but beware not to make the soil more than a little moist; for the first fleshy roots they throw out do not appear to take up any nourishment until the nut out of which they spring is nearly decayed.

In a little time the rolled up issue from the nut will open on one side, and the character of a palm will appear, which is not the case at first. Then the little plants will require water at the root, and almost immediately you will find the young roots protruding through the holes in the pots. When this occurs transfer them to pots of 3 or 4 inches diameter, using a rougher kind of mixture, but composing the same ingredients as before. You must endeavour to get them into these larger pots without shaking the earth from their roots. As they are potted move them forward to a cooler place, and by degrees get them into the open air in a sheltered spot where the sun shines in the latter part of the day, and do not do much more to them until the next spring, when they will need to be transferred to pots of 5 inches, and may then have little tufts of peat of the size of walnuts mixed with the soil. About the wintering I need not say much: tender kinds must be kept warm; and the hardiest kinds, being small and unused to the



Davalliacanariensis.

Latania rubra. Areca rubra.

Cycas revoluta.

Rhapis flabelliformis.

Thrinax parviflora.

GROUP OF PALMS, &C., SKETCHED IN MR BURLEY'S NURSERY, BAYSWATER.

soft flakes of not quite rotted leaves, all mixed together; such is the soil to use. The bed should be one foot deep, or more, but not less, and should be made quite light, not pressed together at all, and with the most flaky part of the leaf at the top. Saturate this bed with water, and when it has become warm to the degree of 80 Fahrenheit, strew the seeds or nuts upon it, and then over them strew one inch depth of clean moss, or the well-known cocoa-nut fibre waste, using the most fibrous part of the waste for the purpose. Every day wet this covering of moss or fibre by means of the syringe, and let not the heat all go down, and in about twenty days the little plants will begin to spear through their covering, and from time to time, according to the species, every nut will germinate, not one will be lost.

It is the process of germinating alone that I wish to be carried on in this peculiar though most simple manner. When once the nuts have sprouted and are spearing through the covering, they must be drawn out with care, and every one be potted in a small pot, in soil consisting of equal parts of the finest leaf-mould, turfy peat chopped almost to dust, and bright silver sand. Take care to have the soil warm, and do not take the plants out of the house or pit to pot them, but have all the pots filled and taken in and placed on the bed, and then transfer the little plants from the malzdaare, or sprouting-bed, to the pots, and place the pots close

world, must have more care than old plants require. Of course I should say that the hot palms need not be taken into the open air at all, but may be kept growing at 70° without any rest at all during the first winter after raising them from seed.

The Editor has favoured me with a print of some palms from a sketch made in a London nursery. I am greatly obliged for the distinctive honour, as it may give interest to a story that I am sure must be dull to many readers. In the sketch I perceive *Latania rubra*, a most fast-growing majestic hot palm from Mauritius; the red margins of the leaves of this species are peculiar. *Areca rubra* I have never seen do well in cool treatment; it is a very handsome species. *Cycas revoluta* is not a palm, but nearly so, and a most fit associate; what splendour is there in this interesting plant! *Rhapis flabelliformis*: I am informed that this has flowered lately, under the skilful care of Mr. Burley; it is common to see it in flower in the open air in Italy and the south of France in the month of July, and I have no doubt that we might easily ripen the fruit of it. At all events, this is a cool palm, which I did not think of when making my list; and I think that in the Isle of Wight and southern Devon any species of *Rhapis* would live, like the *Chamærops*, in the open ground. *Thrinax parviflora* is a most elegant palm, which will bear cool treatment, and may be put out of doors in July and August.

KARL PROSPER.

THE SONG OF HOME.

How beautiful is Home! The wanderer sees,
 Returning from afar, the village spire,
 And the ancestral roof whose aged trees
 Shelter, perchance, wife, mother, child, and sire;
 Nor theirs the glory to which fools aspire—
 The empty bauble vainly called renown;
 They are content to light the evening fire,
 To feast on simple cheer, and lay them down
 In joyous rest to dream, unfearing fortune's frown.

How beautiful is Home, when Love adorns
 With splendours brighter than the morning sun,
 When it first gilds the silver Alpine horns,
 The village cot, the fair beloved one—
 Though poor in outward gifts excelled by none
 In all the finer feelings of the breast;
 How chime the hours to music as they run!
 Music of Love divine, that angels blest,
 Delighted, hied to hear from out their golden rest.

'Tis Love alone that gives to Home its bliss,
 Transfiguring common life with light divine;
 Love plants its Eden in the wilderness,
 Lights Heaven's own flame to gild the darksome time;
 In saddest breast, like diamond in the mine,
 Burns quenchlessly: and through life's inner night
 An orb of fairest grace and strength sublime,
 Pure as sweet Hesper set on Tempe's height,
 Streams prophesying Heaven, the land of Love's delight.

But Home in Heaven—a light within a light—
 A joy inspered in joy! How heauteous still
 The evening shadows when a new-born sight
 Changes to jewell'd fire the palace wall
 Of our divine abode; when over all
 A sky translucent, fire illumed, and fed,
 Expands sublime beyond the ethereal hall,
 Picturing o'er all its dome how angels wed,
 What marriage throngs sublime to heavenly nuptials tread!

THOMAS HARRIS, *Lyric of the Morning Land.*

Calendar.

WORK FOR WEEK COMMENCING JULY 20.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—During dry weather clear off exhausted crops of peas and beans, and dig the ground deep, and manure liberally. During showery weather plant out winter greens of all kinds. Be careful in transplanting not to bruise the leaves of the plants.

CELERY—Early planted out crops may now be earthed up, but do this when the plants are quite dry.

ENDIVE to be sown again, and strong plants in early seed-beds to be planted out.

SHALLOTS should be taken up as soon as the bulbs are ripe; if left in the ground, they will be injured by the autumnal rains. This remark applies especially to damp and low-lying soils.

SPINACH—Make ready a sufficient number of beds for the winter crop as soon as possible, in order to be ready to sow early in August. The soil should be rich, and the position chosen, if possible, should lie high and dry.

CAULIFLOWERS AND BROCCOLIS can be got out now on ground cleared of peas and beans. Trench deep, and mix the manure with the soil, so that it is evenly distributed throughout the mass.

ONIONS lifted may in a few days be taken up and laid in the sun to dry. If the weather is wet, spread them in a shed, or on some dry mats in spare frames. In some country places they finish off the onions for storing by placing them in a baker's oven after the bread is drawn. This is a very good plan, and a pretty certain remedy for hull-necks, and a green soft condition; but it is not likely any crops will require to be artificially ripened this season.

HOE VERSUS WATER-POT.—Hoing is one of the much neglected operations of which few have considered the value, and to keep down weeds is generally the sole object of using the hoe. Certainly that is a good object, and if these observations quicken the vigilance of gardeners who are a wee bit careless upon the growth of groundsel, couch, and bindweed, and other rampant weeds among their crops, it will serve one good purpose. But it must have frequently come under the notice of practical men that a piece of cabbage or cauliflower frequently hoed between, even to the extent of working the instrument very near their roots, always grow to finer proportions than similar breadths left to take care of themselves, with the ground trodden between to the hardness of a Babylonian brick, "to keep the moisture in and the heat out." In such a case it is made evident that there is a virtue in the hoe beyond the killing of weeds that rob away the nourishment required by the crop; and if the problem of their well-doing is to be solved by observation, it must be at daybreak, when every leaf is loaded with dew. Then it will be seen that ground recently hoed or pointed over with a small fork is uniformly moist, while hard ground adjoining the same plot is almost as dry as during the heat of a sunny day. The solution is simple enough. The rough open surface absorbs a large amount of dew, not simply because it is broken, but because it presents a greater extent of radiating surfaces, for the deposition of dew depends on the radiation of heat at the immediate surface, and the subsoil need not and will not be colder than the subsoil of hard ground, although it has a greater power of surface radiation. In fact, ground frequently hoed becomes warmer from its more ready absorption and conduction downwards of solar heat, so that the roots of the plants are kept warmer and moister in broken ground than in close hard ground, and therefore the vigorous

growth of vegetation is promoted by hoing. We have ourselves frequently indicated to gardeners that the chief benefit of dew to plants arose through its absorption by the soil for the nourishment of their roots. It comes to this, that if you cannot soak the ground with water, you have only to break the surface and it will soak itself. The more heat by day the more dew by night, the more cloudless the sky the heavier the deposition of moisture between sunset and sunrise. M. Duchartre's experiments show that if the dew is allowed to settle on the leaves of plants, and not on the soil in which their roots are, they gain nothing in weight, whereas when the dew is allowed to condense on the soil they gain considerably. A plant weighing 999.50 grammes was so placed that the soil in the pot had the full influence of the dew, and it had gained in weight when the dew was removed 13 grammes. Another weighing 1034.95 grammes gained 6.90 grammes. In other experiments where the soil in the pots was hermetically sealed, there was not only no gain of weight by dew, but a positive loss, which goes very far to prove that plants do not absorb much moisture by their leaf surfaces, and may perhaps give a new turn to our ideas on syringing. But let that pass; we will not throw away the syringe yet awhile. Plants with hard waxy leaves, such as *Veronica Lindleyana*, certainly do not absorb much, but they need to be kept clean; and plants with porous leaves, like the vine, do absorb largely, and may be kept alive for some time with the roots dried up, if the leaves are frequently wetted. But the hoing is the matter we wish our readers to think about and act upon. The hoe is an irrigator of as much value to the English gardener as the shadow is to the wretched cultivator of millet on the banks of the Zab or Tigris; and where people are wasting their strength in conveying hogsheads of water, which are often more harm than good, the labour might in most cases be saved, the ground kept clean at the same time, and the plants encouraged to push their roots about in search for nourishment, by the use of the hoe, and the hoe alone. Take notice of a rhubarb leaf; the midrib forms a depressed groove, and the leaf slopes up on each side of it, somewhat in the fashion of the two sides of a wooden water-shoot. The upper surface of the leaf-stalk is channelled too, and all night long the leaf distils dew from the atmosphere, the water trickles to the midrib, and thence finds its way by the channel of the stalk direct to the heart of the plant, for the benefit of its roots and rising leaves. This is the way nature makes almost every plant its own irrigator: we must co-operate with nature, and by the use of the hoe assist the soil also to drink freely of the dew of heaven, that we may enjoy thereby the fatness of the earth.

Flower Garden

ROSES may now be struck in any quantity to secure fine plants on their own roots. Make up a few frames—if with gentle bottom-heat, all the better, but that is not indispensable. There must be six inches of light rich soil in which to dibble the cuttings. Choose short half-ripe shoots for the purpose, and keep them shaded and frequently sprinkled.

BEDDING PLANTS.—Begin at once to make up lists of sorts likely to be required next year, in order to have time to propagate. Put in geranium cuttings in plenty; an open border suffices for them, but keep them regularly watered until they begin to make roots.

CLEMATISES FOR ARCHES, TRELLISES, &c.—Almost as long as man has taken pleasure in a garden has been considered climbers worthy of much trouble and attention, also why the trellises and arches, and numerous like contrivances, which exist in almost every garden? But how seldom are these well embellished! How often do we see worthless stuff running over such that never furnishes flower or fragrance sufficient to attract the attention of the most observant! It is not that good climbers are not to be obtained, but because a really good selection is but very rarely made. Lately, however, we have had such a telling addition to our stock in the way of noble hardy climbers, that we have only ourselves to blame if every wall and trellis is not sheathed with the highest beauty. *Clematis lanuginosa*, *C. azurea grandiflora*, and others, have long graced our gardens, and are remarkable for their enormous flowers of various shades of blue; but it is only within the past few years that numerous striking varieties of the family have been noticed at our shows, in various shades of blue and rich dark purple. They are so attractive in appearance and noble in flower, that doubtless many of our readers have been induced to purchase young plants, and therefore a few words on their culture may not be amiss. They are, when well grown and flowered, the noblest of all climbers for walls, trellises, or any other position in which hardy climbers may be desired. We have seen them flourish freely planted on the level ground, and allowed to stroll over it in their own way. On trellised arches which one occasionally sees in gardens, on the slender wire-work fence so often used of late, they are truly beautiful and effective. They, like most things that we have to treat of, enjoy a good rich soil, and if with that it is light and free so much the better. If the soil is very heavy, it had better be made light by the admixture of road-sand, leaf-mould, and other matters which may be convenient before planting; if light, it must be well deepened and enriched with rotten manure, and stiffish loam, if convenient; but, no matter what the soil may be, the secret of cultivating these clematisses is to give them a few inches of well-rotted manure on the surface of the earth all round where the roots are, or, in other words, to "mulch" them. If the appearance of the manure is objected to, as it may be by many, it may be covered with an inch of soil, and on that some annual, like the aster, may be grown for the summer months. As regards training, they are best left alone in summer, at least till the shoots got very long indeed; but during the winter months they must be firmly tied or nailed over whatever surface they occupy, as the weight of flowers is considerable where they are properly grown, and by having the main shoots firmly secured, the rich mass of blooms, many of them as large and larger than tea-saucers, may be allowed to hang down in a graceful and natural manner, which much increases the beauty of the plants and whatever position they adorn. It is almost useless to enumerate any special kinds among those new hybrids and varieties sent out by Messrs. Jackman, as all are good, and it is only necessary to pick out the most diverse, and in many gardens where climbers are much valued all the varieties will be acceptable. Within twenty yards of the spot where we write this there is a splendid plant of *Jackmannii*, every shoot suspending a range of noble rich violet flowers, and several dozen other kinds, large and small, and all nearly equally beautiful and equally appreciated. The small kinds—like *Viorna*, with its pale pink flowers; *Shillingii*, with its very delicate ones; *Flammula*, with its mass of fragrant spray—cover arches beautifully, and look effective in the mass; while here and there the splendid single flowers of such kinds as *Rubro violacea* catch the eyes of many who hardly ever notice a flower. Those who plant clematisses should never by any chance omit the beautiful

large-flowered variety of *Clematis montana*, usually called *C. montana grandiflora*, as its beauty in the early part of the year, before any of the other kinds expand, is unsurpassed by that of any other hardy or tender climber. *Clematis*s purchased now in pots, and planted at once, will become established before winter, and make a fine display next season.

SHRUBBY VERONICAS.—This being the best season in the whole year for propagating these shrubs, a few remarks upon them may be useful. When well grown they are massive in outline, and their handsome dark green leaves afford a fine relief to the colours of their flowers, which are abundantly produced, and are always pleasing. Among the reasons that present themselves in recommending these plants to the more favourable notice of amateurs are the following:—They are, in the first instance, highly ornamental, and well adapted for greenhouse and conservatory decoration, and for plunging out of doors, where in the autumn they appear to great advantage, if the plants are large and skilfully grouped. They are so nearly hardy that the protection of an unheated greenhouse is quite sufficient to carry them through the winter safely. They do not quickly suffer from neglect; if rather dry at the root, or if watered to excess, there is not the immediate or extensive mischief produced which would occur in the case of many other favourites, but, of course, every kind of ill-treatment is an injury to veronicas, and they deserve good treatment. Lastly, they do not appear to suffer from dust, smoke, and atmospheric impurities, so that they are good town flowers, and in every sense well adapted for those amateur cultivators who are often away from home, and consequently unable to afford to plants of delicate habit the regular and careful attention they require. The shrubby veronicas can be grown in various ways, as may be determined by the wants of the cultivator. They are sometimes planted against dwarf walls, and in sheltered places do not greatly suffer from the frosts of winter. The writer has seen in a garden in Hants a dividing fence formed of *V. Andersoni*, which presented a remarkable and most beautiful appearance at all seasons, and especially when in flower. For ordinary decorative purposes pot specimens have the best effect when formed into regular pyramids with an even distribution of furniture from top to bottom. A good specimen should measure four feet in height from the rim of the pot, and four feet through at the base, tapering thence regularly to the summit. When grown for plunging out of doors to form autumn groups, a columnar style of training will be the best, or say an outline approximating to a Lombardy poplar, as this allows of placing the plants close together, and a better effect is produced than by plunging specimens broad at the base. To grow fine specimens, the soil should be good turfy loam enriched with a third part of decomposed hotbed manure, and with an admixture of broken crocks or bricks to keep the soil open. The young plant should be trained perfectly straight so as to secure a strong leader, from which in subsequent growth a regular disposition of side branches will proceed. From April to August the plants are to be shifted to larger and larger pots as they require them; they ought never to be thoroughly pot-bound until they have attained their full size, and are wanted to flower finely; but, on the other hand, each shift should be slight, as over potting at any stage is nearly as bad as allowing them to become pot-bound. After the middle of August there should be no more repotting, but in the month of April all the specimens should be turned out of their pots, the balls reduced, and much of the old soil be removed, and repotted again either into the same or into pots one size larger. As in the spring they do not evince much activity of growth, they may be pruned back when repotted. This should be done in a way to cause a regular disposition of shoots according to the form required, and as they break freely from old shoots and from the stem, ugly specimens may be pruned very severely, and if kept shaded and frequently syringed, with only a little water at the root, will soon throw out abundance of shoots, which the cultivator can keep or remove as may be needful. At the beginning of June all fast-growing plants which it is desired to form into compact specimens should be stopped; that is, the points of the shoots should be pinched out; this will cause them to produce side shoots, and there will be ample time for these side shoots to be fully matured before the close of the season. The following varieties are the best in cultivation:—*Andersoni*, grows freely and flowers abundantly; the variegated-leaved variety of *Andersoni* is extremely beautiful, and more tender than the green-leaved kind. *Anne de Beaujeu*, bright rose and white; *Devoniana cœrulea multiflora*, dark violet and white; *Gloire de Loraine*, blue and white, beautiful habit, and remarkably hardy, for a plant of this stood out at Steke Newington all through the winter of 1866-7, and was quite unhurt; *Impératrice Eugénie*, amaranth; *Mammoth*, violet and white; *Multiflora*, dark violet and white; *Rubra elegantissima*, violet purple; *Rubra splendida*, rich crimson.

Fruit Garden and Orchard House.

STRAWBERRIES to be potted as soon as rooted, as they make roots faster in pots than in the open ground; and should we have a chilly autumn, a few of the best of the plants can be kept under glass to ripen their crowns. Lay a few more of the best runners in pots, cut away all weak runners, and supply water liberally to runners and old stools.

Greenhouse and Conservatory.

CONSERVATORY will now need a revision, and a general change of occupants. *Liliums* and *Gladioli* will now come in, and make a fine show with first-class annuals and *Fuchsias*. Specimen trees and climbers to be stopped and trained in, to assist ripening of the wood.

HERBACEOUS CALCEOLARIAS.—Sow the seed without loss of time, using light rich soil. Place the pans in a cold frame, and keep shaded.

SAVING SEED.—Many choice border plants are now ripening their seeds, and whatever is required must be secured in time. Generally it is safest to gather the seed before it is dead ripe, as in many cases the pods open and the seed is scattered and lost. Cut off bunches with a portion of stem attached, and spread them on cloths, under cover, to dry for a day or two, and then put them in the full sun to harden. A shelf in a greenhouse is the best place, because there is less fear of their being scattered by wind. Label all seeds when gathered, to prevent mistakes, and of all hardy subjects sow a portion at once, and keep the rest till spring.

CLIMBING FERNS AND LYCOPODIUMS.—The climbing ferns of the genus *Lygodium* are the loveliest of the whole of this interesting tribe of plants, only excepting the elegant *Gleichenias*. It happens most fortunately that they are very easily cultivated, and, with moderate care, soon make fine specimens. We have had *Lygodium scandens* in a vase covered with a glass lantern, one side of which is completely covered with a screen of its exquisitely beautiful fronds, by being trained up on copper wires; and we have had *L. palmatum* on the back wall of a common greenhouse, where it was kept constantly shaded

by large-leaved plants trained to the rafters, and it covered the wall almost as densely as ivy. A mixture of two parts turfy peat to one part each of rotten cocoa-nut dust, and silver-sand, will grow any of them to perfection, with moderate warmth, shade, and moisture. *L. palmatum* is the most hardy; *L. japonicum* does well in a Wardian case, if assisted with copper wires; *L. venustum* is a very rapid grower in a warm greenhouse; *L. scandens* has the most distinct character; *L. flexuosum* is the grandest of all, and will grow five or six feet high; and *L. volubile* makes a good companion for it. Warm greenhouses in shady positions may easily have their walls covered with these ferns by making a border for them one foot deep and one foot wide, with three inches of broken brick or stone at the bottom and nine inches of soil. The surface of the bed may be covered with *Selaginella apodum*, *caesium*, *denticulatum*, *microphyllum*, *densum*, *brasilienis*, and *uliginosa*. *S. levigata* is a grand stove climber. *Lygodium*s should be cut down to the ground in winter. This is a most important point in their cultivation.

Stove and Orchid House.

STOVE AND ORCHID HOUSE.—Sun-heat may be used to prevent need of fire to a great extent. There must be plenty of moisture in the atmosphere, produced by frequent sprinkling of the paths, stages, &c. *Stanhopeas* will require to be repotted as soon as they have done flowering, if they require it at all, but fine specimens can only be obtained by allowing them to remain several years in the same pots or baskets. Give air freely, especially to subjects going to rest.

APPELELIXIS, PIMELIAS, IXORAS, &c., now going out of bloom to be cut back freely and put in a shady place, where sprinkle their tops frequently, and keep their roots rather dry till they break, when to be repotted. In repotting use the compost rough and lumpy for all except young plants.

Forcing Pit.

PEACHES ripening off to be kept as cool as possible; hot sunshine and close air will spoil the flavour and cause the fruit to fall. Where the supply is larger than can be used directly, the fruit may be kept hanging longer by shading it with leaves; a few boughs of privet or fir hung up so as to screen off the sun from the branches on which the fruit hangs, and free ventilation day and night, will retard the final ripening, and prolong the season of supply. Trees from which the whole crop has been gathered to be liberally watered and syringed, to keep the foliage fresh till it has done its work.

PINES to be encouraged with a good heat and plenty of moisture. Those swelling fruit to have the help of a humid atmosphere by watering the paths and the surface of the tan, &c., amongst the plants till the fruit begins to change colour, then keep the atmosphere rather dry. Young stock to have air cautiously; the suckers rising from old stools to be earthed up, and have a brisk heat and plenty of water.

VINES.—Late grapes require no artificial heat to ripen them properly, as the sun-heat is above the average of the season. If the ripening is long about, the berries will have thick tough skins, and will not keep well. Keep the houses dry where grapes are hanging, and those from which the crop has been gathered take off the lights.

MELONS need a brisk bottom-heat to ripen the fruit, and to be kept rather dry. Those swelling fruit to be encouraged with a lining, and a moderate amount of atmospheric moisture. Keep the vines regularly trained, so that the leaves are exposed to light, as wherever they are crowded the fruit will be found to damp off.

Correspondence.

CALCEOLARIAS IN 1867.—As I was walking over Highbury Hill a few days since, and pondering some remarks of yours upon the calceolaria in your impression of July 6th, it occurred to me that cultivators of the calceolaria would do well to bear in mind that its native habitat is a position not very far beneath the snow-line on the mountains of central South America, where, while they are constantly saturated with water from the melting snow, in that bright climate rain never or seldom falls upon the foliage. I believe great numbers of calceolarias are lost by watering over the foliage. The constitution of the leaves is so tender that the rays of the sun, brought to a focus in the multitudinous drops of water covering the plant, concentrate upon it a larger amount of heat than it can bear, and it suddenly perishes. I have seen but few examples of disease in calceolarias this year, and those only in one place. A neighbour had a two-light frame full in 60-sized pots, and during the bright hot week we had in the early part of May about thirty of them went off suddenly without any apparent reason. Since reading your remarks, I have thought that the action of the sun upon the leaves while wet must have been the cause of death in this case, because the plants were standing in a position where the bright rays of the afternoon sun would be concentrated upon them till near sunset; and if they were watered early in the afternoon, which I think they were, that fact might account for their sudden decease. The finest clump of calceolarias I have ever seen was in a garden on the north side of Stamford Hill. In this garden there was a piece of standing water all across the bottom, and kept pretty much to one level, and the water from this pond infiltrated through the banks, and stood at the same level over the whole garden, about twelve inches from the surface. In a bed on the lawn, about forty or fifty feet from the pond, calceolarias were planted; as soon as they had got hold of the soil, and began to feel the benefit of the water at the bottom, their progress was marvellous, and the vigorous panicles and rich colouring of the flowers indicated their thorough appreciation of the position in which they were placed. These, as near as could be, were placed in a position resembling their native habitat, with this difference, that the water in the bottom of the clump in the garden was stagnant, or at least was not supplied so continuously as that supplied to those growing on the mountain sides, which drains away from beneath the plants as fast as it is supplied from above. The débris and alluvium brought down by the continually running water will be likewise a constant stimulus to their growth. I believe few losses would occur among this class of plants if your suggestions were attended to. In addition to thorough preparation of the soil, copious waterings among the plants without wetting the foliage, and occasional top-dressings of soil similar to that in which the plants are growing, will exactly meet the requirements of this most effective plant.

WILLIAM CHITTY.

Stamford Hill, July 13, 1867.

NEW PLANTS FROM EQUATORIAL AFRICA.—As I might be too trouble-

some by giving full details of my new plants through the medium of your now crowded paper, therefore, in answer to numerous applicants, I am publishing a small work giving a full and complete history of the place from whence the seeds were brought, the method of cultivating in this country as adopted by myself, with diagrams showing the plant in three stages, hoping by this to benefit all. I can accommodate a much greater number than have yet applied for seeds when they are ready, say a week or more, but cannot take upon myself the cost of postage. I name this because the greater number arrive unstamped. Nor was it possible for me to write a guide until so many questions were asked me. Those who have sent stamps will be furnished with seeds as early as possible. Should more of your numerous readers require seeds, hooks, &c., I shall charge 1s. 6d. for cost of same, as I am only a working man, and taking into consideration I have the plants thirty-three miles from my present residence, I have already spent much. In conclusion, Mr. Editor, Mr. Hullett, and the Editor of the *Mechanic and Mirror of Science*, and your respected self, shall have plants as early as convenient.—I am, sir, respectfully,

A. St. Hilda Street, Hartlepool.

J. HESELTON.

[It is extremely kind of our correspondent to make us a promise of a plant, but we are not at all flattered by being associated with Mr. Hullett; and now that we hear of a hook to be published, &c., &c., &c., &c., &c., we think it proper to tell our readers that if they part with their money for hook, seeds, or what else, it must be upon their own responsibility and not on ours. We inserted the first letter in full faith, believing Mr. Heselton had got hold of something out of the common way, though it might be a plant well known to horticulturists. We insert this second letter in order to express our belief that he has got more than he can manage, for the number of persons who will buy books about unknown plants and seeds that have no name are very few indeed. Mr. Heselton had better go on with his carpentering, or whatever else may be his business, and leave the seed trade to those who understand it.]

Mrs. PINCE'S BLACK MUSCAT GRAPE.—I am preparing to plant a number of vines this autumn, and I want to know in sufficient time what is the opinion of grape growers generally in respect of this variety. I think it proper to say that I accept the good character our Editor has given it as sufficient in respect of its goodness, and to the exact extent to which he has committed himself to it. For many years past I have never sent an order to a nurseryman without consulting the lists in the "Garden Oracle," and generally speaking my selections of varieties, especially for exhibition purposes, have been taken from that work. I say this much to clear myself of all suspicion of unpoliteness in asking for more information respecting this grape than has been afforded us through the pages of the Magazine. Is it quite distinct in habit and fruit? Is it of a good constitution, or must we grow it a few years and then discover that it must be grafted on a free stock to make it fruitful? In short, granting that it is good because we cannot question the very high testimony in its favour, is it desirable that in planting a house of vines in a garden where grapes are grown largely, Mrs. Pince's Muscat should be considered essential? Probably some of your West of England correspondents who have seen the variety more than once can tell us something more about it.

R. W. P.

TEA ROSES AT EXHIBITIONS.—I was at once convinced of the soundness of your criticism on the showing of tea roses in classes by quietly making up a box of teas for our local show a few days since. I put together a magnificent lot of flowers, and, as you say, they looked tame, and it was a disparagement to their beauty to show them side by side without proper relief. As I was not tied by a schedule, but was going in for an extra, I fitted up three boxes instead of one, using high-coloured roses, such as Charles Lefebvre, Victor Verdier, Xavier Oliho, &c., &c., with teas intermixed. The effect was charming. A *Devoniensis* or *Homer* seated in the midst of three or four crimson, rose coloured, and purple flowers, is something to see, and we cannot fail to see it, but the same two roses side by side are agreeable only to the rosarian, who looks at the make and shape of single flowers, and not to the effect of grouping. It is easy to overdo a good idea, and when we have special classes for teas, mosses, &c., &c., I fancy the idea of a rose show is overdone.

SUB ROSA.

New Plants.

In the June and July Nos. of the *Botanical Magazine* occur figures and descriptions of the following:—

Amaryllis pardina.—A splendid species, obtained by Messrs. Veitch, through their collector, Mr. Pearce. It is a native of Peru. The flowers are of large size; the colour gamboge-yellow, covered all over with small red spots.

Bletia Sherrattiana.—The prettiest of the true *Bletias*, a native of New Granada. The flowers are produced in clusters of a dozen or more; they are of a purplish rose colour.

Billbergia sphaacolata.—A handsome Bromeliaceous plant, conspicuous for its crown of leaves, each from four to five feet long; the flowers are rose colour.

Stemonacanthus Pearcei.—A fine Acanthaceous shrub, with ovate lanceolate leaves five to six inches long, and axillary clusters of scarlet flowers.

Dendrobium macrophyllum var. *Veitchianum*, described as the true *D. macrophyllum* of A. Richard.

Draba violacea.—A pretty species of this generally humble genus. It is a native of the loftiest parts of the Andes to which any flowering plant attains. It is of neat shrubby habit, with terminal clusters of crimson-purple flowers.

Ipomœa Gerrardi.—This is the "wild cotton" of Natal. It is a fine perennial species of *Ipomœa*, requiring intermediate or stove heat; the flowers are large, salver shaped, pure white.

Rudgea macrophylla.—A magnificent stov shrub from Rio de Janeiro, which flowered in Messrs. A. Henderson's nursery in March of this year. The leaves are obovate oblong, one to two feet in length; the flowers are cylindrical, cream-white, and collected into a globose head as large as a fist.

Epidendrum Cooperianum.—This is one of the finest of *Epidendrums*. It is a Brazilian plant, and grows readily in the Cattleya house. The flowers are produced in a short crowded raceme; sepals and petals yellowish brown, the lip bright rose.

Gloxinia hypocyrtiflora.—A beautiful species, with cordate leaves of a brilliant green, distinctly marked with yellowish or whitish veins; the flowers are the size of a small cherry, brilliant orange and orange-red.

Replies to Queries.

Wall Fruit in Yorkshire.—Perseverantia.—The forty yards of wall you propose to build will accommodate six trees, large, at 20 feet apart, and five small trees in the mid-distances between them. These last will have to be removed when the permanent trees have made some progress. The following varieties are recommended for the permanent furnishing of this wall: *Hemskirk Apricot*, *Downton Nectarine*, *Sulhamstead Peach*, *Denniston's Superb*, *Guthrie's Green Gage*, and *Diamond Plums*. For five dwarf trees to plant in the intervals we should recommend *Morello* and *May Duke Cherries*, *Mirabelle Plum*, *Pitmaston Nectarine*, *Roman Nectarine*. We should prefer a 15-foot hollow wall to a flued wall. Of late years cheap glass has put flued walls out of favour, and they have never been of much value. The hollow wall (*Silverlock's system*) is warmer and drier than a wall made in the ordinary way, and costs considerably less in the first instance; so there are positive advantages in adopting it. The *Sylvester system* requires the wall to be 9 inches thick, with piers of 14 inches thick at every 20 feet. The wall and piers are all built brick-on-edge, with good mortar and the best work. The bricks are laid with their faces and ends alternating, which gives immense strength to the construction, and encloses within the work an immense body of air. There are many grave objections to flued walls, such as the following: In calm mild weather much of the heat is lost by the exposure of the wall to the atmosphere, and wind and rain sweep away the heat so fast that there is a great consumption of fuel for a very precarious result. In the event of a sudden blast of cold weather—a not uncommon occurrence—after the fires have been put out for the season, the trees suffer more than if they had never had help at all. On the other hand, hot walls have in many cases proved of great value in spring to assist the early growth and bloom, and in autumn to promote ripening of the wood, but for promoting the maturation of the fruit they are of no use at all.

Roses in Yorkshire.—Yorks.—The following climbing roses of good quality are likely to do well on a good wall in your climate: *Devoniensis*, *Lamarque*, *Gloire de Dijon*, *Triomphe de Rennes*, *Souvenir de la Malmaison*, and any of the vigorous growing hybrid perpetuals.

W. D., Lenoxtown.—The gentleman to whom you refer does not sell, and would not sell under any circumstances, except perhaps in the event of a large offer for the whole collection.

Datura ceratocaulon.—Wylde Green.—Probably in a brisk heat the seed would have germinated. These seeds keep good many years; therefore we do not think you had had seed. As for the *Everlasting Pea*, the best way to deal with that is to sow it on a sheltered border, and leave it alone. If you have any of the seed left, sow it now an inch deep, and wait. Next time you try the *Datura*, sow it early on a good hotbed, and get the plants forward, so as to be planted out strong at the end of May, unless to be flowered in pots.

G. W. M.—Pay no attention to the nonsense they tell you about the thickness of the parent stem, and all that. Just go on growing your vines in a reasonable manner, and you will have a reasonable return in the shape of fruit.

Pit for Compost.—T. P., Marylebone Road.—Form the pit of brickwork in a quite dry place under cover. If exposed to the weather or to the drainage of water, the best of compost is soon spoiled. Do not go mixing manure, ashes, soapsuds, &c., &c., but get good rotten dung, sweet turfy mellow loam, clean sand, and he content. Amateurs unaccustomed to the practical work of gardening *in extenso* make dreadful mistakes in compounding composts, and then think it hard their plants should perish. If they would be content with wholesome and unmistakable ingredients for their composts, they would have no trouble.

J. Thomas.—The variegated-leaved *Heliotrope* is extremely pretty, the young leaves being of a creamy amber colour, and the older leaves freely blotched and splashed with white or gray. We are informed by Mr. Salter that several variegated *heliotropes* have been tried, and never proved of any use.

Lapageria rosea.—F. L.—This beautiful plant requires a cool, light, airy house, a bed of gritty peat, and an abundant supply of water. In these few words you have an entire code of culture. Many have attempted to grow this plant in pots, but with very small success; others have attempted to force it with heat, and have failed, but the simple cool culture we recommend never fails, and whoever can spare a few square yards of the roof of a cool house, and make a peat-bed large enough to hold two or three harrow-loads of soil, may grow it to perfection. In the *GARDENER'S MAGAZINE* of December 1, 1862, will be found a concise treatise on the cultivation of this fine plant.

Asparagus Bed.—George.—A well-made asparagus bed will last a lifetime if taken proper care of. It is a good plan to remove the seed while green, as it prevents the growth of seedling plants between the rows, and which only makes work to weed them out.

Winter Flowers and Plunging Plants.—George.—For the greenhouse and conservatory secure plenty of *Cinerarias*, *Cyclamens*, *Acacia grandis*, *Gauntlet Pelargoniums*, *Echeveria secunda*, *Tree Carnations*, *Cytisus Atleena* and *racemosa*, *Daphne indica odora*, and *Czar Violets*. For the border which requires plunging plants to follow hyacinths, secure a sufficient number of potted plants of *Alyssum saxatile compactum*, *Iberis sempervirens*, *Dielytra spectabilis*, *Aubretia purpurea*, *Saxifraga hypnoides*, *Golden-tipped Stonecrop*, *Ranunculus ficaria*, and look after *Anemone fulgens*, with a view to get up a stock from seed, should you ever obtain a plant to begin with.

Budding on the Briar.—C. H. B.—In such weather as we had all the past week, hudding was profitable work where the briars were fit for it. We always prefer young thin briars for special purposes, but serviceable trees may be made out of briars of any kind; the grand thing is to grow them liberally in every respect. Your friend will make better progress by seeing the operation once performed than by all the book teaching available. All these matters are treated in full in the "Rose Book;" we cannot enter into them largely now, having done so in 1864. The original name of *Celine Forester* was *Lysias*. The beautiful *Noisotte Triomphe de Rennes* flowers finely at Stoke Newington, so we presume it may be considered a town rose.

SUBSCRIBERS TO THE *GARDENER'S MAGAZINE* who desire to extend its sphere of usefulness, and are willing to interest themselves in promoting its still wider circulation, can materially further this object by sending to the publisher the names and addresses of persons they think are likely to become subscribers, who will forward to each a SPECIMEN COPY free. A stamp must accompany each name and address sent, to cover the postage of the specimen copy.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1867.					Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.		Thermometer.			Rain	Grain				
1867			b. m.	b. m.	b. m.	b. m.													
28	S	6th Sunday after Trinity	4 19	7 51	1 20	a.m.	5 14	p.m.	29 61	29 57	74	55	64.5	.23	62.0			<i>Cyclogyna Lowii</i> , L.	1867
29	M	Andrew Marvel died, 1678.	4 21	7 50	2 23	"	6 12	"	29 64	29 50	71	41	57.5	.12	62.0			<i>Cycnocheilus barbatus</i> , M.	28
30	T	Archdeacon Paley born, 1743.	4 23	7 49	3 31	"	7 2	"	29 76	29 72	70	39	54.5	.60	62.0			<i>Oncidium divaricatum</i> , M.	29
31	W	New moon, 4h. 43m. a.m.	4 24	7 47	4 40	"	7 44	"	29 74	29 61	65	47	56.0	.13	62.0			<i>Oncidium papillo</i> , M.	30
1	Th	St. Matt. Denmark Hill Working-men's Flower	4 25	7 46	6 8	"	8 20	"	29 57	29 74	75	53	64.0	.08	62.0			<i>Cycnocheilus Loddigesii</i> , L.	31
2	F	Length of day, 15 h.	4 26	7 44	7 21	"	8 40	"	29 63	29 48	74	49	61.5	.04	62.8			<i>Cycnocheilus ventricosum</i> , L.	1
3	S	Exhib. of Working-men's Plants, Corn Exch.	4 28	7 42	8 36	"	9 10	"	29 77	29 73	74	45	59.5	.06	62.7			<i>Epidendrum atlofolium</i> , M.	2

The Gardener's Magazine.

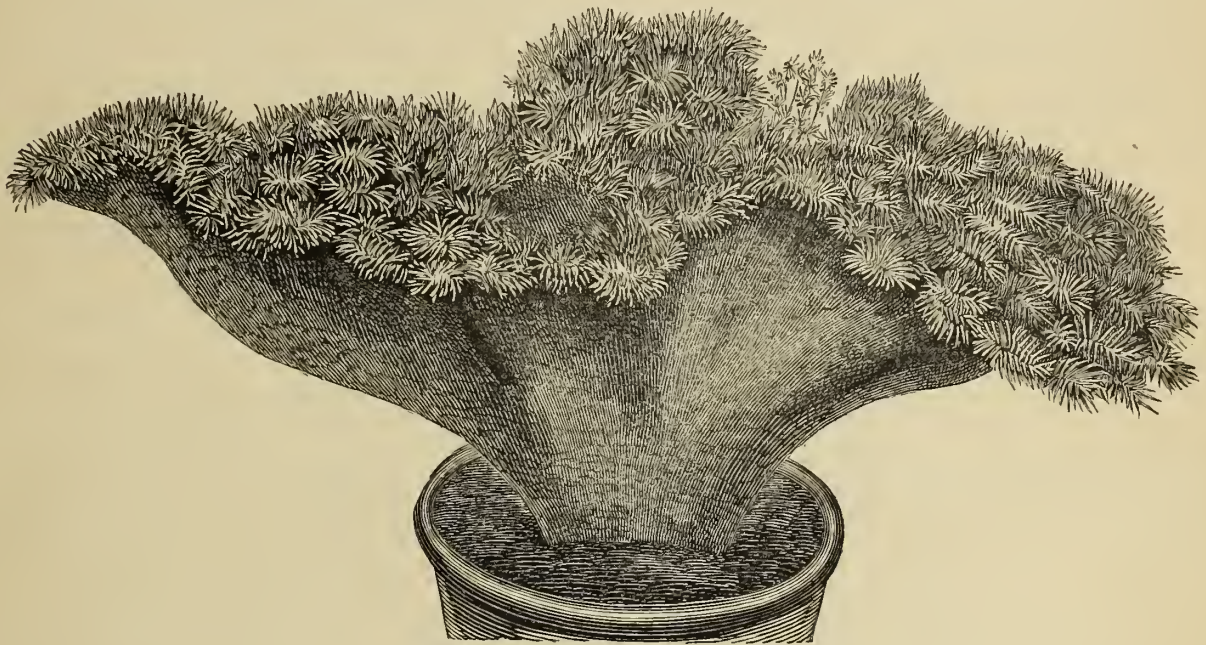
SATURDAY, JULY 27, 1867.

FASCIATION AND HYPERTROPHY, though properly regarded by physiologists as forms of disease, produce results which the horticulturist accepts as adding to the variety and interest of cultivated plants. Arboriculturists are familiar with the bunched bird-nest kind of growths so common on the birch and fir, and which are usually attributed to the development of "accessory buds;" these becoming more or less united, assume a thickened or flattened process. In other cases unions of stems take place, and there are everywhere to be found examples of fasciated *Asparagus*, *Celosia*, and *Ranunculus bulbosus*. Less common than these are fasciated forms of *Hieracium cerinthoides* and *Carduus palustris*. We once walked for miles along a country road which was flanked on both sides by a continuous line of common Thistles, all of which had fasciated stems and flower-heads, a most remarkable mass of monsters. We have at the present time in the trial ground at Stoke Newington a variety of garden Pea with a fasciated stem as broad as three fingers, consisting of some half-dozen or more stems

THE INDIA HOUSE BALL.—In Mr. Digby Wyatt's account of the India House ball, speaking of the floral decorations, he says, "We were favoured by the authorities of the national gardens at Kew, under the personal superintendence of the curator of those gardens, Mr. Smith, with many beautiful and very valuable plants; and by the Horticultural Society, through the kind assistance of Mr. Eyles, with a precious van-load from their London conservatories; but the real onus of the supply rested on the broad shoulders of Messrs. Veitch and Sons, of King's Road, Chelsea. The formation and equipment of the beautiful cascades and fountains, the parterres and flower baskets, the waving groves of exotics, and the vases of bloom which met the eye almost wherever it turned, were due to them; and it is not too much to say that they never left off work from the time they received the order to prepare to the moment when the first visitor entered the ball-room."

THE LAST EXHIBITION OF THE MANCHESTER BOTANICAL SOCIETY for the year 1867 will take place at Old Trafford, in close proximity to the grand show of the Manchester and Liverpool Agricultural Society, August 27th to 31st. The Council of the Manchester Botanic Society have resolved to hold a great show during the Whitsun week of 1868, and have already obtained a sufficient guarantee in respect of the risk to be incurred. The sum at present voted for prizes is £1,000, which may possibly be added to ere the schedule is issued. It is to be hoped that no other society capable of competing with this will fix upon the same date for a great exhibition next year, for such competition is simply vexatious, and more or less injurious to both parties. The Manchester folks have announced their intention in good time, so there is really no excuse for the damage of their project by the selection of the same date by any other powerful corporation.

17 inches.



SEDUM VIRESCENS, COCKSCORN FORM.

united, and with all the branches and tendrils of those stems radiating from the summit in a regular manner, like the ribs of an umbrella. Lord Wellington Hyacinth is peculiarly liable to produce compound spikes of flowers proceeding from two or three stems united in one, and showing by deep furrow-like sutures where the junction can be traced.

A few months ago we obtained from Mr. Ware, of the Hale Farm Nurseries, Tottenham, a fasciated form of *Sedum virescens*, which very soon afterwards attained to unusual dimensions, and a beauty quite remarkable for an abnormal development. We present our readers with a figure of the plant, which, at the time it was sketched, measured exactly seventeen inches between the two extreme points of its cockscorn head. If all the convolutions had been measured, the full linear breadth of the head would have been about thirty-five to forty inches, so densely was it frilled on the margin. The leafage was abundant, but contracted into tooth-like processes, which added to its beauty and enhanced its frill-like peculiarity. In the figure, a few sprigs of natural growth may be seen on the right hand of the central lobe of the cockscorn. *Sedum virescens* (in common with other small-leaved Sedums) frequently presents itself in a fasciated form, but the example before us is remarkable for its size, symmetry, and extravagant convolutions.

No. 117, NEW SERIES.—VOL. X:

THE HARVEST has become general in Hungary, and in the southern provinces of the empire, and promises to be magnificent. The weather is exceedingly favourable. The *Triester Zeitung* states that during the last few days considerable orders for grain had arrived from England, and the agents sent by the corn merchants to Hungary in consequence had already bought up more than two millions of metzen—nearly four million bushels. The French have been making large purchases, chiefly in Hungary, for some time past.

Mr. G. HORNE, Assistant-Director of the Botanical Gardens in the Mauritius, has sent in a very interesting report of his visit to Ceylon, in which he has given a practical description of the cultivation of Cinchona, Coffee, and Tea, likely to be very useful in the colonies. This report has been published in the *Government Gazette*, and an abridgment will be found in another part of the present issue. It is only one of the many proofs this intelligent officer has given of his capacity for the post he occupies.

FOR THE INFORMATION conveyed in last week's issue, that "Palms form seed," we are indebted to the printer. It is perfectly true that palms form seed in common with other flowering plants, but the heading written for the article was "Palms from Seed," the object of Mr. Prosper's paper being to show how palms were raised from seed. Printers have a great dread of putting into type what is plainly written, hence many of the blunders in scientific literature. In the *Gardener's Chronicle* of last week (p. 761, c. third line from bottom), we hear of a pelargonium called "Flower o Sprig." We could find such examples in plenty in searching through the *Field* and the *Farmer*, but it would be poor sport. Let us not, however, be too proud to receive from the printer the information that "palms form seed."

ARTISTIC BOUQUETS.—The *Guardian* says:—"Our lady readers, no doubt, are aware that the construction of a bouquet is a thing which ought not to be attempted except on an artistic principle. Now, it is an established principle of art that in a bouquet those colours which are called 'complementary' look better than such as are ordinarily said to 'harmonize.' But how are our fair readers to set the rule for ascertaining what are 'complementary' colours? We take the following solution of this knotty point from *Land and Water*, humbly suggesting to them to test it for themselves:—Cut out a circular piece of the petal of any flower and put it on 'white' paper, look at it fixedly for a few seconds with 'one' eye, then look off the colour on to a piece of white paper, and you will see a bright ring of another colour; that ring or circle is the right complementary colour or contrast to the colour in the petal." We may well have hideous bouquets while this hosh about "complementary" colours is offered as a doctrine for the formation of them. Where are the complimentary colours in a bride's bouquet? yet what more beautiful when well made?

TESTIMONIAL TO MR. BRUCE FINDLAY.—We have received a circular bearing the signature of Mr. Henry Whitworth, honorary secretary of the Manchester Botanical and Horticultural Society, the object of which is to invite subscriptions to a fund intended to be devoted to a testimonial to Mr. Findlay. The promoters of this movement have the approval and assistance of the council of the Society, and they anticipate that there will be a ready and liberal response to their appeal, not only from the subscribers to the Society, but from "others who have been brought into personal contact with Mr. Findlay." The admirable management of everything connected with the recent great exhibition at Manchester affords ample justification for the initiation of this movement, which, we feel assured, will be appreciated by exhibitors generally throughout the country. Probably the highest claim Mr. Findlay has upon Manchester itself is his admirable management of the beautiful gardens at Old Trafford, which, alas! Manchester does not value as it should, or we should not hear of the society being encumbered by debt. Communications on the subject of the Findlay testimonial may be made to Mr. Whitworth, Carlton Buildings, Cooper Street, Manchester; or to Mr. Richard Haworth, Old Trafford, Manchester.

THE LATE SIR WILLIAM HOOKER.—A memorial tablet, of beautiful design, the work of Mr. R. Palgrave, enclosing a cast in "Wedgwood ware" of Mr. Woolner's medalion of the late Sir William Hooker, is about to be erected in Kew Church, near the grave of the famous botanist. The medalion occupies the centre of a composition of panels that are decorated with ferns, &c., in low relief, the fronds being arranged so that their lines harmonize with their position on the monument; the panels are divided, and mounted in mouldings of white marble. The portrait is of white, on a ground of smalt blue, the foliage of white on a delicate green; huff is used for certain minor panels which appear round the head, and, like their more important companions, are decorated with ferns. Apart from the medalion, the charm of this work is in the exquisitely delicate execution of the fronds, which have been modelled with the utmost elegance and sense of natural grace by Mr. Palgrave, whose skill has been noted before by us on account of a monument in Reigate churchyard. It would be impossible to praise too highly the subtle beauty of outline, the quiet loveliness of the curves, and the wealth of delicate contours which appear in this remarkable specimen of modelling.

FOLIATION AND FLOWERING OF TREES.—Mr. T. L. Plant has published in the *Medical Times* the following table, from nineteen years' observations, showing the earliest and latest dates on which the foliage or blossom of various trees has commenced expanding, compared with the same observations in 1867:—

	Earliest.	Latest.	1867.
Balsam Poplar (<i>Populus balsamifera</i>)	March 6	April 19	April 15
Larch (<i>Abies Larix</i>)	March 21	April 14	April 14
Horse-chestnut (<i>Aesculus Hippocastanum</i>)	March 17	April 19	April 19
Sycamore (<i>Acer Pseudo-platanus</i>)	March 23	April 23	April 25
Damson blossom (<i>Prunus domestica</i>)	March 23	May 13	April 17
Lilac (<i>Tilia europaea</i>)	April 6	May 2	April 30
Beech (<i>Fagus sylvatica</i>)	April 19	May 7	May 1
Spanish chestnut (<i>Castanea vesca</i>)	April 20	May 20	May 4
Oak (<i>Quercus robur</i>)	April 10	May 26	May 3
Ash (<i>Fraxinus excelsior</i>)	May 13	June 14	May 16
Mulberry (<i>Morus nigra</i>)	May 12	June 23	May 16

THE MANGROVE.—At the last ordinary meeting of the Royal Botanic Society, the Secretary reported that the society had received several young growing plants of the mangrove (*Rhizophora Mangle*) from the West Indies, the first that had been brought to this country alive. They were indebted for their safe arrival to the great care taken of them by the officers of the Royal Mail Steam Packet Company.

CURIOUS ALLEGED DISCOVERY IN FLORICULTURE.—A Correspondent writes as follows: "I see many notices in the papers of wonderful discoveries in horticulture addressed to the *gobemouches*. I observe that you treat these as they deserve, and I am very glad you gave Mr. Heselton a word of good advice respecting his wonders. I have cut the enclosed from the *Gardener's Magazine* of Oct. 3, 1863; if reprinted, I think it might serve to put the public on their guard against a contemplated scheme of swindling respecting which rumours are afloat."—It is said that Mayor Tiemann, at his paint factory at Manhattanville, has accidentally made a discovery which threatens to revolutionize horticulture. One of the factory hands having thrown some liquid green paint, of a particular kind, on a flower-bed occupied by white anemones, the flowers have since made their appearance with petals as green as grass. The paint had in it a peculiar and very penetrating chemical mixture, which Mr. Tiemann has since applied, with other colours, to other plants, annual, biennial, and of the shrub kind, "the result being invariably that the flowers so watered took the hue of the liquid deposited at their roots." By commencing experiments early next year, during seed-time, and applying different colours, we shall, no doubt, soon be enabled to "paint the lily." This, however we can personally testify—that charcoal put to the roots of dahlias and other flowering plants will redder them vividly, flowers nearly white being thus turned to a deep red, sometimes altogether, and sometimes mixed with a little lighter hue in half-a-dozen varieties, from one and the same root. It has been repeated, and with success, for several seasons in France, having admittedly been tried there in consequence of reading the paragraph. [The reader is requested to notice that this "strange story" comes from the western side of the Atlantic.—E.D.]

BRIE COMTE ROBERT ROSE SHOW.

This exhibition, notices of which have appeared in several of your contemporaries, came off on Sunday and Monday, and was, in some respects, a very different affair to what might have been expected from the accounts of it which have been spread abroad. Brie Comte Robert is situated in a very pleasant country, twenty miles or so from Paris—a country without hedges or walls or ditches, yet picturesque and pretty, from the number of fruit trees dotted over the land, and with the ears of ripening wheat bending into the straight well made roads—a country with rich sandy loam and gentle hills like parts of Kent, but for the main part covered with wide level spreads of wheat and vines. Brie Comte Robert is an ordinary and rather straggling little French town, with an interesting old church, traced with the beautiful art of the olden time, and gray with the lichens of a thousand years; and, finally, Brie Comte Robert has a *fête* and rose show, as all the world has been informed of late. The rose show, although pretty and remarkable of its kind, is not quite a marvel, but simply an adjunct of the village fair. Now, the *fête* of a small place like this is not, at first sight, or when examined in detail, a thing to be enraptured with. Imagine a grassy yard or small field, in the centre of which are a few tables and the small hut of a person who divines the future; and here, and all around, a lot of small, meagre, clout-covered tents occupied with various things, from temporary restaurants and ginger-bread stalls down to diminutive hilliards and little dodges where the yokels of the district invest a sou a time, and now and then win a little work of srt worth about a centime. Imagine, in short, the mildest and smallest corner of Donnybrook fair with every drop of "divilmint" squeezed out of it, and you have a pretty good idea of the sight that greeted my eyes as I entered the show-yard of Brie Comte Robert.

But at one end there was a very large oblong tent, and on entering that a very different sight presented itself. There all was fragrance and beautiful colour. The roses were all arranged on the ground, in a bed about six feet wide around the interior of the tent, and many rows deep, each kind being generally inserted in a little earthenware bottle—the sandy bed which had been thrown up covered with young green barley, sown ten days or so before; and the effect was very pleasing. It was, indeed, better than when we see them arranged on tables or stages. In the centre of the tent were several raised beds and borders covered with roses plunged in moss, and busts of the Emperor and Empress of France. These central beds looked distinct and pretty, from being composed of fine red roses margined with a line of white ones, and *vice versa*. It would be wearisome and useless to give the names of the endless varieties shown. Suffice it to say, that the exhibitors (who are mostly people who grow roses largely to sell to Parisian nurserymen) emulated in quantity rather than in quality—one cultivation showing as many as 600 varieties of roses. Of course, the cultivation of such a number implies the keeping of a great number of very bad sorts. Any good rose shown is to be had abundantly in England, for as soon as a good one is raised in France a stock of it is secured by English rose growers. Quantities of the fine rose Maréchal Niel were shown, a variety which has long since been recommended in your columns, and is now becoming universally diffused. There was, however, one distinctly new rose shown—Clémence Raoux. It is in colour that it is peculiar, being of a rosy pink suffused and marbled with white, so that it looks like some camellias. This is all that requires to be said about this much-talked-of show.

VERTUMNUS, in "The Field."

LEICESTER HORTICULTURAL SHOW.

Leicester show was held July 9th and 10th, on the race-course. Though there is plenty of room, the race-course is not the place for a flower show, for there is not a tree or vestige of shade of any description; the ground is rough as a fallow field, and the expense of boarding the ground round is enormous. I think there are gentlemen in the neighbourhood of Leicester who would willingly let the show be held in their paddocks or parks, which would save all, or a great part, of the expense of fencing, and be a treat to the inhabitants of Leicester besides. The show was not a large one, but the productions were very good upon the whole. Class B, for amateurs, showed a very great falling off; and Class A (cottagers) was not so large as usual. The weather for once was beautifully fine; a wet day being almost certain for Leicester show, it was quite a treat, which brought many visitors, though not enough for so large a town, the receipts for the two days being only £165; and I think if there was a balloon ascent, or Mackney, or some attraction more than just the show, there would be a much larger attendance of visitors. This is a sensational age, and if we have not something new we are tired and dissatisfied. The following are some of the principal things exhibited:—Class C, for gentlemen's gardeners, 12 miscellaneous: 1st, Mr. Bolton, gardener to W. Worswick, Esq., with *Ananassa sativa variegata*, good; *Vinca oculata*, *Caladium Chantini*, good; *Stephanotis floribunda*, light; *Seafortia elegans*, *Medinilla magnifica*, with 32 spikes, fine; *Plumbago capensis*, *Erythrina cista-galli*, 9 spikes, good; *Maranta zebra*, not good; *Spherogyne latifolia*, beautiful; and *Caladium argyrites*, good. A good 2nd, Mr. T. Charlesworth, West Bridge Dye Works, with *Caladium Chantini* and *Bellemeii*, good; *Clerodendron Balfourii*, very good, with its beautiful bracts of Danish colours, and the only one in the show; *Allamanda Hendersonii*, fine; *Croton pictum*, *Plumbago capensis*, *Cissus discolor*, *Anthurium grandis*, good; *Rhynchospermum jasminoides*, *Ananassa sativa variegata*, rather stale; *Stephanotis floribunda*, and *Alcascia metallica*, fine.—6 Plants: 1st, Mr. Staples, gardener to J. Harriss, Esq., with *Lilium auratum*, *Hoya bella*, nice; *Maranta zebra*, *Caladium Chantini*, *Begonia parvifolia*, and *Stephanotis floribunda*. 2nd, John Thorpe, Littlethorpe.—4 Plants: 1st, Mr. Lambert, gardener to Capt. Pochin, with *Pteris longifolia*, *Caladium Wightii*, *Clerodendron fallax*, and the best *Rhynchospermum jasminoides* in the show. 2nd, Mr. George Geary, gardener to W. Brooks, Esq.—*Gloxinias* were shown by Mr. Bolton and Mr. Staples: 1st, Mr. Staples, with beautiful plants and well flowered of the following—*Loveliness*, *Majestic*, *Magnifica*, *Stellata*, *Sir Hugo*, and *Leon de Fremenville*, with 80 flowers. Mr. Bolton 2nd.—*Achimenes*: Mr. Staples 1st, with five plants of *A. Verschaffeltii grandiflora*, *longiflora*, *Dentonia*, *Carl Weltuth*, and *Dazzle*; Mr. Bolton a good 2nd.—*Pelargoniums* were shown nice and fresh for the lateness of the season: 1st, Mr. Lambert, with *Rose Celestial*, *Mudano Lemichez*, *Impératrice Eugénie*, *William Bull*, *Cloth-of-Silver*, and *Louis Miellez*. 2nd, Mr. Bolton; 3rd, Mr. Burton, gardener to C. Noon, Esq.—6 Bedding *Goraniums*: 1st, Mr. Bolton, with *Eugénie Mezard*, *Fireball*, *Vaucher*, *Christine*, *Golden Fleeco*, and *Lord Palmerston*. 2nd,

John Thorpe, with Jean Valjean, Clipper, Mrs. Pollock, Snowball, Gloire de Nancy, and Excellent.—3 Orchids: Mr. Brockhurst, gardener to A. Turner, Esq., 1st, with three of his Regent's Park heroes, viz., *Lælia purpurata*, *Saccolabium Blumei majus*, and *Aerides alfine*, all fine.—6 Ferns: 1st, Mr. Bolton, with fresh plants of *Adiantum formosum*, *Pteris argyrea*, *Blechnum corcovadense*, *Phlebodium aureum*, *Stenochleena scandens*, and *Adiantum cuneatum*. 2nd, Mr. Lambert.—6 Lycopods: 1st, Mr. Staples, with *formosa*, *cæsius*, *denticulata*, *stolonifera*, *Wildenovii*, and *compacta erecta*. 2nd, Mr. Bolton.—6 Fuchsias: 1st, Mr. Burton; 2nd, Mr. Evans; 3rd, Mr. Staples.

Fruit was well shown by Mr. Bolton, Mr. Sago, gardener to Earl Howe; Mr. Henderson, gardener to Sir George Beaumont; Mr. P. Draycott, and Mr. W. Draycott.

Cut Flowers were generally very good, roses particularly so for the very hot weather we have had, which formed one of the principal features of the exhibition. In the Nurserymen's Class, 48 Roses, open to all England: 1st, Mr. B. Cant, Colchester, very fine; 2nd, Messrs. E. P. Francis and Co.; 3rd, Mr. W. Draycott, Lumberstone.—24 Roses, gentlemen's gardeners, open to all England: 1st, Mr. R. Draycott, gardener to E. Strutt, Esq., Hallaton; 2nd, Mr. T. Draycott, gardener to T. T. Paget, Esq.; 3rd, Mr. Watts, gardener to Capt. Tibbitts.—24 Roses, amateurs, open to all England: 1st, Rev. E. N. Pochin, Sibley Vicarage, very fine; 2nd, Mr. E. Hunt, Leicester.—24 Roses, Class C (subscribers): 1st, Mr. W. Draycott; 2nd, Mr. T. Draycott.—12 Roses, Class B: 1st, Mr. Hunt; 2nd, Rev. E. N. Pochin.—6 Roses, Class A: 1st, Mr. Parker.—6 Roses, Class A: 1st, William Atkins. I cannot give the whole of the stands as shown, and if I could I think it would be trespassing on your space too much; and we have already had so many good stands, as shown at the different exhibitions, so I will enumerate the principal varieties: Anna de Diesbach, Beauty of Waltham, Baron A. Rothschild, Charles Lefebvre, Maytime, Doctor Andry, François Louvat, Jacqueminot, fine this year; La Brillante, Lælia or Louise Peyronney, Madame Boll, Madame Caillat, Madame Crapelet, Madame Wood, Madame Hector Jacquin, Madame Victor Verdier, Maréchal Vaillant, Pierre Notting, Séoateur Vaisse, John Hopper, fine; Victor Verdier, Ville de St. Denis, Baron Gonella, Souvenir de la Malmaison, Gloire de Dijon. New ones, or varieties not shown many times: Abel Grand, Alfred Colomb, very fine; A. de Rotalier, rough; Carl Coers, Claude Million, Comtesse de Chabriland, Duc de Rohan, Duke of Wellington, Duchesse de Caylus, Duchesse de Morny, Fisher Holmes, Denis Helye, Gloire de Vitry, King's Acre, La Tour de Crouy, Laurent Descourt, Lord Macaulay, Louis Magnan, Madame Brianson, Marie Baumann, Madame Knorr, fine in Cant's 48; Marguerite Dombain, ditto; Oliver Delhomme, Souvenir de Wm. Wood, Triomphe de Caen, Turenne, Xavier Delibo, Emotion, Michel Bonnet, not good as shown; Alba Rosea, beautiful; Devoniensis, fine in Rev. E. N. Pochin's 24; Adam, La Boule d'Or, L'Enfant Trouvé, Maréchal Niel, Souvenir d'un Ami, Vicomtesse de Cazès, and Triomphe de Rennes.

Verbenas were shown by Mr. Lambert, Rev. E. N. Pochin, and John Thorpe; Pansies, by the Rev. E. N. Pochin and Mr. Broughton; Pinks, by Mr. J. D. Hextall, Mr. Mason, and Rev. E. N. Pochin; Sweet Williams, Rev. E. N. Pochin and others; Ranunculuses, by Mr. J. D. Hextall. Vegetables made a tolerably good exhibition in all classes.

Miscellaneous.—Mr. Brockhurst showed a large group of plants, of which the judges thought nothing at all, though it contained the following orchids, many of which Mr. B. showed, and was first with, at Regent's Park, besides other plants, which altogether made a very interesting feature in the show. But what a pity to let private feeling sway in honest rivalry! The orchids were, *Odontoglossum hastilabium*, 4 spikes; *Cypripedium barbatum*, 38 flowers; *Cattleya Dowiana*, 2 flowers; *Aerides odorata* and *odorata purpurea*, *Larpenæ*, *Saccolabium guttatum Holfordii*, *S. guttatum oncidium*, *Papilio majus*, a new *Aerides*, not named; *Epidendrum cochleatum*, and *Odontoglossum citrosium*. Other plants were *Anthurium Scherzerianum*, with 3 of its coral-like flowers—thanks to Mr. Turner and Mr. B. for thus early bringing us this valuable novelty to look at; *Gymnostachys Verschaffeltii*, *Lilium auratum*, *Alocasia metallica*, *Thrinax elegans*, in the top of a tree-fern stump 5 feet high; *Pothos argyrea*, *Yucca quadricolor*, *Alsophila excelsa*, and many other plants, in all amounting to 50 or 60. Next in importance, Mr. J. F. Gardner presented beautiful skeleton leaves and dried flowers. I cannot describe their beauty; I only wish you had been there, so that you might have seen and believed. Mr. Watson, St. Alban's, showed his two very pretty tricolors, Miss Watson and Mrs. Dix, which were generally admired. Mr. Thorpe, of Leicester, showed his seedling tricolor and other geraniums, petunias, and verbenas, respecting which nothing can be said in this report, for reasons which the signature at the end will explain. Messrs. Hunt and Pickering had their Leicester vases, of which we ought to be proud to think Leicester can turn something out to the admiration of all.

Littlethorpe

JOHN THORPE.

HINCKLEY ROSE SHOW.

JULY 11TH.

This, the first attempt, was very successful, and it is intended to enlarge it next year, so that Hinckley may not be behind its richer neighbours. The show was held at Mr. Thomas Taylor's, White Hart Inn, which proved a decided success. Mr. S. Preston exhibited some nice healthy plants for decoration. Amongst them was the new double geranium *Gloire de Nancy*. Mr. Evaos, of Arbury, sent some very fine roses, and Mr. T. Payne, fuchsias—Blue Bonnet, Annie, Rose of Castille, which were greatly admired. Mr. Thorpe showed his new seedling Tricolor and other geraniums and verbenas, together with a box of roses. Mr. Taylor exhibited a collection of very fine potatoes, known as Bonser's Seedling, Milky White, Grant, King, Mona's Pride, Early Emperor, Wonderful, and Royal Ashleaf. Other persons sent cucumbers, strawberries, and flowers, which were very good indeed. The first and second prizes for twelve roses were equally divided between Mr. Hurst, Mr. Burbage, and Mr. Preston. Six roses, first class—1st, Mr. Hurst; 2nd, Mr. Preston. Six roses, second class—1st, Mr. T. Holwell; 2nd, Mr. T. Taylor; 3rd, Mr. Ross. Three roses—1st, Mr. Holwell; 2nd, Mr. Ross; 3rd, Mr. Taylor; 4th, Mr. Preston; 5th, Mr. Truslove. Twelve strawberries—1st, Mr. Truslove; 2nd, Mr. Knight; 3rd, Mr. Brocklehurst. Mr. J. H. Ward sent three dishes of very fine strawberries, which unfortunately came rather late, and which were awarded an extra first prize. The roses shown were in very fine condition. The judges were Mr. J. T. Cotman and Mr. John Thorpe, of Leicester.

LOUGHBOROUGH HORTICULTURAL EXHIBITION.

This was held in the Grammar School grounds, July 17th, and was undoubtedly one of the finest exhibitions ever held in the Midlands. They have, in the first place, beautiful grounds; second, a very liberal prize-list; and, thirdly, the committee are good caterers for the public—I wish I could say, and for the exhibitors. Mr. Jackson, of Derby, made a successful balloon ascent in his "Zodiac," and the band of the Coldstream Guards was engaged for the day. The weather was not so favourable as could be wished, showers falling often during the afternoon and evening; but still the visitors poured in, and I have no doubt the receipts will be heavy. Last year, with a fine day, £263 was taken at the doors. As I said, I wished exhibitors were as well cared for. Those that came from a distance and were there early had to move their plants no less than three or four times, simply because forecast was not made for space before all the productions were there, which is anything but pleasant when one has been travelling all night. And there were no exhibitors' passes, so those who went out after once going in had to pay for readmission. I have no doubt it will be altered by another year if presented at the proper quarter. The principal exhibitors in the large classes were, for gentlemen's gardeners, Mr. Bolton, Mr. Peachey, Mr. Chell, Mr. Maclean, Mr. Spibey, Mr. Branson, Mr. T. Draycott, Mr. Henderson, and Mr. W. Smith; in the trade class, Messrs. Hickling and Son, Mr. J. Smith, Mr. Bowman, Mr. E. Smith, and Mr. J. Thorpe; in the amateurs', Rev. E. N. Pochin, Messrs. Foulds, Heafford, Pallet, Hood, Cartwright, Harriman, Giles, Perkins, Pickworth, Miss Hogg, Captain Dobell, — Palmer, Esq., &c. Cottagers were more numerous than any other class, and theirs was a very fine exhibition of itself, and the amateurs' was nearly equal to it. The gardeners made a grand display of plants, and their tent was the centre of attraction. Among the subjects shown the following were very fine:—*Caladiums*, all the established varieties; *Sphærogyne latifolia*, *Lilium lancifolium album*, *Cyanophyllum magnificum*, *Hibiscus Cooperi*, *Alocasia metallica*, and *Macrorhiza* var., *Croton*, *Cissus*, *Stephanotis floribunda*, *Cycas revoluta*, *Ananassa* var., *Plumbago*, fuchsias, acbimenes, cockscombs, pelargoniums, balsams, geraniums, petunias, ferns, lycopods, &c. The trade class was not so large, though there were good fuchsias, geraniums, balsams, cockscombs, foliaged plants, &c.; and amongst cut flowers, roses, verbenas, bouquets, &c. Altogether one of the best exhibitions I have had the pleasure of visiting.

JOHN THORPE.

ANOTHER BED OF STOCKS.

On the 9th of March last (page 98) appeared a short paper on Stocks, in which I stated as clearly and as briefly as possible the routine followed in the experimental garden at Stoke Newington, to secure a display of double flowers. The principal object of that paper was to show that the simplest method of growing stocks is the best, and, with the flowers before me as I write, I am quite satisfied with my system, but at the same time anxious to avow that other methods adopted by other people are equally successful. My neighbour Mr. Chitty came to see my stocks, and invited me to go and see his. It is a fine old custom that of florists visiting each other; for, to say nothing of the immediate pleasure and benefit, it tends directly to keep alive the kindly feeling and spirit of generous self-sacrifice which establish floriculture amongst the humanities without regard to professors of moral philosophy. Well, I went to see Chitty's stocks, and found them forming a very pretty border in two close lines; the front line white, the next line back the sort called "lilac shaded rose," a pleasing shade of colour. These two lines of stocks have been very gay since the 1st of July; they were at their very best about the 8th, but they will continue to flower till October, and may be kept clean and bright by simply clipping off the withered spikes and the seeds. In my paper on "A Bed of Stocks," I named March 20th as the best day for sowing the seeds of the Ten-week class. Mr. Chitty always sows in the middle of January, in a moderate heat, and goes on with the cultivation the same as with any other sort of bedding plant, having them strong in pots by the end of April for planting out. Looking at his two rows, I must confess they appear to be as good as it is possible to grow stocks in this country, and better far than they are commonly grown. Selecting one plant as a type, I find it to stand nine inches high, and to form a round compact bush about nine inches in diameter, with thirteen very large and beautiful spikes of flowers. To say that the border is well dug and liberally manured previous to planting is needless, for no man worthy of enjoying the fragrance of a stock would deny it the little labour required to grow it to perfection. These two collections—Chitty's and my own—are not open to public inspection; but any of our London readers who wish to see stocks well done only need to visit Mr. John Fraser's Nursery, Lea Bridge Road, and they will be able to judge for themselves if the late sowing and planting small system is of any value, for the system propounded in the GARDENER'S MAGAZINE of March 9th last is that followed in the Lea Bridge Nursery.

Immediately after the publication of the article referred to, a correspondent, "S. B.," proposed a method of distinguishing double from single stocks while the plants are in the seed-leaf, or very soon afterwards. You will find his communication at page 117 (March 16, 1867), and the essence of it is that the plants which intend to produce double flowers show from the first a bunch of fibrous roots; but those which intend to produce single flowers show from the first tap-roots, or, as our correspondent described them, "carrot roots." We gave the communication in the writer's

own words, carefully abstaining from committing ourselves to any opinion upon it. Experienced readers of horticultural journals must be quite hardened to alleged discoveries of this sort. I think I can call to mind at least a dozen different proposals for distinguishing double from single stocks while the plants are in the seed-leaf; but we have never heard of any one who could carry out a system of cultivation based on any of these proposals to a perfectly successful issue. I put no faith at all in "S. B.'s" method; but it was so directly in our way to try it that on the very day it appeared, I took the seed catalogue (No. 131) of Messrs. E. G. Henderson and Sons and marked off a few varieties of stocks for the experiment, sent with the list the sum of 4s. 3d. in postage stamps, and obtained the seeds through the post a few days afterwards. The sorts ordered were those entered in the catalogue at pp. 49, 50, as Intermediate Hybrid Scarlet (No. 120), German Ten-week lilac shaded rose (No. 137), German Ten-week blood-red (No. 140), Large-flowering Globe citron-yellow wallflower-leaved (144), English Ten-week (145), White wallflower-leaved Ten-week (148). On the 29th of March the seeds were sown in pans, and placed in frames. In due time the plants acquired four or five leaves each, and we carefully sorted them in respect of roots, according to the formula of "S. B." I think it proper here to remark that I never do a thing of this sort alone: I make it a rule to have a practised hand and eye to help whenever there is something to be done out of which hereafter might arise any matter for dispute. So the stocks were sorted by two persons, both agreeing that the roots were easily distinguishable, some being decidedly fibrous, and some decidedly carrot-like, and very few indeed in such an intermediate state that there could be any difficulty as to which class they should be assigned to. Two borders were planted with them—the tap-roots in one, the fibrous roots in the other. Every clump was labelled with its number, character, &c., &c. They are now in bloom; and the cultivator who is not by long experience prepared for the result will be curious to know if in one border we have all double flowers, and in the other all single ones. Such should be the case were the rule given by "S. B." of any practical value. I should value it if amongst the fibrous-rooted we had a larger proportion of doubles than amongst the tap-rooted; for a larger proportion would be a gain at once, and a key to further gain by some expansion of the system. Well, the result? I am bound to say that all through the two lots we have double and single flowers in as nearly as can be the same proportions. By "the same proportions," I mean in reference to this selection of their roots; for, as to the whole bulk, double flowers largely predominate, and they are as fine a lot of stocks as can be desired, produced, it will be remembered, in the simplest possible manner. Some of the very finest are the "English Ten-week Scarlet," No. 145 in the catalogue (1867); the spikes are large, the flowers round and thick, like model rosettes, and the colour such as in a rose we should call "rich purplish rose," but which in stocks we call "scarlet." But I repeat that all are good, and the wallflower-leaved yellow varieties extremely pretty, though the colour is the palest primrose, certainly not "citron yellow." That there are single flowers amongst them is not to be denied; probably a bed or border comprising double flowers only in any quantity was never seen, except where pains had been taken to draw out the singles the moment they betrayed their character by their pointed buds. We have left all to grow, single and double; and the English Ten-week is conspicuous amongst them for size, colour, doubleness, and compactness of habit.

I want to know what is the exact proportion of double to single in plants properly grown from good seed. Having counted 80 plants in Mr. Chitty's row of white stocks (all that were planted having been left to flower, because blanks would not be allowed), we found there were 43 double and 37 single; and the double ones were so exceeding fine that, viewed from a moderate distance, the row appeared to consist of doubles only. We appear to have about one-fourth single and three-fourths double, which is a better state of things than Chitty's; but his best plants beat our best plants by just so much as we might expect from the advantage they have had of a longer season for growth previous to flowering. Of course, where the thinning process is carried out, we can learn nothing as to the average proportion of single and double, because they get rid of every single one the moment they detect its character. This plan is adopted by Mr. Fraser, and hence in his beds we see doubles only, or at least the occurrence of a few singles is a matter of mere accident.

Some of our stock-growing readers will object to the sowing of Intermediates on the 29th of March, or on the day we consider the best for the Ten-week varieties, March 20. But I always sow a few of those and the good old Brompton at the same time as the Ten-weeks; but reserve the main sowing of Intermediates till the 20th of July, on which day I like to sow them on ground as hard as pavement, on which has been laid about four inches of nice mellow soil. If we lose the 20th of July (a very possible occurrence where there is always an excess of work), the seeds are sown

in pans and kept in frames to make up for loss of time; but Intermediates should be sown everywhere between the 15th of July and the 10th of August. Whether sown on hard ground or in pans, they ought to be all potted off before winter, and be quite established in their pots before the turn of the year; but be wintered as cool as possible, and as soon as they begin to grow in spring have all the encouragement possible to promote free rooting in a generous soil, and a dwarf sturdy habit. Starving practices, such as using sandy soil of a poor nature, cramping the roots, &c., &c., tell upon stocks as much as upon any soft-wooded plants in our gardens; they must be generously treated, or they are not worth a place in any pot or border. But treat them well, and I think you may obtain from any seed, English or German, fine plants; the final character being, I believe, not the result of any peculiarity in the seed, but the result of vigour imparted to the plant by a generous system of cultivation. But my belief may be wrong; no man's belief is worth much. As a matter of fact, there can be no question that good stocks are only to be obtained by good cultivation, and there is no golden key at present known for distinguishing either in the seed or the young plant the double and the single varieties from each other.

S. H.

THE PROPAGATION OF VERBENAS AND SCARLET GERANIUMS.

THE flower garden for the season has not yet arrived at its climax of brilliancy; but notwithstanding that it is time we should be on the alert in the way of propagating and preparing for the ensuing year's supply: though, amidst the uncertainty of life's journey, it is possible that the hand which now wields the knife and directs the plans may not witness the result of its labours.

The majority of us adopt a mode of propagation which we conceive best adapted to the circumstances to which we are subject, and though our peculiar methods vary, yet we all more or less succeed. Perhaps there is nothing more difficult among the bedding plants to get the cuttings to root (if the operation is deferred beyond this month) than verbenas, although so comparatively easy to strike in the spring. What, then, may be the cause? Why, after this period the plants show such a disposition to flower that you are at some trouble to get cuttings that will strike; and besides, the wood becomes hard and thready, and in many instances infested with insects; for should dry and hot weather prevail for any length of time, such varieties as Purple King and others quickly become a prey to the attacks of red-spider and thrip, so that if you are anxious to procure healthy cuttings, the present is the season. Besides this, the operation will now cost about one-fourth the time and trouble than if further delayed. The simplest—and maybe one of the best—means I ever saw employed for economising space and time in the work of propagating, was by a young gardener who had the charge of a small but well furnished garden. His plan was to slightly stir with a fork the soil in the trench that divided the asparagus beds. On the space required for his purpose he would strew some coarse river sand about two inches in depth; into this he would dib all kinds of soft-wooded bedding plants in patches (except geraniums and calecolarias); and certainly they did root very readily. The growing shoots of the asparagus form a capital screen against the scorching rays of the sun, but at the same time admitting sufficient light and air for the benefit of the cuttings as they progressed. Of course, we do not at this season of the year consider that cuttings of bedding plants need the assistance of bottom heat to enable them to root. Thus, if you wish to use your spare box-lights, you may prepare a bed in the way recommended above, on the earth-level, for the reception of such cuttings as verbenas, &c. I would make choice of a spot that is well sheltered from the scorching rays of the midday sun. Having dibbed in as many cuttings of verbenas or other kinds as you may desire, in accordance with the space at your disposal, then gently water them and keep them close till rooted, only admitting air on fine mornings for the purpose of drying them. Let them have a sprinkling from a fine rose occasionally at the close of a very hot day. Remove all flowers and decayed leaves as they make their appearance, and otherwise keep them clean; as from being kept in a close atmosphere they are liable to damp off. Should mildew appear, dust them slightly with powdered sulphur.

Owing to the great pressure of labour in maintaining the outdoor work in good order, we are apt to postpone the propagation of the scarlet and other geraniums till some two or three weeks hence; then it is we sadly disfigure the beds by the slaughter we make in seeking to obtain the requisite quantity of cuttings. Although they will strike readily out of doors from the present time till the latter end of next month, yet if you desire strong plants, and to preserve your beds somewhat intact, then don't delay, but commence at once by securing some strong cuttings of the variegated kinds. The best of them I would recommend to be put singly into 60-size pots, and stood close together out of doors in a rather shady spot till rooted, when allow them more room to

strengthen their growth. That you may not spoil the beauty of the beds, it is best to allow an interval of a few days to elapse betwixt the periods of your procuring the cuttings. Some gardeners insert the most of their cuttings of scarlet geraniums in a prepared bed out of doors; for myself, I am rather opposed to that plan, unless I have plenty of convenience when potted for housing them during the winter months, as the most of us are somewhat cramped for space till the chrysanthemums and other late autumn-flowering plants are removed. The system of propagation that I pursue with scarlet geraniums is to insert a dozen or more cuttings in a 32 or 6-inch size pot, well drained. From the period of housing them to that of commencing to pot them off singly, which is about the latter end of January or beginning of February, I give them but just sufficient water to preserve their health. Previous to potting them their leading shoots are stopped, so as to cause them to be bushy.

The variegated varieties are very susceptible of the least damp. It is always best to store them away in the driest and most airy part of the house, and where they can have abundance of light. Almost every person has his favourite variety; but there are some sorts, such as Bijou, that are very strong growers. Those whose gardens are small should confine the increase of their stock to plants that possess a robust habit. Although there are numbers of good varieties constantly being introduced, yet we cannot afford to dispense with some of the older sorts, such as Alma, Countess of Warwick, Silver Chain, and Flower of Spring. But the selection of varieties is a wide subject, and I am content with having made a few practical suggestions on propagating.

JOHN F. McELROY.

LATE AUTUMN VEGETABLES.

Amongst the many cares that devolve upon the gardener, that of securing a good supply of vegetables of various kinds late in the autumn, is one of no small account. I have been thinking, Mr. Editor, that if the old man with the blue apron was to give a short paper containing the principal details of the system which he adopts to secure a good supply of late vegetables for a large family, it would perhaps be useful to some of the numerous readers of the GARDENER'S MAGAZINE. So, having a spare half-hour to-night, I have sat down with the intention of doing the best I can to make your readers understand, by my poor writing, the principal points to be attended to. But first of all, let me say that I hope every good reader will pardon me for being absent from these pages the last few weeks, for I have not been a willing absentee; a press of work and other important matters have kept the old man so much upon his legs of late, that he has not been in a condition for writing, and this must be my excuse for not being more regular with my communications, which I must confess would be a bad recommendation, if I wished to gain an appointment as a regular correspondent. But as I have passed so many years in this vale of tears, I know I cannot aspire to so honourable a position, and perhaps this makes me careless. But this is wandering wide from my subject, which I will now commence with all the earnestness that I can bring to bear upon the goose-quill.

Broccoli.—And first I shall say something about the Walcheren broccoli for a late autumn vegetable. I sowed a good breadth of this early in June, a fortnight behind my usual time, and to make up for this I sowed in a nice, kind, rich soil, in a cold frame. For some days it was kept moist by shading, until the seed vegetated, after which it was carefully attended to, and the plants are now getting quite strong; in fact, they will be ready by the time I want them, as I require them to take the place of a second crop of peas which are standing upon a south border. The peas are now ready to come away, but we shall not be able to manure and dig the ground for another week, so it will be near the end of the month before the plants can go out. This will be soon enough, as I do not want them to come into use before October, and I anticipate that they will carry me on to near or quite Christmas. Now, there is not time for your readers to raise plants so as to get a crop to come in at the same time as these, but they may beg or buy plants, and if planted out by the first week in August, in a rich deeply-stirred soil, they may safely reckon upon a fair supply of late autumn broccoli.

French Beans.—Then I require dwarf French beans as late as they can be had without forcing, and I will tell you how I manage it. We have a lean-to orchard-house, one hundred feet long and forty feet wide. Along the front of this I shall, about the 4th of August, sow a row of the Newington Wonder dwarf beans. If these are merely protected from frost, they will carry the supply on quite three weeks beyond those out of doors. If I had not this convenience, I should sow in a brick pit, or cold frame, about the same time. I should not put the lights on or give them any covering until the cold nights of October commenced.

Late Peas.—In deep rich soils late peas will go on far into October, but they must have liberal culture. It is no use to sow

them upon a hard battered surface; they want a deeply-stirred and highly-manured soil, and if dry weather occurs during the month of August, each side of the rows should be stirred up with a fork, and a copious drenching of manure-water given them, and then a heavy mulching of dung put on to confine the moisture. This and the avoiding of thick sowing is the only preventive against mildew.

Vegetable Marrows.—Sow some seed at once if you want them late, and plant out—or rather sow where they are to stand is the better plan—and, as soon as the cold nights of October approach, put a two or three light box or frame over them. This will help them amazingly, but it is no use to attempt to coddle up old exhausted plants.

There, Mr. Editor, the old man's fingers are too stiff to write any more to-night, so he will close this short article with a hope that it may be useful. THE MAN WITH THE BLUE APRON.

THE UNIVERSE.

A DREAM, BY JEAN PAUL F. RICHTER.

I had been reading an excellent dissertation of Kruger's upon the old vulgar error which regards the space from one earth or sun to another as empty. Our sun, together with all its planets, fills only the 31,419,460,000,000th part of the whole space between itself and the next solar body. Gracious heavens! thought I, in what unfathomable abyss of emptiness were this universe swallowed up and lost, if all were void and utter vacuity except the few shining points of dust which we call a planetary system! To conceive of our earthly ocean as the abode of death and essentially incapable of life, and of its populous islands being nothing greater than snail-shells, would be a far less error, in proportion to the compass of our planet, than that which attributes emptiness to the great mundane spaces; and the error would be far less if the marine animals were to ascribe life and fulness exclusively to the sea, and to regard the atmospheric ocean above them as empty and untenanted. According to Herschel, the most remote of the galaxies which the telescope discovers lie at such a distance from us that their light, which reaches us at this day, must have set out on its journey two millions of years ago; and thus by optical laws it is possible that whole squadrons of the starry hosts may now be reaching us with their beams which have themselves perished ages ago. Upon this scale of computation for the dimensions of the world, what heights and depths and breadths must there be in this universe, in comparison of which the universe itself would be a nihility were it crossed, pierced, and helted about by an illimitable wilderness of nothing! But is it possible that any man can for a moment overlook those vast forces which must pervade those imaginary deserts with eternal surges of flux and reflux, to make the very paths to those distant starry coasts voyageable to our eyes? Can you look up in a sun or its planets their reciprocal forces of attraction? Does not the light stream through the immeasurable spaces between our earth and nebula which is farthest removed from us? And in this stream of light there is as ample an existence of the positive, and as much a home for the abode of a spiritual world, as there is a dwelling-place for thine own spirit in the substance of thy brain. To these, and similar reflections, succeeded the following dream:—

Methought my body sunk down in ruins, and my inner form stepped out apparelled in light; and by my side there stood another form, which resembled my own, except that it did not shine like mine, but lightened unceasingly. "Two thoughts," said the form, "are the wings with which I move; the thought of *here* and the thought of *there*. And, behold, I am yonder, pointing to a distant world. Come, thou, and wait on me with thy thoughts and with thy flight, that I may show to thee the universe under a veil." And I flew along with the form. In a moment the earth fell back behind our consuming flight into an abyss of distance; a faint gleam only was reflected from the summits of the Cordilleras; and a few moments more reduced the sun to a little star, and soon there appeared nothing visible to our system except a comet, which was travelling from our sun with angelic speed in the direction of Sirius. Our flight now carried us so rapidly through the flocks of solar bodies—flocks past counting, except to their heavenly Shepherd—that scarcely could they expand themselves before us to the magnitude of moons before they sank behind into pale nebular gleams, and their planetary earths could not reveal themselves for a moment to the transcendent rapidity of our course. At length, Sirius and all the brotherhood of our constellations and the galaxy of our heavens stood far below our feet, as a little nebula amongst other yet more distant nebulae. Thus we flew on through the starry wildernesses; one heaven after another unfurled its immeasurable banners before us; galaxy after galaxy towered up into solemn altitudes before which the spirit shuddered; and they stood in long array through the fields of infinite space, like triumphal gates through which the Infinite Being might pass in progress. Sometimes the form that lightened would outfly my weary thoughts; and then it would be seen far before me like a coruscation among the stars, till suddenly I thought again to myself the thought of *There*, and then I was at its side. But as we were thus swallowed up by one abyss of stars after another, and the heavens above our eyes were not emptier, neither were the heavens below them fuller; and as suns without intermission fell into the solar ocean, like water-spouts of a storm which fell into the ocean of waters; then at length the human heart within me was overburdened and weary, and yearned after some narrow cell or quiet oratory in this metropolitan cathedral of the universe. And I said to the form at my side, "Oh, Spirit! has then this universe no end?" And the form answered and said, "Lo, it has no beginning."

Suddenly, however, the heavens above us appeared to be emptied, and not a star was seen to twinkle in the mighty abyss—no gleam of light to break the unity of the infinite darkness. The starry host behind us had all contracted into an obscure nebula; and at length that also had vanished. And I thought to myself, "At last the universe has ended," and I trembled at the thought of the illimitable dungeon of pure, pure darkness which here began to imprison the creation. I shuddered at the dead sea of nothing, in whose unfathomable zone of blackness the jewel of the glittering universe seemed to be set and buried for ever; and through the night in which we moved I saw the form which still lightened on before, but left all around it unilluminated. Then the form said to me in my anguish, "Oh, creature of little faith, look up, the most ancient light is coming!" I looked, and in a moment came a twilight, in the twinkling of an eye a galaxy, and then with

a choral burst rushed in all the company of stars. For centuries gray with age, for millenia hoary with antiquity, had the starry light been on its road to us; and at length, out of heights inaccessible to thought, it had reached us. Now then, as through some renovated century, we flew through new cycles of heavens. At length again came a starless interval; and far longer it endured before the beams of a starry host again reached us.

As we thus advanced for over through an interchange of nights and solar heavens, and as the interval grew longer and still longer before the last heaven we had quitted contracted to a point, and as once we issued suddenly from the middle of the east night into an Aurora Borealis—the herald of an expiring world, and we found throughout this cycle of solar system that a day of judgment had indeed arrived; the suns had sickened, and the planets were heaving, rocking, yawning in convulsions; the subterranean waters of the great deep were breaking up, and lightnings that were ten diameters of a world in length ran along from east to west—from Zenith to Nadir, and here and there where a sun should have been we saw instead through the misty vapour a gloomy, ashy, leaden corpse of a solar body, that sucked in flames from a perishing world, but gave out neither light nor heat; and as I saw, through a vista that had no end, mountain above mountain, and piled up with what seemed glittering snow from the conflict of solar and planetary bodies, then my spirit bent under the load of the universe, and I said to the form, “Rest, rest, and lead me no further; I am too solitary in the creation itself; and its deserts yet more so; the full world is great, but the empty world is greater; and with the universe increase its Zaarahs.”

Then the form touched me like the flowing of a breath, and spoke more gently than before: “In the presence of God there is no emptiness; above, below, between, and round about the stars, in the darkness, and in the light, dwell-th the true and very Universe, the sun and fountain of all that is. But thy spirit can hear only earthly images of the unearthly. Now then, I cleanse thy sight with euphrasy: look forth and behold the images.” Immediately my eyes were opened, and I looked, and I saw as it were an interminable sea of light—sea immeasurable—sea unfathomable—sea without a shore. All spaces between the heavens were filled with the happiest light; and there was a thundering of floods; and there were seas above the seas, and seas below the seas; and I saw all the trackless regions that we had voyaged over; and my eye comprehended the farthest and the nearest; the darkness had become light, and the light darkness; for the deserts and the wastes of the creation were now filled with the sea of light, and in this sea the suns floated like ash-gray blossoms, and the planets like black grains of seed. Then my heart comprehended that immortality dwelt in the spaces between the worlds, and death only in the worlds. Upon all the suns there walked upright shadows in the form of men; but these were glorified when they quitted these perishable worlds, and when they sank into the sea of light; and the murky planets I perceived were but cradles for the infant spirits of the universe of light. In the Zaarahs of the creation I saw—I heard—I felt, the glittering, the echoing, the breathing of life and creative power. The suns were but as spinning-wheels, the planets no more than weavers' shuttles, in relation to the infinite web which composes the veil of Isis; which veil is hung over the whole creation, and lengthens as any finite being attempts to raise it. And in sight of this immeasurability of life no sadness could endure, but only joy that knew no limit and happy prayers.

But in the midst of this great vision of the universe the form that lightened eternally had become invisible, or had vanished to its home in the invisible world of spirits. I was left alone in the centre of an universe of life, and I yearned after some sympathising being. Suddenly from the starry deeps there came, floating through the ocean of light, a planetary body, and upon it there stood a woman, whose face was as the face of a Madonna, and by her side there stood a child, whose countenance varied not, neither was it magnified as he drew nearer. This child was a king, for I saw that he had a crown upon his head, but the crown was a crown of thorns. Then also I perceived that the planetary body was our unhappy earth. And as the earth drew near, this child, who had come forth out of the starry deeps to comfort me, threw upon me a look of gentlest pity and of unutterable love; so that in my heart I had a sudden rapture of joy such as passes all understanding, and I awoke in the tumult of my happiness.

I awoke, but my happiness survived my dream. Oh, how beautiful is death, seeing that we die into a world of life and of creation without end! And I blessed God for my life upon earth; but much more for the life in those unseen depths of the universe which are emptied of all but the Supreme Reality, and where no earthly life nor perishable hope can enter.

PÆONY ROSES.

What showy things these pæonies are! and how comes it that they are not more generally cultivated? are everyday remarks in the flowery month of June, when they surpass all other hardy plants in the size of their blooms, while they yield to none in either the richness or variety of their colouring; and yet in most British gardens fewer herbaceous kinds are now to be seen than the eight which were figured and described by Queen Elizabeth's famous “Master in Chirurgerie,” in the “Herball or Generall Historie of Plants,” which he dedicated to “His Singular Good Lord and Master, Sir William Cecil, Knight, Baron of Burghley, Lord High Treasurer of England,” &c., and “to the courteous and well willing readers, from his house in Holborn, within the suburbs of London, this first of December 1597.” This home neglect of a magnificently conspicuous tribe of flowers is the more unpardonable, seeing that they are held in high estimation throughout the Continent; where improved varieties are annually raised and catalogued by the plant trade, few of which ever reach our shores, for the very conclusive commercial reason that here there is no demand for them. When urged to account for this anomalous treatment of pæony roses, florists avail themselves of some of the following or other equally untenable excuses in their own defence—viz., that their flowers are disagreeably scented, and only of short duration; that they are vulgarly gaudy, and only fit for decorating cart horses at village races, or when employed in rustic processions; that they take up too much room; that they have some injurious, or at least suspicious, qualities attributed to them which it is admitted have not been clearly defined; and that the climate of Britain is not so suitable for them as that in those parts of the Continent where they are grown and flowered in the greatest perfection. The flowers are, however, neither so disagreeably scented nor short enduring as is generally believed; but, on the contrary, those of some varieties of *Pæonia edulis*, as well as others, have rather an agreeable perfume; and, with a judicious selection of early, intermediate, and late sorts, a regular succession of them can be maintained for six or eight weeks, or until superseded by the scarcely less sized, and certainly not more agreeably scented, but more

highly favoured, flowers of the dahlia. That they should be considered vulgarly gaudy by any is a mere prejudice unworthy of refutation; and although most of the kinds are too large for growing in small flower parterres, this very quality fits them for situations suited for the showy magnificence of both their flowers and foliage, such as public parks and wide extended pleasure grounds, where free growing herbaceous plants are, or should be, profusely introduced by the sides of drives, and in many other suitable places. So far from possessing any injurious qualities, the *P. edulis* or *P. albiflora* of some authors and its varieties are used for food by the Dauria, Mongolian, and other inhabitants of its native regions, who boil the roots in soups and improve their tea by adding the ground seeds. The *P. officinalis* still maintains a place in the “Flora Medica,” on account of its seeds being emetic and cathartic, while its roots are reported to be anti-spasmodic. Early English herbalists recommend fifteen of the black seeds, taken in wine or mead, as being a special remedy for the nightmare and good against melancholic dreams—properties which need certainly create no alarm in admirers of the growing plant. This distrustful prejudice may have its origin in very ancient times, when the last species, or the *P. coralina*, and most probably hob, had wonderful and alarming properties attributed to them, for the *Baaras* of Josephus and the *Cynospastus* of other nearly contemporary authors was supposed to be a prony, the seeds of which shone at night like a candle, when they were gathered by the shepherd and others, but “the plant could not be plucked without danger, and he who first touched it, not knowing the nature thereof, perished; therefore a string must be fastened to it in the night and a hungry dog tied thereto, who, being allured by the smell of roast flesh set towards him, may pluck it up by the roots. Moreover, it is set down by Ælianus, Pliny, and Theophrastus, that the seeds must be gathered in the night, for if any man shall pluck of the fruit in the day-time, being seen by the woodpecker, he is in danger to lose his eyes!”

All the most showy species and varieties of herbaceous pæonies are admirably suited for the climate of Britain, and in most seasons the shrubby Moutan pæonies of China, or, at least, the hardier varieties among them, may be grown with equal success. Notwithstanding the very ungenial nature of the past spring, they are now to be seen in great perfection in many even of the most northern gardens, where ordinary care has been bestowed upon their cultivation. To ensure the universal admiration of these most magnificent of summer flowers, it is only necessary to introduce some of the first-class collections of both herbaceous and shrubby kinds from the Continent. Plant them on deep, rich, dry soil, of moderate or lightish texture, and give them plenty of room for their full development. If none of our enterprising nurserymen will do this; let it be effected by the managers of a few of our plant-decorated city parks, and they may depend that their success will soon induce numerous others to take up pæony culture. Nor let them be discouraged by some who will tell them that “their efforts will only result in failure, for we have tried it.” Some, we admit, have tried the introduction and cultivation of them; and after huddling the whole together, till the stronger overpowered the weaker, without allowing any room for developing their exuberant growths, they have generally decided on abandoning their culture, as being unprofitable, and consequently inexpedient.—*The Farmer.*

THE INFLUENCE OF FORESTS ON CLIMATE.

In the *Athenæum* of June 1 are two paragraphs bearing on this subject The first is as follows:—

We have frequently directed attention to the mischievous effects of the reckless cutting down of trees in France and southern Europe, where the climate becomes every year drier, and the soil is washed away by destructive floods, to the impoverishment of whole provinces. Warnings have long been uttered by competent observers, but in vain; a sort of rage for cutting down woods has prevailed for the last two centuries. But at length the people most interested—the inhabitants of the countries involved—have begun to open their eyes to the question, and a petition has been laid before the French Senate, which points out that the army might be employed in planting trees on the now barren hill slopes and plains. It would be something new to exercise soldiers in so peaceful and beneficial an undertaking, and we should be glad to see the experiment tried. Planting might prove more profitable than fighting; plenty would replace penury, and meteorologists would have the opportunity of witnessing a singularly interesting experiment.

The second paragraph refers to the Mauritius, and is in the following terms:—

During the past five years, the Meteorological Society of Mauritius have extended their system of observations so as to include twenty-two stations where the rain-fall is registered. Though the time is comparatively short since the system was adopted, some remarkable results have been obtained. At Cluny, a place in the south-east of the island, bordering on mountains and forests, the total rain-fall was, in 1865, more than 192 inches; at Gros Cailloux, 16 miles distant to the north west, the rain-fall in the same year was, omitting decimals, 36 inches. These figures give the highest and lowest quantity registered in Mauritius in the year. Another fact which has become apparent seems to strengthen the theory, much discussed of late, which shows a dependence between rain fall and forests. In some parts of the island, only a few years ago, a dry, cloudless day was of rare occurrence; whereas dry days are now frequent, and the cane-fields suffer from drought. Some of the rivers are much diminished in volume, and some streams have almost entirely disappeared; lakes and marshes are drying up; in consequence of which the yield of sugar-cane has decreased, and on some estates the cultivation has been abandoned. Other estates on the high ground near the edge of the forests, which were formerly considered too cold and wet for a good crop of canes, are now very productive. But with a continuance of the cause, it is believed that they too will become subject to the same effect. These, in the words of the report published by the Society, are “incontrovertible facts,” however they may be explained. And though there is no diminution in the rain-fall for the whole of Mauritius, the deficiency is great in districts in which “extensive denudations” have been made. It should never be forgotten that if forests have no other effect, they intercept some portion of the rain, and assist in preserving the humidity of the soil. When exposed to the full glare of the sun, springs and rivers dry up rapidly. Although these remarks relate to an island in the tropics, there is much in them that applies to our own island, where new theories of farming have of late years occasioned the destruction of miles of hedgerows and acres of timber.

BEDDING GERANIUMS.—No. XI.

Tricolors, Versicolors, Particolors, Tartans, or whatever else you mean to call them, fill a large place in the public mind just now, and for the next few years will run a pretty even race with the double-flowering kinds, which are in arrears in respect of relative popularity, but fast gaining ground, so that at the close of the present season we are likely to find them pretty even in the running. *Gloire de Nancy* will be the leader in the double class, as Mrs. Pollock is in the class of tricolors. Fashion is frivolous no doubt, but, apart from the frivolities and eccentricities of fashion, we are bound to regard the production of these two classes of pelargoniums as amongst the triumphs of modern horticulture, and to say with such plants before us that we live in an age of wonders, and man replenishes and subdues the earth, as he was commanded to do, as see Gen. i. 28. What shall we call these tricolors? It is hard to get rid of a name that has been generally adopted, and for that reason alone I should be content to classify them as tricolors, even though we may find half-a-dozen different tints in the leaves. The predominant are green, red, and yellow, or creamy white; the olive or black or brown of the zone contributes a powerful fourth element, shades of pink and brown contribute fifth and sixth elements, and a sharp eye may detect in the leaves of some a dozen shades, if old and young leaves are compared together, and the utmost is made of every tint perceivable. But the lovers of exactitude will not have the term 'tricolor' any longer, and it is far better to give way to them than to waste time in splitting hairs. The term which meets with most favour is ZONAL for the basis, and affix GOLD or SILVER to distinguish such as Mrs. Pollock from such as United Italy. This has the advantage of simplicity and perspicuity, and with the term lately adopted by the Floral Committee—namely, BRONZE ZONAL, for such as *Luna*—we may consider that we have the groundwork of a rational system of classification.

1. GREEN (or plain) LEAVED—Example, *Tom Thumb*.
2. ZONAL-LEAVED (dark zone)—Example, *Hibberd's Pet*.
3. NOSEGAYS (leaves green or zonal)—Example, *Stella*.
4. VARIEGATED (leaves margined white or cream)—Example, *Bijou*.
5. GOLDEN (leaves with yellow margins or yellow disks)—Example, *Golden Chair*.
6. BRONZE ZONALS—Example, *Luna*.
7. GOLD ZONALS—Example, *Mrs. Pollock*.
8. SILVER ZONALS—Example, *United Italy*.
9. DOUBLE-FLOWERED—Example, *Gloire de Nancy*.

We may divide and subdivide these hereafter; it is quite sufficient for the present to have a foundation to build upon; a big pigeon-hole, we may say, into which to thrust any and every variety we meet with, there to remain till we have time for further and more elaborate sorting. Let Nos. 7 and 8 for the present have a little of our attention, as this is the season to buy, and there are plenty to choose from in exact proportion to our means.

First of all, as to Properties, I can agree with Mr. Moore's code to a certain extent, but there is a point at which we part company. You will find his code in the *Gardeners' Chronicle* of May 18, 1867, very clearly stated, and in general tone and purport consistent with the habit of a man who observes and reflects much ere he speaks.* But the code fails, I think, at article 3, where he says, "The surface of the leaves must be perfectly flat, that is, neither concave nor convex, from contraction of the margin." I am led to this conclusion by observing that some varieties with convex leaves are extremely effective, for the convexity foreshortens the green disk, and places the margin and zone at more or less of an angle advantageous to the vision when we view the plant in a position below the eye. A concave leaf is of necessity most objectionable, for the disk becomes a dust-pan and impluvium, and the margin is foreshortened, and perhaps we see more of the under than the upper surface of the leaf—the back view of the elephant. If this be right, article 3 must be amended, and the attainable properties may then be stated thus:—

ATTAINABLE.

1. Plant of vigorous habit, stout and strong in growth, freely branching, and abundantly furnished with leaves set horizontally.
2. Leaf-colouring bright, distinct, and definite. The colours may be arranged radially, that is, in bars or rays proceeding from the centre, or in a regular series of orbs, circles, or arches, without radiate divisions.
3. The leaves must be circular, flat, or slightly convex, stout in substance, lasting long without change of colour. Concavity is a blemish; prominent lobes are a blemish; a very deep insertion of the leaf-stalk is a blemish.

POSSIBLE OR DESIRABLE.

4. The central disk may be green, and in that case should not occupy a space in diameter more than $1\frac{1}{2}$ times the breadth of zone

* A curious anomaly occurs in the article cited above. The writer says (p. 515 a), "It seems better to adopt [for the Tricolors, the more correct appellation of VARIEGATED ZONAL PELARGONIUMS." Elsewhere and everywhere Mr. Moore objects—and properly—to the use of the term "variegated" for any variety having golden-edged leaves."

and margin combined—e.g., if zone and margin measure 1 inch, the disk may be $1\frac{1}{2}$ inches. The central disk may be of any other colour than green, and in that case may occupy a space greater in diameter than $1\frac{1}{2}$ times the breadth of the zone and margin.

5. The zone may be of any breadth in excess of one-third the semi-diameter of the leaf, but must not be less than that. It may be an even segment of a perfect circle, or regularly waved, scalloped, or vandyked. It may be darkest or lightest coloured on the inner or outer side, but the colours must be bright, dense, decisive, and the boundary of the zone on both sides sharply defined.

6. The margin must be of one colour throughout, and that a clear dense colour, with none of the colours of the disk or zone breaking into it. When the disk is not green, it is desirable it should be the same colour as the margin, but any colour is admissible if effective and good of its kind. We may allow sixty points in all, namely thirty for attainable and thirty for desirable properties, and in the criticism ten will be the standard of perfection under every one of the several sections of the code. For the rest, knowledge and judgment are required; without these, codes are useless, and so we need say no more on this part of the subject for the present. We have got rid of Concolor, Bicolor, Tricolor, Versicolor, Particolor, and Tartan; got rid of Marbled, Whited, Radiated, and a heap of compound terms more hideous than the worst of the simpler kinds, and there is not a pelargonium of the great section of which *inquans* is the basis but may be put into one of our nine sections. Let us once more to the Tricolors, or, sticking to the new arrangement, to classes 7 and 8. We must at once make selections from the many varieties offered us, and find our way through a maze of entanglements to a few simple conclusions. It is as if we only wanted to walk to the next village, but must go through the Milky Way or swim through the nebula in the belt of Orion to get there. Well, let us pick out twelve of the newest, most distinct, and most useful of the Gold Zonals

A SELECTION OF TWELVE GOLD ZONALS.

Lady Cullum (E. G. Henderson)—Richest in shades of gold, yellow, and grass-green, with fine shades of red; a good grower, keeping its colour long, and in due time will be a bedder. Present price, 21s.

Lucy Grieve (E. G. H.)—Fine for the intensity of the red zone. Present price, 31s. 6d.

Sophia Dumaresque (E. G. H.)—In neatness of habit near fulfilment of the law of properties and regular balance of colours in disk, zone, and margin; one of the finest of all. Present price, 21s.

Meteor (Saltmarsh and Son).—Fine for properties, the leaf being almost circular and quite flat, zone rich in shades of red, margin fine chrome-yellow, very distinct, and fine constitution. 10s. 6d.

Queen Victoria (S. Perkins & Son).—Quite distinct and striking in colours, showing at a distance a blending of blue, scarlet, and gold colour, the disk being very dark or bluish green, the zone being fiery and the margin deep yellow. Will be a superb bedder. 10s. 6d.

Jetty Lacy (F. and A. Smith).—The form of the leaf good, the zone notable for splendid shades of chestnut, brick-red, and jet-black; makes a brilliant specimen. 42s.

Beauty of Surrey (F. and A. S.).—Margin brilliant yellow, zone rich amber with black shades and bars of bright carmine, small bright green disk; distinct and peculiarly rich. 31s. 6d.

Eclipse (F. & A. Smith).—Leaves rather too large, and too profoundly lobed, but the zone so rich in vermilion red that we must put up with the irregularities of form; a splendid variety, 21s.

Defiance (F. & A. S.).—Lemon yellow fading to straw colour, the zone carmine and black, with obscure patches of deep brown. There is so much blue in the red of the zone that when a fine plant is in fine condition there is a purplish hue perceptible, in pleasing contrast to the black, green, and yellow. 42s.

Mrs. Dix (Watson)—Very neat in habit, of medium size throughout, and coming near to win thirty in the three first sections of the code. Colours well balanced, growth good, and will in time be a bedder. 31s. 6d.

Louisa Smith (F. & A. S.).—Brilliant red, black, and gold colouring, and one of the neatest habited in growth. Worth a place, if only six were selected. 31s. 6d.

Titania (Carter & Co.).—Remarkable for the brilliant shades of red and the rich deep black of the zone, the margin being a beautiful shade of yellow. If we wanted only six, this must be one of them. 42s.

A SELECTION OF SIX SILVER ZONALS.

Queen Victoria (F. & A. S.).—Very neat in growth, margin creamy, sometimes pale sulphur, zone showing delicate and pleasing shades of red. 31s. 6d.

Princess of Wales (F. & A. S.).—Foliage large and abundant, margins creamy white, zones showing shades of black and purplish red; fine. 31s. 6d.

Impératrice Eugénie (F. & A. S.).—Showing as much colour as any of its class out; perhaps more colour than any of its class known. A slow grower, but constitution good, and safe for a bedder. 21s.

Caroline Longfield (E. G. H.).—A certain surpass of Italia Unità.

Wassand Hall Beauty (E. G. H.).—Peculiarly adapted for bedding, but as a pot plant not colour enough; the zone being a good shade of chocolate, with rather washy patches of rose. For elegant work in bedding invaluable. 21s.

Light and Shadow (E. G. H.).—A good zone on a good margin, peculiarly beautiful when in flower, and therefore well adapted for a specimen. 7s. 6d.

Between gold and silver zonals there is as great a difference as between gold and silver coins. As the white metal is the meanest of the two, so all the silver zoned varieties are weak, washy, ineffective, unsatisfactory, as compared with the best in the other section. But we must take the best we can get, and hope for better. Time will remedy this defect of the family of tricolors

SELECTION OF CHEAP VARIETIES OF GOLD AND SILVER ZONALS.

All obtainable at from 1s. to 2s. 6d. each.

Gold Zonals.—Mrs. Pollock, Sunset, Yellow Belt, Mrs. Benyon, Golden Defiance, Sunbeam, Socrates.

Silver Zonals.—United Italy, Honeycomb, Lady of Shallot, The Countess, Silver Star, Picturata.

A SELECTION OF FOUR NEW BRONZE ZONALS.

As no definite announcement has yet been made in respect of the sending out of Mr. Wills's series by Mr. Bull, I shall not attempt a selection. I know precisely which of them to vote for when they are all on offer, but to select in advance would be most imprudent. It is, however, quite impossible to touch this class without remembering that here Mr. Wills occupies a position parallel to that long since taken by Mr. Grieve in the gold zonal class.

Madeline Schiller (Carter & Co.).—If this is the same as was shown at the Crystal Palace on the 29th of June, it is a bargain at half-a-guinea, which I perceive is the catalogue price of it. The only reason, but a good reason, for doubt is that the variety I made notes of as one of the grandest of the Luna type was labelled "Schiller." This said Schiller, as shown on the 29th of June, is remarkable for the breadth, richness, and definiteness of its chestnut zone. One of the very best of this class. 10s. 6d.

Electra (E. G. H.).—A fine brown zone on a flat leaf; a free flowering variety. 10s. 6d.

Electric (Saltmarsh & Son).—In the way of Luna, with richer colours and heavier zone. Superb out of doors. 7s. 6d.

Venus (S. & S.).—Much gold and little zone, good habit, and flowering freely; very attractive and peculiar as a bedder. 7s. 6d.

A SELECTION OF CHEAP VARIETIES OF BRONZE ZONALS.

Luna, Beauty of Oulton, Bronze Queen, Goldfinch (useful only as a bedder), Canary Bird (useful only as a bedder), Mrs. Maxwell Hutton, Zingara.

The prices attached may prove to be wrong in many instances. I find the same varieties differ in catalogues of the same date so much as from half a crown to half a guinea, and in every case I have quoted the lowest figure. But there is a permanent element of delusion about prices. One house may appear extravagant in its charges, but the plants may prove to be worth all the money; and, on the other hand, some who go ahead in propagating manage to send out respectable samples at a very low price, considering what must be paid in the first instance for a few plants to cut from. We know very little yet of the constitutional vigour of the expensive kinds, for the simple reason that they are not allowed to grow. Very few cultivators can or will give them a chance. A plant that has its head cut off about once every six weeks all the year round can never show its capabilities fairly, and we cannot judge the high class zonals until they have had time to make themselves, under circumstances favourable to the formation of specimens, rather than to mere multiplication of plants. Seeing how hard they are propagated everywhere, we may say this of all of them—that they are better growers, and more vigorously constituted, than they have yet appeared. Mrs. Pollock had no constitution for some time after her advent, but now see what a growth is possible, and how surely it may be grown to perfection with but little more care than used to be bestowed upon Tom Thumb. Put fifty cuttings of Mrs. Pollock in a sunny border to-day, and on the 7th of September you ought to pot fifty good plants from that border. At all events, we can do so at Stoke Newington, and fairly conclude that other folks may do the same if they will but try.

S. H.

FLORAL.—There are two kinds of flowers which, although known to the world for years, have not appeared in the Gardener's Calendar—the Laughing Stock and the Post-t-Aster. The former is found in abundance on the first of April, and the latter may be heard of daily.—July.

CEYLON BOTANIC GARDENS.

Some time since, Mr. John Horne, Assistant-Director of the Botanical Gardens of the Mauritius, was despatched by the Government to Ceylon to inspect the plantations of Cinchonas, Teas, and Coffees, and to report upon them, with especial reference to the cultivation of these subjects in the Mauritius. His report has been published in full in the *Government Gazette*. As it is full of interest for our readers generally, and of immediate importance to many of our readers in the Colonies, we present the following abridgment:—

The Cinchona plantations are six miles from Newera Ellia, on the road between it and Badulla, and are about 4,500 feet above the level of the sea. They are surrounded on three sides by high hills, which open out towards the east and south-east, in which directions a beautiful view is obtained of the mountains about Badulla and the intervening grass-covered hills (Patna), with patches here and there of rhododendron, scrub and jungle in the ravines between the hills. The plantations face the north or north-east, and are partly sheltered from the south-west monsoon by the mountains, on the slope of which they are situated, and which rise in towering precipices for about 2,000 feet above and behind them, and are covered with jungle to their summits. From north to east they are protected from the dry north-east monsoon by high hills, which are also covered with jungle to their tops. Notwithstanding those natural protections, they do occasionally suffer from the wind which comes sometimes with almost hurricane force down the hills on which the plantations are, and along the pass through which the road from Badulla to Newera Ellia passes. A fortnight or so previous to my visit the plants had suffered severely from the gale, but were beginning to recover from its effects when I saw them. They had the appearance of being in good health and vigour, and were sending forth most luxuriant leaves and young wood. The soil in which they are growing is decayed vegetable matter, mixed with a large quantity of disintegrated gneiss. The surface is everywhere abruptly undulated and cut up with little ravines, which secure good drainage, a most essential point in Cinchona cultivation, for their hair-like and delicate roots soon rot, and the plant dies when they get into a marsh or badly drained soil. Across the slopes at short intervals canals are cut to carry off the water before it accumulates during heavy rains, and prevents it from carrying away the surface soil. Large blocks of gneiss are lying everywhere on the surface, which assist greatly in preventing the soil from being carried off, and prevents evaporation in dry weather. When the plantations were first made, the plan adopted in Java had been followed; clearing a place in the jungle for each plant, and planting them in the shade. The plants so situated grow well, but are lanky and drawn to reach the light and air, which are partly excluded below by the leaves and branches of the under scrub, and above by the leaves and branches of the trees. Not feeling satisfied with the appearance of the plants in the shade, a portion of ground (about eight acres) was cleared and planted, and the result is very gratifying indeed. In the ground so cleared, the plants are planted in rows, about eight feet apart, and about six feet from plant to plant. The cleared ground has been planted about four years, and the following is about the average height, &c., which the plants have attained.

Cinchona officinalis is eight feet, growing vigorously, flowering, and producing quantities of seed. Dr. Thwaites says that this kind would grow better in a colder climate than that of Hakgalle, and a few plants of it were tried at Newera Ellia, but they were killed by the frost in February, 1864.

Cinchona succirubra is about ten feet in height, and in excellent health. Some of the plants of this species have attained a height of about fifteen feet, and have stems of about four inches in diameter at the base; one or two plants of this species are, I am given to understand, coming into flower for the first time in Ceylon.

Cinchona paludiana has attained an average height of about five feet, the plants being as much in diameter; the base has a pyramidal shape, and is covered with beautiful luxuriant foliage and young wood, and a number of them are coming into flower.

Cinchona micrantha has in two years attained a height of about four feet, and are all in good condition.

The favourite kind of Cinchona in Ceylon is the *Succirubra*, which is planted to the extent of three to one of the *Cinchona officinalis* and the other kinds. It grows at a much lower elevation than any of the others, is hardy, easily propagated and transplanted, and yields a good percentage of alkaloid. It grows well from Peradenia (1,550 feet above the sea) to Hakgalle, and perhaps also beyond it.

All the kinds of Cinchonas that are in Ceylon are easily propagated by cuttings. At Hakgalle they lay out the cutting-ground in beds, three to four feet wide, in which the cuttings are thickly planted, and are protected from the wind, at the sides of the beds, by twigs stuck into the ground as thick as they will stick, and tied together at the top, about two feet from the ground, between two bamboos. They are protected from the sun by mats or palm-leaves. In this manner cuttings, carefully selected from hardy but not luxuriant grown plants, root and grow as freely as those of either geraniums or verbenas.

The mean temperature of Hakgalle for 1861 (I have the observations for that year only) is..... 64.6° Fahr.

Highest temperature..... 86° "

Lowest temperature..... 48° "

Greatest difference of temperature during the day.. 20° "

Rain fell that year on 198 days, but I have no register of the quantity. The rainy days were pretty equally distributed over each month of the year.

In Ceylon the tea-plant grows well, from the Botanical Gardens at 1,550 feet above the sea to beyond the coldest coffee regions, and from what I was informed tea will soon become an article of export from Ceylon. There are, I believe, about a hundred acres under cultivation, and an increasing demand for its seeds and plants, and information regarding its cultivation and manipulation. So much is this the case, that the Planters' Association is willing to bear one half of the expense of sending a man to India, if the Government will grant the other half, in order to obtain the desired information.

When the seeds are gathered, it is a good plan to throw them into a heap, and mix them with a little damp soil, and allow them to slightly ferment. As there are from one to three seeds in a capsule, fermentation rets it, and saves hand-picking to separate the seeds.

The seeds may be either sown at the stake, where the plants are to grow,

or in nursery beds prepared for them, and the plants afterwards transplanted.

If the former of these methods is adopted on a large scale, the labour in watering is very great, even were they sown at the commencement of the rains; whereas by the latter method, if the plants are planted when the rainy season has commenced, little watering is required, except in very dry seasons or sites.

The ground for the nursery beds should be drenched to the depth of one and a half feet, to allow the "tap root" to descend freely: the soil ought to be of such an adhesive nature as to admit of the plants being lifted with balls of earth at their roots. The beds should not exceed four feet in width, for convenience of watering, &c., and ought to be raised above the natural surface of the ground to prevent their being flooded during heavy rains. The most convenient distance for the seeds to be planted apart is about six inches, which will allow the plants to be lifted without injuring their roots. The place selected for the beds should have a free exposure to the sun and wind, which will make the plants hardy in growth, and they can then be freely handled when being transplanted. The seeds should not be covered with earth beyond an inch, and if a little litter is spread thinly over the beds it will prevent evaporation, and save watering, but it must be removed when the seeds begin to germinate.

The most convenient mode for a tea plantation is to have the plants planted in rows; but the distance between the rows and the plants in them might be regulated by the nature of the soil and the situation; five feet by four will, I think, be found convenient for most situations. At such a distance apart, holes should be dug at least two feet square, which will freely admit the roots of the plant without doubling them, which is injurious, especially when it is the "tap root" that is doubled. If the soil be poor, a little decomposed manure or crushed bones might be with advantage added. When the seedlings have attained a height of four or five inches, they may be transplanted, but if allowed to be a little older and stronger, they will not require so much attention and care.

Being anxious to receive information regarding the cultivation of the coffee, I visited the estates belonging to General Sir J. Cheap, and having been previously acquainted with the manager of two of them, Mr. W. Cameron, I resided with him for a few days, and made inquiries into the particulars regarding its cultivation &c.

The clearing of the ground of the jungle for a coffee estate is generally done by contract. When the trees are felled, those that are required for building purposes are selected and cut according to the size required; the others are allowed to remain on the ground until they dry, when they are set on fire. After all is consumed and the ground cooled, it is then laid out in rows, and holes are made to receive the plants. The distance between the rows varies from six to eight feet, and between the plants in the rows from four to six feet. Sometimes, but I believe seldom, the seeds are sown at the stake, and sometimes they are sown in nursery beds, and the plants are transplanted when they have grown four or more leaves.

These means are seldom resorted to when "stumps" from the jungle can be obtained in sufficient quantities. The ripe berries being carried to the jungle by birds, bats, and squirrels, and the pulp generally being the only part devoured, what with the shade and moisture of the woods the seeds quickly germinate, and thence young plants (stumps) can be obtained in most of the jungles in the neighbourhood of the coffee plantations.

The times selected for planting are at the breaking of the monsoons, when the rains begin to fall, and cloudy damp weather can be (comparatively speaking) depended upon to start the plants into growth.

At three years the plants begin to bear, and the yield annually increases, until the plants are about twelve years old. If well treated they will annually yield heavy crops for a long time. I was informed that some of the plants on Sir J. Cheap's estate, "Galapa," had been planted twenty-five years. They had no appearance of decline; on the contrary, they were in good health and bearing crops on an average of about eight or nine hundred weight to an acre, which is said to be a very good yield. The average yield of coffee per acre in Ceylon is said to be between five and six hundred weight; the latter figure is said by some to be too high an average.

Care has to be taken of the plant as it grows to keep it in a proper shape, and pruning has to be attended to at an early age. The coffee plant, like the peach, as a rule, bears its fruit on the wood which it has grown during the previous year. The pruning is done by the Malabars on the estate, immediately after the crop is gathered; the upright and cross-growing shoots are generally all that require to be cut out.

There are now no new cinnamon plantations laid out in Ceylon, and judging from what I saw, and the information I obtained from reliable sources, the greater part of the old ones are going to ruin. The soil in which the cinnamon is growing is almost pure sand, of a grayish colour. The plants are planted in rows about eight feet apart. It is cultivated and cut down in nearly a similar manner as oak copse in England. The cutting season happens twice a year, at the breaking of the monsoons. Only such suckers as have a light brown colour are cut, which might be termed thinning out. When cut the sticks are conveyed to the peelers, who take the bark off with a scimitar-shaped knife, round and blunt at the point for raising the bark, and sharp on the convex side for cutting the bark longitudinally on the stem. From the peelers the sizers take the bark and put the small pieces into the large ones, until they have an almost solid stick about three feet long. The bark passes from the sizers to the store where it is laid out, one stick thick, to dry in the shade, on racks made of coir, to freely admit the air all round it. The next process is to sort it into three qualities, and then make it up into hundles of about fifty pounds each.

I have heard it mentioned that it would probably be the best method to cultivate the *Cinchonas* in the same manner as the cinnamon and oak copse are.

The Royal Botanical Gardens at Peradenia are about four miles from Kandy, and they occupy a site which is said to have been a hunting ground of the Kandyan kings. They are about 150 acres in extent, and are bounded on three sides by the Mahawellaganga, which has, at the Gardens a width of about forty or fifty yards.

The surface of the garden is beautifully undulated, which gives a variety of scenery, and is sloping from the centre towards the river, the banks of which in some places are very steep. The soil of the gardens is generally very poor, almost gravel, but they enjoy a delightful climate for plants to grow in, which may besaid to do everything for them; the vegetation is beautiful and grand.

On one side of the drive from the main road to the garden gate are some splendid india-rubber trees, some of which are a hundred feet in height; and there are several other trees of the same sort in the gardens, larger in the trunk and taller.

On entering the garden, attention is called to a matchless group of palms, conspicuous among which is the "talipot" (*Corypha umbraculifera*), with its enormous leaves. The Singalose make mats of them, useful for constructing temporary dwellings and for other purposes. It is a most beautiful palm, attaining a great height, and when its leaves are fully developed it will have a diameter of about thirty feet.

Oreodoxa regia is here nearly forty feet in height, and bearing large quantities of seeds. *Borassus flabelliformis* (palmyra), second only to the cocopal in value to the native population, every part of the plant being made available for some useful purpose.

Next in height is *Caryota urens*, "Kittoolgass" of the Singalose. From the flowering stems of this plant toddy is drawn, from which a coarse kind of sugar is made by the Singalose. The wood is useful for building purposes. A good specimen of *Livistonia Mauritiana* (the "latanier" of Mauritius) is also to be found there, as well as others of great beauty and rarity.

To the right and left of the palm group are beds of scitamineous plants; behind them there are large flowery shrubs and trees, and in front of them showy-leaved Marantas, Caladiums, and a few beautiful annuals.

Leaving the palm group, and taking a walk, turning to the right, which leads to the "potting ground," the visitor passes through the spice garden, where there are some fine specimens of nutmeg, clove, and allspice trees.

After passing the nursery ground, keeping on the walk by the river-side, on the left there is a large young plantation of *Theobroma cacao* (chocolate) growing in the shade; on the right, between the walk and the river, there is a plantation of *Cardamoms* (*Elettaria Cardamomum*). A little further on the left there is a quantity of *Musa textilis*, which yields a fine flax, with which some of the finest muslins of India are prepared. Besides this species, most of the cultivated *Musa* (bananas) yield a fine and strong fibre.

From the *Musa* plantation, for nearly a mile, the walk by the river-side is through what has recently been a jungle, and all that is to be seen for that distance may be thus described. All the under-wood has been cleared out, and only the good specimens (one or two of each kind of the trees) have been left. Some of these are noble trees, and the most of them are covered with pipers, ferns, orchids, and some climbing aroids. The open ground caused by the thinning out is being filled with other kinds of trees and shrubs, natives and exotics.

At Dr. Gardner's monument, which stands on a knoll overlooking the river (the Mahawellaganga), are some fine *Aracariacs*, doubtless as beautiful and as graceful as they are to be found in Australia, and far excel those of the same kinds that are growing in Mauritius. There are also some fine plants of different kinds of *Cupressus*, *Thuja*s, and *Grevillea*s around the monument.

Not far from the monument there is a fine clump of *Bambusa gigantea*, which has canes about nine or ten inches in diameter. Arriving again at the entrance-gate, and passing the palm group, we enter the main walk, in the borders of which there is a fine display of flowers. The borders are backed by trees that have beautiful flowers, and are planted with the choicest flowering tropical shrubs, caladiums, roses, and showy annuals, which make them look very gay.

Passing along the main walk for about four hundred yards, we arrive at an unpretending shady path, paved with stones, from the river, which leads to the fernery. There are a great many things to admire in the Ceylon Botanic Gardens, but none are more worthy than the fernery. It is about an acre in extent, and has been so well planned, laid out, and planted, that it looks as if it were six. The greater part of the ferns are planted in beds, through the centre of which a canal passes that keeps the soil always moist. There is also a small rock-work for the kinds that grow either among stones or on them, or on trunks of trees. The canal, as it passes over the rock-work, has been so arranged that the water constantly trickles over the stones, which is highly beneficial for the ferns that grow upon them. The walks are four feet wide, and are all paved with stones from the river, and are edged with square stones. None of the beds exceed six feet in width, and the walks wind around each of them, by which means the plants are seen and easily examined. The Ceylon ferns are chiefly cultivated, some of which are beautiful and rare, with a good sprinkling of exotics.

The garden is all laid down in grass, which being pastured by cattle and with the magnificent trees which it contains, has the appearance of a nobleman or gentleman's park in England. JOHN HORNE.

MR. JAMES BATEMAN ON *LÆLIA MAJALIS*.

The last scientific meeting of the Royal Horticultural Society was invested with unusual interest, owing to a previous announcement that specimens of *Lælia majalis*, the *flor de mayo* of the Mexicans, would be exhibited in flower by Mr. James Anderson, gardener to Thos. Dawson, Esq., of Meadow Bank, near Glasgow. Until recently, this plant has all but been lost to this country. Messrs. Low, however, were fortunate enough in getting an importation, and from among these the three plants sent up to London by Mr. Anderson produced their gorgeous blossoms. Mr. Bateman made the introduction of them and their inflorescence the subject of a special lecture, under the presidency of Sir Roderick Murchison, Bart. He remarked that the plant was fortunate in having a history as well as a name, the native one being Itzumaquee; but it had besides two or three Spanish and several Latin names. After descending upon the value of orchids for church decoration, and their introduction upon a large scale in this way by the Spaniards, he proceeded to say that the first naturalist who went to Mexico was Hernandez, who published in 1648 at Rome a book, on the frontispiece of which two orchids were represented, the one being the beautiful *Lælia majalis*. Humboldt was the next to notice the species, under the name of *Bletia speciosa*, remarking upon the beauty of its flowers. Lexarza, who was a contemporaneous observer, stumbled upon the plant, and called it *Bletia grandiflora*. His description of this and some other of the Mexican orchids so impressed the youthful Reichenbach, that he longed to visit Mexico; but it was not requisite, as Mr. Barker despatched a collector, who sent home numbers

of this plant in blankets, but they never flowered. M. Deschamps, in 1837, brought home a cart-load, only one of them flowering in the collection of Mr. Dillwyn Llewelyn, which was figured in Mr. Bateman's work on the Orchids of Mexico and Guatemala, and by Dr. Lindley in the *Botanical Register*, 1844. These plates represent the plant throwing a spike of four to five flowers, which is an exaggeration, the best grown plants only producing one flower, and at most two on the spike. Dr. Lindley wished to call the plant *Lælia Grahamii*, and Dr. Reichenbach *L. speciosa*, but it was the *majalis* of cultivators, and so it ever would be. Mr. Bateman remarked that although Mr. Anderson had been the first to flower the plant successfully for the last thirty years, specimens were showing flower in the collection of Messrs. Backhouse, of York, and of his friend Mr. Wentworth Buller, of Exeter; and, strange enough, they had been grown under opposite treatment, Mr. Anderson growing his in a sort of Wardian case, where a circulation of warm air was continually taking place, keeping the plants as cool as possible during night, and allowing them occasionally during winter to live in a temperature of 33°. The other named gentlemen kept their plants in a dry and cool atmosphere all the year round, and it would take some time to prove which would be the more successful. The Meadow Bank plants were growing on flat tiles, a suggestion thrown out by Mr. Dawson, which seemed to be to the point, as the plants were in the best possible state of health. To these plants a special certificate was awarded, and to the same grower a first certificate for a beautiful rosy purple odontoglot called *roseum*. Several other cut flowers of note were furnished by the same exhibitor.

FOR THE WINDOW GARDEN AND THE OWNER THEREOF.

Striking geraniums to keep through the winter is to be the subject of this article; but I would first say to the professional reader, you must not be offended with the Old Man with the Blue Apron because he has taken up such a common subject to write about this week, because, if it is a common subject to you, with all your appliances for striking and wintering your geraniums, such is not the case with those for whom more expressly this is written. Therefore you must not consider it is presumption in the Old Man that induces him to sit down and write for a very worthy class of readers, because in this case he can leave the adepts to take care of themselves.

The greatest mistake made by those who have not a proper structure for wintering geraniums, is that they do not strike them early enough in summer to get them well rooted and established before the short chilly days of autumn; in fact, many of them do not think about it until the cold drenching rains of autumn warn them that their plants in the beds and borders are nearly over, and then they begin to think about and prepare for the next year's supply. The result of this is, that the cuttings they take are long, leafy, and sappy; and, for the want of a suitable place to propagate them in, where a suitable degree of temperature could be maintained, they soon become a prey to damp and mildew, and the operator has the mortification of seeing one by one damp off, as we gardeners term it, and in the end he finds he has but few, if any, left.

Could those for whom we write understand, as does the experienced gardener, the necessary conditions it is essential to secure in a plant that has some amount of rough usage to endure, to go through a long and trying winter in some indifferently-managed greenhouse, or in the parching air of a room, they would the better appreciate my efforts to serve them, and would be more willing to accept the advice which I shall give. But, as they have not the requisite knowledge to guide them, I must be content to give them in detail the instructions necessary to secure the plants in such conditions that every good gardener knows is essential in such cases. These conditions are an early-struck cutting that has been, from the time it was severed from the parent plant, exposed to all weathers from the first day of August until the end of September. In the first instance the cutting should be short, firm, and close-jointed, always avoiding those vigorous succulent shoots that are so tempting to the inexperienced cultivator, for they are always the first to succumb to damp or to a very brilliant sunshine; the side-shoots are generally the most preferable, as they are usually firm and short-jointed. Those springing from the bottom are often too sappy to strike freely. When it is practicable, cuttings should be taken during dry weather, as then they are less succulent, and will bear full exposure without suffering. But if cuttings are taken a few days after rain, all the organs are more heavily charged with water, and in proportion to the amount of water they contain so will they suffer when left to their own resources.

In speaking above about full exposure from the time the cutting is taken, of course I do not mean that all the varieties of geraniums that we now breed out are adapted for this treatment, because none of us would think of so treating the new tricolours; nor, indeed, is it desirable to do so with any of the variegated class, as, unless they have the shelter of glass, they are a long while in making roots. But all those that are usually called scarlets will strike readily in the open air. Why plants so raised are of more value for amateurs and window gardeners than those more tenderly raised is, first, that, having been fully exposed, they are more hardy; secondly, they have roots of a firmer texture and more in number than those raised under glass; and, lastly, the plant is more matured, and a greater degree of solidity is secured in its whole structure. It has, in short, a good constitution to begin with, and the best chance, therefore, of surviving the vicissitudes of a long dark winter.

I should advise my readers to use clean five-inch pots, with the drainage perfectly secured. The soil should consist of loam, leaf-soil, and silver-sand, equal parts, to be sifted and well incorporated together. The pots should then be filled to within half an inch of the rim, firmly pressed down while being filled. Round the sides of each pot place five or six cuttings, taking care that in making the hole to receive the cutting it is not made too deep, for if so the cutting will not reach the bottom, and there will be left below it a small body of air, which will prevent the roots from forming quickly. The cuttings should have a firm bottom to rest on, and the soil pressed firmly round them. They should then be well watered, and placed on a firm level bottom, fully exposed to the sun and all weathers. Should the weather be very bright immediately after the cuttings have been potted, a gentle sprinkle from a fine rose or syringe two or three times during the day will tend to prevent evaporation from the leaves, and will assist them the sooner to make roots. At no time should they be deluged with water; a sprinkle over the leaves every evening, with the soil just moistened about every third day, will be sufficient until they have made roots enough to absorb water, and then it must be increased. The latest date at which geraniums can be so treated must not be after the first few days in August, and,

indeed, the present period in July is not too soon, as the plants will be all that much the stronger. They should be removed to their winter quarters early in October, the pots first washed, and the plants cleaned of any dead or decayed leaves. All the time mild, open weather lasts they should have air night and day, and be watered sparingly all the winter, and on the approach of spring they may be potted off separately, or treated in whatever way best suits the convenience and taste of the cultivator. All the more tender kinds may be potted the same as the above, but they strike best when placed in a pit or frame.

THE MAN WITH THE BLUE APRON.

TESTIMONIAL TO MR. R. THOMPSON, OF THE CHISWICK GARDENS.

Though publicity in these columns has not been solicited by the promoters of the Testimonial to Mr. Thompson, of the Chiswick Gardens, we gladly place in the hands of our readers the following circular, which fully explains Mr. Thompson's claims on the horticultural public, and will, we sincerely hope, elicit a liberal response to so proper and well-timed an appeal:—

"The retirement of Mr. Robert Thompson from active duty in the service of the Royal Horticultural Society has been thought by his numerous friends to offer a fitting occasion on which to present him with a substantial testimonial, expressive of their cordial sympathy with him in his declining years, and indicating also their high appreciation of the many services which he has rendered to pomology and meteorology during a long and active life.

"The Council of the Royal Horticultural Society, acting as the exponents of the wishes which have been expressed that Mr. Thompson's services should be publicly recognized in this way, have taken the initiative by inviting several gentlemen connected with horticulture to attend a preliminary meeting, at which a committee was named to carry out the proposed object. [The committee consists of the Council of the Royal Horticultural Society, the International Committee, and other gentlemen connected with horticulture and meteorology; the Duke of Buccleuch, president; Mr. W. W. Saunders, vice-president; and Dr. Hogg and Mr. Thomas Moore, joint secretaries.]

"The many services rendered by Mr. Thompson both to horticulture and meteorological science are well known to those actively engaged in these pursuits, but it may be proper on such an occasion as the present to briefly recapitulate them. For upwards of forty years, then, he has held a prominent position in the working staff of the Royal Horticultural Society. He entered the Society's service in 1824, the second year after the establishment of the garden at Chiswick, and in 1826 was appointed to the charge of the Fruit Department, which then contained the finest and most extensive collection of fruits in Europe. At that time comparatively few of the varieties were known in this country, and the whole nomenclature was in a state of confusion, requiring unwearied application and perseverance to clear it up, so that the riches of the collection might be made available to the Fellows of the Society and to the country. In 1831 a 'Descriptive Catalogue' of these fruits was published, from memoranda taken at Chiswick, and in this valuable work Mr. Thompson, with great success, succeeded in carrying out his design of indicating the good and the bad sorts, together with their synonyms, and such brief characteristics as it was thought would be most generally useful. By means of this catalogue a knowledge of the superior kinds of fruits was much more rapidly spread throughout the country than it could have been by any other available means. The distribution of seeds of new fruit was consequently carried on with assiduity, and much consideration was bestowed in endeavouring to select such kinds as were most likely to succeed in the localities for which they were destined.

"While this important work was year after year being carried out, Mr. Thompson was engaged in making experiments both in the fruit and kitchen garden departments, carefully reporting the results; in taking descriptions of new varieties of fruits as they came into bearing; and in preparing another edition of the fruit catalogue, which was published in 1842, and a supplement in 1853. These descriptions and records have been of the greatest practical utility. Upwards of 2000 pages of the Society's various publications have been written by Mr. Thompson, but the fruit catalogue claims prominence, as having been the standard of fruit nomenclature in this country; while his 'Gardeners' Assistant,' a work not connected with the Society, may be characterized as the best and most scientific of compendious treatises on modern gardening.

"For a nearly similar period, Mr. Thompson has devoted much attention to meteorology. The meteorological journal of the Society, which was commenced in 1826, and which has been carried on by him since 1830, gives the readings of the barometer (corrected for temperature, &c.) morning, noon, and night; of the thermometer, maximum and minimum in sun and shade; and of the hygrometer; comparatively with averages of forty years, deduced from 219,000 observations of the various instruments. Such broad averages afford what must be considered as true means with which extremes may be compared as regards heat, pressure, and moisture. The observations of sixteen years have been translated from the Transactions of the Horticultural Society into those of the Royal Philosophical Society of Berlin; and up to the present time a weekly return has been published in the *Gardeners' Chronicle*. Among other papers from Mr. Thompson's hands, connected with this branch of science, is a Table of Temperatures for the use of gardeners, published in the Journal of the Horticultural Society, which furnishes an idea of the climate of some 900 places situated in different latitudes.

"With a modesty peculiarly his own, and with a degree of plodding perseverance which cannot be too highly recommended as an example to the rising generation of horticulturists, Mr. Thompson has worked on at these his favourite pursuits with zeal and assiduity, setting before himself the object of rendering service to science rather than that of personal gain; and now, after a long and useful career, when his physical powers begin to fail him, it has been thought that an expression of public sympathy in acknowledgment of his life-long labours would serve to gladden and solace the remaining years of his life.

"It is proposed that a subscription list be opened under the management of the committee, and that a money testimonial be presented as soon as a reasonable time for response has elapsed. Subscriptions, which will be duly announced, will be received by any member of the committee; by the Society's bankers (London and County Bank, Kensington); by the secretaries—Dr. Hogg, 99, St. George's Road, Pimlico, S.W.; and Thomas Moore, Esq., Botanic Gardens, Chelsea, S.W.; or by James Richards, Assistant-Secretary of the Royal Horticultural Society, South Kensington, W."

Calendar.

WORK FOR WEEK COMMENCING JULY 27.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN requires now a general clearance of plots that have borne peas, beans &c., to burn all the dry haulm and weedy stubble, and fork over and put on manure if necessary; all winter crops will do better in the ground well dug, even if not manured, than with a mere scratching of the surface. Where there is much demand for potting composts, the kitchen garden will supply useful material for the muck-pit, which is a more economical method in the long-run than the burning of rubbish, though the latter is a clean and quick way to get rid of it, and the ashes are useful. Save all the soot that can be got to make a puddle for dipping the roots of broccolis, cabbages, &c., when planting out from the seed-bed, and store away at once all pea-sticks worth keeping, to preserve tidiness and prevent waste.

Sow Early York, Battersea, Shilling's Queen, and Rosewort cabbage, Early Horn carrot, green curled endive, cabbage and cos lettuce, turnips, and prickly spinach. Make ready the ground for winter spinach, the time for sowing being near at hand.

CELERY newly planted will require abundance of water. Plant out as fast as possible, if any left in beds or pots. The fly has not seriously damaged the crop this season, and where it has not appeared there is now no further danger, and the late celery is likely to escape altogether.

WINTER SPINACH.—The time being at hand for sowing winter spinach, we are reminded of a peculiar failure of the crop which occurred to us a few years since. It may be worth while to state how this occurred. The ground was got ready in good time after potatoes, and was not manured. The spinach was sown as usual, and we had a splendid plant. But very soon after the plant was established, and the leaves were three inches long, they began to drop off suddenly. On scraping away a little of the soil from the plants that were affected, we found that detestable thing the larva of the Daddy Longlegs, which always attacks plants at the junction of the stem with the roots. Experience taught us there was nothing to be done. We might have wasted money on gas-lime, or on searching out the grubs by hand, but we knew too well the folly of attempting to cope with this pest in a remedial way, and quietly suffered the plantation of spinach to perish, which it did in a rather summary manner. But a preventive process may be adopted. Let the ground be dug a little earlier than usual, and left rough for a week or ten days. Then cart in a good dressing of manure, and have the whole piece trenched, and the manure put in the bottom of each trench. The plant will derive no immediate benefit from the manure, which is an advantage; for if we have a hard winter, it will endure the frost better in poor soil. Yet the manure is not wasted, for in the spring, when the plant begins to grow again, the roots will have got down on the manure, and in the dry weather of March we shall see the spinach producing huge fat leaves when other things are not growing at all. So much for the manure and the plant in their relation. You will now ask what about the vermin. Well, the first digging will expose the grubs; and the robins, and blackbirds, and rooks—so fond of newly dug or newly ploughed ground—will pick them up by thousands. Then those that escape death that way will be either buried in the trench at the next digging, or exposed to the view of the birds to be devoured. Thus the ground will be well cleansed for a year, and will not want manuring in spring, for the spinach will not consume all the strength of the manure. When the crop is removed, therefore, a deep digging with a four-tined fork is all it wants to prepare it for any kind of spring seeds, whether green crops or roots. As for other matters, all we need say is, lay out the ground in four-foot beds, sow in drills, and thin in good time to six inches apart. All sowings of winter spinach should be finished by the 15th of August.

Flower Garden

GERANIUMS should be propagated at once by cuttings put in the open ground in a sunny place, or singly in thumb-pots in frame or on a moist bed in a house facing south. If this work is postponed, the plants will be more difficult to keep through the winter. If quantity is an object, every two joints, one joint in and one out, will make a good plant; but one joint will do very well of any variety it is necessary to cut hard, as to form roots a joint in the soil is not necessary, as the internodes will root nearly as soon as the joints.

CARNATIONS, PICOTEEES, AND PINKS to be propagated largely now from layers and pipings, both easy and certain methods.

PANSIES to be propagated from cuttings of young wood; the old hollow stems are quite unfit for the purpose. Keep the cuttings shaded, and sprinkle frequently, but the soil of the cutting pans only moderately moist. Beds to be planted to stand over winter should now be deeply dug and manured, which will tend to reduce wireworm, as they will be turned up in the process and be destroyed. After the beds are made ready, set traps for vermin, and persevere to get the ground clean, as the losses in winter often arise through the eating away of the roots by marauders.

DAHLIAS want a heavy mulch after the ground has been lightly forked. This is said to harbour vermin, but practically its few disadvantages are balanced by the superior health of the plants and the beauty of the flowers, and the labour of watering is good rid of. As for earwigs, they always go upwards, and may be trapped with certainty.

ROSES may be multiplied by putting short cuttings, selected from the shoots of this season, in a bed of sandy soil, in a frame, keeping them shaded and sprinkled. Nine-tenths will root with ordinary care, and ninety-nine hundredths where the cultivator is quite *au fait* at propagating. Budding on brier and manetti stocks may be carried on. It is a good time to buy in new roses, and plant them, as they will be well established before winter, if taken care of, as to shading and watering, for three weeks after planting.

THE BEST BEDDERS.—The best bedders for amateurs are those which are used in greatest quantities at great places. Amateur cultivators generally suppose that in great places the means and appliances are so perfect that the planters there have ten chances to an amateur's one. This is a great mistake. In nearly every case the millions of bedding plants produced are the result not of first-rate appliances, but of appliances wretchedly imperfect, and so far inferior to what most amateurs possess that the managers of the great places are really those who deserve commiseration. The fact is important, because it teaches that the plants found most serviceable at great places are those that are most to be relied on for display

of colour, and which also have constitutions that adapt them to a certain degree of hard treatment. Among *geraniums* there are a few that surpass all the rest in absolute usefulness. Stella, crimson scarlet, is certainly the finest bedding geranium known. Crystal Palace Scarlet may be used with safety. The last named differs from Tom Thumb in being of more upright growth, and producing a richer and more continuous display of flowers. The fourth of this series is Christine, which in its colour and style is not surpassed as a bedder. Among *verbenas*, the most useful is Purple King; the next most useful, Mrs. Holford, Lord Raglan, Fox-hunter, and Ocean Pearl, which are all true bedders, and never fail to produce the effect desired of them when properly treated. *Tropaeolum* (Lobbianum section) of various kinds abound, but the best are Elegans, Eclipse, and Conqueror. *Lobelias* (of the Speciosa breed) abound, and several of them are of eminent service in bedding. The best are the true Speciosa, which is a fine deep blue; Blue King, which is a clear sky-blue; Paxtonia, creamy white and pale blue; and Compacta, which is of very dwarf, compact habit. Among SILVERY-LEAVED PLANTS *Centaurea ragusina* is the grandest of all. There are few who know how to manage this, and hence many inquiries come to hand. Plant a few strong specimens in a rather dry sheltered position, in sandy soil. Take during the summer as many side-shoots as you can obtain from those and from all others in beds, ribbons, &c.; strike those side-shoots, and house them in the usual way, and keep them rather dry all winter. The plants put out in the selected position are to remain there all the winter: if a mild winter, they will all survive; if a severe winter, they will not all perish. Those that survive will next season flower, and seed abundantly. Sow all the seeds, and go on again in the same way. This routine is soon told. It is worth a ten-pound note to any one who, for either trade or artistic reasons, wishes to grow a stock of this grandest of bedding plants. It may be well to add that *C. ragusina* and *C. candidissima* are one and the same thing, but the first is the proper name for it. Next to *Centaurea candidissima*, the best silvery-leaved plant is *Cineraria maritima*, which may be struck from cuttings at any time without heat, and which, if allowed to flower, produces seed abundantly. The next best, or we may say the equal of the best, but of quite different habit, is *Cerastium tomentosum*. Plant where it can remain, and it will be found quite hardy, and in spring will bloom beautifully. After blooming it should be cut close back, and will soon grow again and be as beautiful as ever. CRIMSON AND PURPLE LEAVED BEDDERS: the best are *Coleus Verschaffeltii*, *Amaranthus melancholicus*, and *Iresene Herbstii*. The first and last must be increased by cuttings on a north in spring; the other can be raised freely from seed sown in pans, very thinly covered, and placed in a very mild heat in February or March. The more hardy and less attractive purple orach (*Atriplex hortensis rubra*) is not to be despised. This plant will always propagate itself if allowed to do so, and its own way is the best way, because then they come at the season which suits them best. Allow a few plants to grow as they please, in the shrubbery, rockery, or border. They will flower and seed freely. Do not disturb the soil till some time in the next April; there will be hundreds of plants where the seed was shed. On a showery day lift them with a trowel and plant where required, and they will grow ten times more freely and more handsomely than by any artificial treatment. Self-sown plants growing in the full sun have leaves three or four inches broad, and of the richest shade of bronzy purple, and the plants attain a height of five or six feet.

ANNUALS for NEXT SEASON.—The finest show of annuals early in the summer is to be had only by autumn sowing. During the latter half of August and the first half of September is the best season to get them strong enough to stand the winter; if sown earlier they get too forward, and are apt to suffer from frost. An open quarter sheltered from the north is to be preferred, and the ground should be as hard as flint. On this hard surface lay down a shallow bed of poor sandy soil, and on that sow the sorts in rows pretty close together, each marked with a good-sized tally. In gardens that are very dry or insufficiently drained, the plants will have a better chance if the bed is made to slope southwards; this will carry off excess of water, and the plants will start better in spring. They are to be transplanted singly into beds, horders, ribbons, &c., as desired, as early in March as the weather will permit. The soil in which they are to bloom should be rich and well worked, and as every one of the plants will grow to twice the size ordinarily attained by the same sorts when sown in spring, they must be planted at double the ordinary distance apart. To make more sure, it would be as well to sow at least one pan of each of the same sorts as those sown on the border; these to be kept in a pit or frame and dealt with in the same manner for blooming. Some of the improved forms of hardy annuals are equal to anything we possess for brilliancy of colour and effect in masses; for instance, Iberis Kermesina, a new crimson candytuft, makes as grand a bed as the finest verberna or geranium in our collections, though it does not last in its prime more than four or five weeks. The old *Campanula speculum* is a charming thing for masses, the rich bluish purple of the flowers being enhanced by the white eye. Indeed, all the established annuals are worthy of more attention than they commonly receive, and will repay for all the extra care bestowed upon them, besides which they are particularly interesting as botanical studies. The following are among the best annuals to be sown at once:—Calliopsis, Clarkia, Collinsia, Convolvulus minor, Escholtzia, Godetia, Hibiscus, Dwarf Larkspur, Lupinus, Nemophila, Nolana, French Poppy, Schizanthus, Saponaria, Virginian Stock.

THE POLYANTHUS.—The polyanthus grower may be supposed to have in his possession now a few pods of ripe seed. What shall he do with it? Sow it directly—say within an hour of having read this. The best mode of procedure is to fill large pans or boxes with a mixture of two parts maiden loam, one part rotten cow or horse dung, one part leaf-mould, and one part silver-sand. The prudent cultivator will either bake or boil the compost before sowing the seeds. To bake it, place it in a hot oven for a few hours. The easiest way, however, is to boil it, as that is accomplished by first filling the pans with the mixture, and then watering it freely with boiling water, and when the soil is cool sow the seeds. It is very easy to say "Sow the seeds." The proper way to do it is to sprinkle them thinly on the soil, and then very lightly cover them with very fine earth of any kind, enough to hide them and no more. These seed-pans ought not to require any more water till the seedling plants are up, and the proper place for them is a cold frame facing the north, a sheet of paper, or a tile or slate, or empty pan laid over each, to prevent evaporation, and after ten days from the date of sowing to be looked at daily, and the moment the seedlings appear remove the covering. But suppose they do want water before the seeds germinate, there's the rub! Well, if you fill a water-pot and put on the rose, and give the pans a good drenching, you will wash every seed away, and make an end of your troubles completely, for you

will probably not see a single plant in any pan which has been so operated on. But there are more ways of killing a dog, &c. The neat way to water these seed-pans, and all other seed-pans, is to quietly lower them into a tub of water, and leave them there till the soil is wetted through. Don't drop them in carelessly, so that they will be instantly submerged, or the seeds will be floated up with the rush of hubbles, but gently rest them on empty pots, bricks, &c., so that they are plunged to the rim, and no deeper; so that, in fact, the water does not spread over the surface at all. Now for a last word on this subject. It is the one great secret of raising seedling polyanthuses, auriculas, and a hundred other good things. *The soil in the seed-pans should never be dry.* If it ever gets dry, you may expect that some of the best seeds will perish. You may, indeed, have plenty of plants even if the seed-pans are very carelessly treated, and are many times dry before the plants appear. But we repeat that dryness at any time is sure to kill the best seeds, so those who are most watchful are likely to have the best seedlings out of a batch. It is a good plan to divide a parcel of seed into two parts, to sow one part as soon as ripe, and the other part to be kept till spring. If you have plenty, adopt this plan; if not, then sow all at once, and pot separately all the seedlings as soon as they are large enough to handle. Potted polyanthuses in the full sun now will be nicely roasted and half killed. If you want to keep them, let them be shaded from eleven to three, and let them have plenty of water. Go at once and see if there is green-fly or red-spider on any of them, and the only way to ascertain is to search the under side of the leaves. If you find fly or spider, be brisk with remedies. Tobacco-water applied with a brush is a good and cheap remedy. Better still the "Aphis wash," sent out by the City Soap Company. Pour out a tablespoonful of the treacle-like fluid, and half a pint of water, mix well, and wash the under sides of the leaves with the mixture. If the use of a brush is too tedious a process, lay the plants on their sides in a row, and syringe the under sides of the leaves with the mixture.

GARDEN FLOWERS.—*Oenothera fruticosa*, *Pentstemonis Jaffrayanus*, *angustifolius*, *glabrum*, *eriantherum*, and *barhatus*; *Sabbatia campestris*, *Agathyrus Sibericus*, and *Tartaricus*; *Agrostemma suecica*, *Eryngium aquifolium*, *Inula glandulosa*, *Silene maritima*, *Aconitum versicolor*, *Dianthus fragrans* and *serotinus*; *Delphinium moschatum* and *intermedium*, *Plumbago Europæa* and *Larpenæ*, *Aster macrophyllus*, *abbreviatus*, and *multiflorus*; *Globularia cordifolia*, *Glaucium fulvum*, *Oenothera macrocarpa*, *Rumex sanguinea*, *Teucrium Hyrcanicum*, *Eryngium aquaticum*.

Fruit Garden and Orchard House.

STRAWBERRIES.—Plant out the first lot of well-rooted runners in ground well manured, and shade for a week and keep well watered; these will at once form good crowns, and bear well next season. Lay more runners, always removing them as soon as rooted, as they do better for being on their own feet early, and distress the parent stools less.

FRUIT TREES that are still making young wood must not be stopped, or it will cause them to throw out useless side-shoots, and the less the knife is used among them now the better. Espaliers must be tied and nailed before the young wood gets too hard to be brought into regular order without injury.

POTTED TREES must have every necessary attention to complete their growth and ripen their wood. No more pinching, and the pruning of useless growths to be deferred till the sap is down. Peaches and nectarines to be put in a position where they will be roasted with sun-heat, as near a hot wall or fence. The lights of the peach-house should be off for a month at least, and any training neglected to be done at once, that the wood may ripen perfectly.

BUSH FRUITS require attention now that the crop is gathered. Thin this present year's growth, tie and nail all the bushes, on fences and wires, and give the trees their final shape for fruiting next year. Thin out the new canes of raspberry stools, so as to leave only three or four of the strongest to each. As soon as the fruit is off, cut the old canes to the ground, and tie out the new ones that the wood may get hard and ripe. If manure is plentiful, mulch the raspberries at once, but do not disturb the surface more than may be necessary to remove weeds.

Greenhouse and Conservatory.

GREENHOUSE PLANTS, especially hard-wooded kinds, will be benefited by a few weeks' exposure in the open air, to ripen their seasonal growth, and give them a stocky habit. This will afford opportunity for a general cleaning and painting of sashes, stages, walls, &c., and to clear out vermin from odd corners and old woodwork. Houses containing all ordinary kinds of stock to have air day and night; but most soft-wooded plants in flower will enjoy to be shut up for an hour after watering, and then to have a little air again.

FLOWERS OF THE GREENHOUSE.—*Anacamperos angustifolia*, *arachnoides*, *poliphylia*, *varians*; *Senecio speciosus* and *venustus*; *Crassula bibracteata*, *filicalis*, and *tetragona*; *Billardiera scandens*, *Mesembryanthemum album* and *bidentatum*; *Aloe depressa* and *nobilis*; *Hakea illicifolia*, *Adesmia viscosa*, *Anomatheca cruenta*, *Adama versicolor*, *Aganallis linifolia*, *Aloysia citriodora*, *Amphicomma arguta*, *Babiana villosa*, *Ricinus rutilans*; *Fuchsias*, *Zonale pelargoniums*, the pendulous *Celosias*, several *Salvias*, *Plumbagos*, and *Lobelias* are now in their prime.

ERICAS IN FLOWER.—*Vestita*, *mutabilis*, *jasminiflora*, *dichromata*, *Eweriana*, *globosa*, *obliqua*, *pregnans*, *Aitoniana*, *Irhyana*, *anrea*, *curviflora*, *suaevolens*, *Swainsonii*, *formosa alba*, *elata*, *alopeuroides*, *cruenta*, *Banksiana alba*, *margaritacea*, *ampullacea rubra*, *taxifolia*, *incana rubra*, *laricina*.

STANDARD GERANIUMS are often grown for decoration, and they are valuable both because of their beauty and their uncommon appearance. Countess of Warwick, Alma, Flower of Spring, Mrs. Pollock, Sunset, Luna, Cloth-of-Gold, and Golden Chain, as the most distinct in their several classes, are the best seven kinds to begin with for the formation of a collection of standards for grouping. But as to the sorts, there need be no restriction; select according to your own taste and judgment, bearing in mind that you will not only produce standards, but the heads of your standards will grow much faster than plants of the same kinds grown in the ordinary way. You want for the purpose a number of stout straight-stemmed geraniums of any kind; generally inferior kinds are chosen because they are to be used only for their stems. The best of all for the purpose are seedlings that have grown straight up to a height of one to three feet, as the sacrifice of their heads is a matter of very little consequence. On these stems graft the sorts required in the cleft mode of herbaceous grafting. This is the easiest of all grafting operations, and really requires but little practice to make the operator perfect. Cut back the stock to a place where the wood is half ripe: it must be sound and

hard, but neither green nor brown. Let the scion be in the same half-ripe state. Split the stock down an inch or an inch and a half, and if possible choose a place for the top of the stock where it breaks into two branches. The fork will be just the place for inserting the graft. Cut the graft to a clean wedge, so as to fit in the slit, so that the bark of graft and stock will meet on both sides if possible; if that is not possible, *they must meet on one side.* Tie up moderately firm with worsted thread, and paint over with grafting mastic or with clay paint. The work is now done. Place the grafted plants in a shaded pit or frame or greenhouse; give only as much water as will just keep them from flagging. On fine mornings sprinkle the tops slightly. Beware of strong sunshine or cold draughts. Three weeks after putting on the grafts, loosen the bandage slightly, but do not remove it till six weeks from the date of grafting. If grafts are put on now there will be time to get the junction well ripened before winter, and if the grafted plants are put in the stove in January they will make a fine growth for next summer's use. The leaves and shoots of the stock must be removed by degrees until the head alone takes all the sap.

CLAY PAINT FOR HERBACIOUS GRAFTING.—Take some soft clay and knead with a little water till it is of a pasty consistency; then put it into a clean vessel with a little more water, and work it about with an old brush till it is of the thickness of cream, free from grit, and semi-liquid. Paint the graft with this, and shake over the paint a little dry sand. Then paint again and again, each time shaking over a little dry sand, but always allowing the sand to dry before applying another coat.

Stove and Orchid House.

ORCHIDS must have every necessary assistance to ripen their pseudo-bulbs. They may have more light and air, and less moisture, but must be kept plump, and those that continue to grow all winter to be kept going steadily but without excitement.

STOVE PLANTS intended for early bloom next season to be shifted at once to their blooming pots; let the soil be *fresh*, and the shifts not greater than the plants can reasonably fill up, and have time to ripen their wood.

ORCHIDS IN FLOWER.—*Cynoches Loddigesii*, *C. ventricosum*, &c., *Epidendrum aloifolium*, *Cymbidium pendulum*, *Epidendrum rhizophorum*, *Cypripedium barbatum*, *C. Farieanum* and *Lowii*, *Dendrobium Paxtonii*, *Galeandra Bauerii* and *cristata*, *Huntleya meleagris*, &c., *Miltonia bicolor*, *M. candida*, *M. spectabilis*, *Peristeria elata*, *Burlingtonia Knowlesii*, *Irelia autumnalis*, *L. majalis*, *Oncidium pulchellum*, *O. Batemannii*, *O. flexuosum*, *Promeneas stapeloides*, *Cattleya granulosa*, *C. Harrisonia*, *C. labiata pallida*, *Odontoglossum grande*, *O. phalaenopsis*, *Saccolabium Blumei* and *B. major*, *S. furcatum*, *Sobralia liliastrum*, *Stanhopea Martiana*, *S. insignis*, *tigrina*.

Replies to Queries.

A. P., Mere House.—The plant is *Linaria cymbalaria*, sometimes called *Antirrhinum linaria*. The first is the proper name. It is a beautiful plant for an old wall or rockery.

Geraniums Diseased.—**W. G.**—As only two plants out of about three hundred are affected, there does not appear to be any peculiar case for inquiry. When the young leaves become spotted, and the flowers die before opening, we may reasonably conclude that the plants have been too wet and too cold at the root.

Hard-wooded Plants.—**J. H.**—The precise treatment required for each of your plants cannot be given in a general reply; nor can any one without seeing the plants say much about what should be done with them. You may safely prune them back at once if they require it, to keep them symmetrical, and to promote a dense bushy habit, and three weeks hence you may shift them on to the next size pot, if they appear by their size and vigour to require more pot room. The plant you are in doubt about is *Genetyllis Hookeriana*.

Bees.—**K.**—So far as we understand your case, you wanted to make an artificial swarm and failed. The season is now so far advanced that you must not indulge in any more experiments, or you will lose your bees in the winter. You had best stop up the entrance to the old hive, and force the cast into a good working; if you do this at once, the cast, with its additions, will become a good stock before winter. About three weeks after take the old hive and drive the bees out. A few days before taking it, ventilate it rather liberally, with a view of inducing the queen to go down, giving the bees the choice of the old or young queen. We advise this course because you want the honey. Were we personally concerned in the matter, we should prefer to make two stocks, and should at once remove the old hive to make an end of the connexion, and enrich the cast by more strays from it.

A. B.—Probably the larva of the wood-leopard moth ate the pith out of the stem of the tree, and caused its death. This huge and hungry grub always leaves a hole bored in the tree it has lived in, so you may reasonably search for evidences of its residence. We do not think the little brown beetles had anything to do with it.

W. K. C.—Your plant appears to be *Disemma aurantia*, but we cannot speak with certainty, for it came to hand shrivelled up, and fell to dust while under examination—a common occurrence with plants packed in dry cotton-wool. One or two leaves and a flower placed between fresh ivy-leaves, in an ordinary letter, and directed to Stoke Newington on a Monday or Tuesday, would suffice us for its determination.

J. George.—Your seedling zonal, with delicate pink and white flowers, is beautiful. Your twenty (or more) varieties of tropæolums are interesting and pretty, but we have no time to expend in exploring such a heap. If you like to select three or four, we will look at them attentively, but when flowers come in this wholesale way we at once put them out of the reach of criticism and identification.

J. Evans.—No. 2 appears to be the best sample. The other subjects next week.

Brake.—**S. B.**—The real question about brake is not how to grow, but how, if you once begin, to get rid of it if you wish to. In your rockery you had best set apart a space for the brake; if you plant it with and amongst other ferns, it will soon spread and kill them all out, and become master of the situation. The brake will grow in any mellow loam or peat, but not in common garden soil or poor chalky soil. To establish it take up the roots at any time, and plant them where required. After one year's growth it will become luxuriant, and one of the most glorious ferns ever seen in a garden.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.					M.tmp. avg. of 43 yrs. Growth	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D	
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.			Rain						
1867			b. m.	h. m.	b. m.	h. m.	b. m.	h. m.	b. m.	h. m.	MX.	MIN.	MX.	MIN.	MB.				
4	S	7th Sunday after Trinity	4 30	7 41	9 49	a.m.	9 45	p.m.	29 67	29 60	71	45	58 0	00	62 6	Cymbidium pendulum, 1	...	Sylhet	1867
5	M	Length of day, 14h. 20m.	4 31	7 40	10 58	"	10 11	"	29 79	29 68	71	49	55 5	00	61 6	Epidendrum rhizophorum, 2	...	Guatemala	4
6	T	Prince Alfred born, 1814.	4 33	7 38	p.m.	"	10 38	"	29 72	29 53	60	50	55 0	43	61 5	Cypripedium barbatum, 1	...	India	5
7	W	Canning died, 1827.	4 35	7 36	1 11	p.m.	11 7	"	29 67	29 38	70	51	60 5	18	61 4	"	...	Lowia	6
8	Th	John Dryden born, 1631.	4 36	7 34	2 12	"	11 39	"	29 68	29 51	70	45	57 5	09	61 4	Dendrobium Paxtonii, 1	...	India	7
9	F	Izaak Walton born, 1593.	4 33	7 32	3 11	"	a.m.	"	29 65	29 51	72	40	56 0	11	61 3	Calceolaria Baueri, 2	...	Guiana	8
10	S	Dog days end, Aug. 11. Day breaks, 5h. 5m.	4 40	7 31	4 4	"	0 16	a.m.	29 63	29 65	70	41	55 5	08	61 1	Huntleya melesgris, 1	...	S. America	9
																			10

The Gardener's Magazine.

SATURDAY, AUGUST 3, 1867.

WINDOW GARDENS ASSUME MANY FORMS, but we seldom see plants grown or displayed in windows in a thoroughly satisfactory manner. Usually the display consists of plants in pots, and that is better than nothing, if the plants are good. But the appearance of the pots is not pleasing, and frequently, when these are hidden by being placed in boxes, neatness in the external view is obtained at the expense of ugliness in the view from within the room so embellished. There are other reasons, too, for concealing the pots from view, for what the eye sees with some degree of revulsion the sun shines on with some degree of injury to the plants; and, as a rule, zonal pelargoniums are the only subjects that will endure the roasting to which they are exposed in windows when the sun shines full on the pots. Yet it is not desirable to be restricted to the selection of one class of plants only for windows; we want methods of embellishing windows with plants equally consistent with good taste and the preservation of the plants from injury. It must be borne in mind that the embel-

ishment of windows is not a matter of trivial importance. Thousands of persons fond of flowers are during a great part of their lives confined to the house, even where there is ample garden space, and thousands more have no greater demesne than the window affords. Even in breezy country villages window gardening is pursued with ardour; but in towns it seeks to rank amongst the rural arts, but is generally somewhat in arrear of the rest of the arts to which it is allied.

Those who are familiar with the western parts of London must have noticed of late the increase of a very elegant form of window garden, consisting of a glass case projecting beyond the plane of the window sashes—a sort of vertical bow-window constituting the lower sashes; and in these cases elegant groups of plants are seen at all seasons of the year. There are some charming examples of these window gardens attached to the windows of mansions in Piccadilly, Cavendish Square, and other districts, where the residents are mostly wealthy persons who pass some months of the year in town, and the remainder far away at elegant country seats, where the luxuries of horticulture surround them in every imaginable form. We have seen in these window gardens ferns, evergreen shrubs, and flowers, in the depth of winter; and further on in the season, roses, pelargoniums, and many other suitable plants; and from time to time other subjects selected from the floral wealth of successive seasons; and we have observed that while the inmates of the apartments so embellished must derive much pleasure from seeing and keeping these gardens, they afforded their share of gratification, too, to the passers by—were, in fact, adornments of the exterior of the residence, and a boon to the pedestrian in the street.

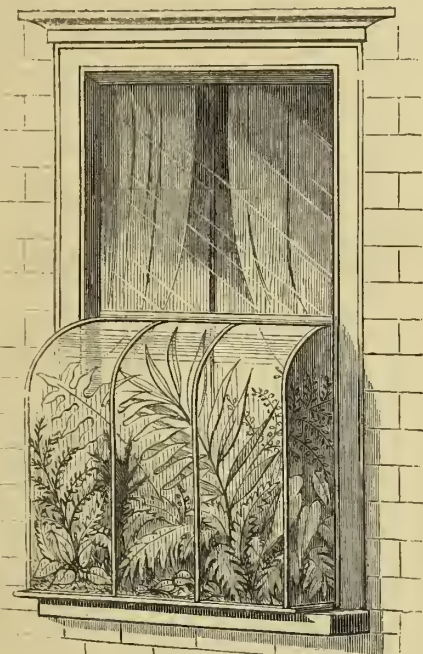


Fig. 1.

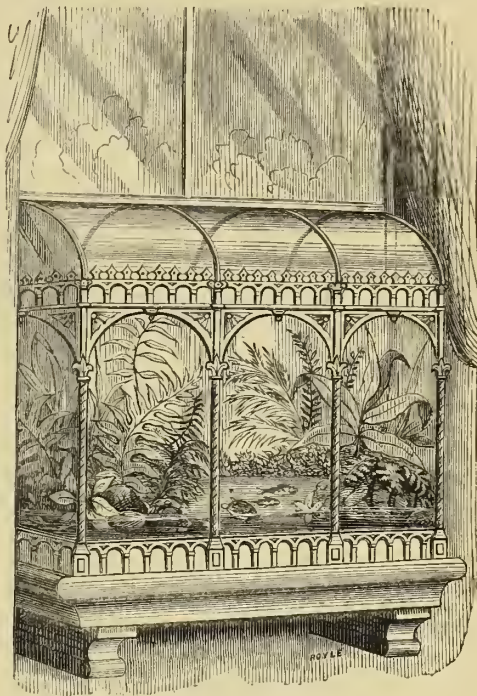


Fig. 2.

Given a simple idea of this sort, and a skilful manufacturer will soon vary it to suit many tastes and circumstances. Generally speaking, the inner and outer sill together are made available to give considerable breadth to these cases; that is to say, breadth at right angles to the wall in which the window is set, without any greater projection beyond the line of the wall than is consistent with safety and convenience. The lower sash perhaps is removed, and a plant-case takes its place. In many parts of great towns it is necessary to exclude the view of the street, no less for the privacy of the inmates than their protection from absolute offence and annoyance. The ordinary means of accomplishing this is to "frost" the glass with an alkaline salt, or to put on a thin coat of paint, or to employ embossed glass. But a plant-case accomplishes the same, and more agreeably and quite as effectually, and renders the house cheerful within and elegant without. When the exterior appearance is a matter of the first consideration, such a case as that shown in figure 1 is admirable, and the plants are of course to be adapted to the aspect and the tastes of the possessor. In a place from which sunshine is excluded ferns are, as a rule, the best for the purpose, if they are planted in the case; but if pot plants, plunged in a bed of cocoa-nut fibre, or some other clean and suitable material, are employed, flowers may be freely used, because they can be changed frequently, and temporary residence in a sunless aspect inflicts but little harm upon them.

In other cases, where the embellishment of the interior is the

In other cases, where the embellishment of the interior is the

matter of highest importance, an aquarium can be fitted to the inner side below the level of the sill, and in this case exterior embellishment is possible by forming a bank of ferns on a miniature rockery above the water. The two examples figured will show that any taste may be gratified by varying the fashion and the contents of the cases. A slab of slate is the best foundation, and this should be pierced for drainage where plants are grown. A depth of four to six inches will usually be found sufficient for the small plants that are best adapted for such cases. But in a window of ordinary dimensions a depth of nine inches for soil could be obtained without difficulty, and an elegant moulding on both sides of the case suffices to hide pots and soil from view. Messrs. Barr and Sugden have considered all these matters, and have produced a great variety of suitable cases, and make it part of their business to provide suitable plants for them. We have but to direct attention to this subject, we feel assured, to secure it the interest of those of our readers who are not yet satisfied with the state of their windows in respect of plant embellishment. While on this subject, it may be seasonable to add that a few years ago Messrs. Barr and Sugden produced a very useful form of open box for windows. These were made in every variety of style imaginable, some having rustic work in front, others with architectural fronts to harmonize with stone and stuccoed walls. We have had some of these boxes in use three seasons, and they have proved of the greatest service, the plants, being planted in them, requiring far less attention than plants in pots, and making as free a growth and bloom as plants of the same kinds in beds; whereas plants in pots in windows, however gay for a time, soon become exhausted and have to be renewed two or three times during the summer. The glass cases are of course to be preferred, where a portion of the window can be permanently given up to them, as in these a display of beautiful vegetation can be secured without difficulty the whole year round; for in the depth of winter the plants derive a considerable degree of warmth from the room, and it is even possible to heat the cases in the same manner that the plant-cases manufactured by Mr. Gray, of Danvers Street, Chelsea, are heated, by means of a boiler periodically filled with boiling water. When lately visiting the works of the Patent Concrete Stone Company, we saw many elegant examples of window boxes made of cheap imperishable stone; and in the extensive assortment of useful subjects prepared in Rosher's patent stone, window boxes are plentiful, various, and beautiful. As compared with the best of these things, however, Messrs. Barr and Sugden's glass cases are pre-eminently beautiful and useful, and the advantage of forming in them permanent miniature gardens is a special recommendation of them for invalids, and for all, indeed, who delight in adding to the elegancies and attractions of home. Light and air are precious gifts, and no plant-cases should ever interfere with the free admission of two such health-giving agencies to dwelling-rooms; but where the window plant-case can be adopted without interfering with light and ventilation, there can scarcely be a better way of increasing the elegant resources of town life.

THE MANGO IN MADEIRA.—Mango trees are now become common in Madeira, and produce fruit abundantly when they have once come into bearing, which is not till they are ten years old or more. The oval or roundish-oval yellow fruit (ripe in September or October) abounds in rich juice like a nectarine, but has always somewhat more or less of a resinous or carrot-like flavour. The flowers are fragrant, like mignonette. The mango is scarcely ever seen in the Canaries, and but rarely in the Cape Verde.—R. T. LOWE, in "*Royal Horticultural Society's Journal*."

ARTICHOKES.—A horticulturist of the environs of Nantes is said to have discovered a method of producing artichokes of enormous size. When the fruit is formed and has attained the size of an egg, he makes a deep incision in the stalk, which lets the sap flow out, and prevents it from reaching the fruit. Under these conditions the artichoke reaches very unusual dimensions. He has also found means to give to all the leaves the qualities generally possessed only by the innermost, by simply covering the plant with a dark cloth to protect it from the sun.—*Galignani*.

THE HARVEST HAS COMMENCED in a few favoured spots in the south of England, and in Bedfordshire, peas, rye, and barley have been largely cut. Wheat generally looks well, though the plant is thin, and in many tracts of country in midland and southern parts has been much injured by the tremendous rain of the 26th. Turnips are growing vigorously, mangolds are making up for lost time, and the potato crop promises to be abundant and good. Reports of disease have been rife; but if it has really occurred at all, it has been quite local and partial.

A NEW GREEN FOR CONFECTIONERY, perfectly innocuous, may be thus formed:—Infuse for twenty-four hours 0.32 gramme of saffron in 7 grammes of distilled water; then take 0.26 gramme of carmine of indigo, and infuse it in the same manner in 15.60 of distilled water. By mixing the two liquids a large quantity of a beautiful, strong, green dye may be obtained. Ten grammes of this solution will colour 1,000 grammes of sugar. This dye may be kept for a long time by evaporating the liquor to dryness or transforming it into a syrup. The most beautiful green colour now used is formed by the dangerous preparations of copper or arsenic.—*Journal de Pharmacie*.

THE BELGIANS' BOUQUET.—They say that the magnificent bouquet of flowers from Ghent, which the Belgian volunteers presented to Miss Burdett Coutts, was composed entirely of hothouse flowers, as illustrative of the warm reception they had met with at Holly Lodge.—*Echoes of the Clubs*.

THE HALL OF OMNISCIENCE.—They say that big things are not always great ones; and that the Kensington Hall of Science and the *Great Eastern* are two of the most striking illustrations of the axiom. Mr. Boucicault, in proving that no human voice could fill such an area as the Great Hall of Science, which is eleven times greater than that of Covent Garden Theatre, seems to prove at the same time that it will be equally difficult to fill the space with an audience, inasmuch as few listeners would be tempted to go to hear nothing.—*Echoes of the Clubs*.

CITY RENTALS.—The *City Press* states that during the last ten years the annual rental of the City property has increased 273 per cent., or a million and a half sterling. The houses in 1811 were worth 32*l.* per house annual value; they are now worth 137*l.* They were worth, to capitalize them at twenty-five years' purchase, in 1811, 14,131,075*l.*; they are now worth, by the same process, 52,784,375*l.*, equal to the total revenue of Great Britain only a few years since, and equal to five-sixths of the present revenue.

PETERBOROUGH HORTICULTURAL SHOW.

The second exhibition of the Peterborough Society was held on Thursday, the 25th of July, in a field adjoining the cathedral. The spot was well chosen, both for its immediate proximity to the busiest parts of the town, and the beautiful surroundings of noble architecture and fine trees by which it is favoured. The several classes of productions were grouped in four tents, the most attractive being those in the general and amateurs' tents; but the cottagers' collection was interesting, and comprised many skillfully grown plants and flowers. The weather was delightfully fine, and the inhabitants of Peterborough and the country round honoured the labours that had been incurred for their gratification by crowding the tents from a very short time after the public were admitted. The classes for stove and greenhouse plants in the general section were well filled, Messrs. Wood and Ingram, of Huntingdon, leading the way with handsome specimens of plants in flower and plants with fine foliage. Mr. Davie, gardener to Lord Huntly, put up some good Gloxinias; and Messrs. Wood and Ingram Gloxinias and Achimenes. Caladiums were not good; it is, in fact, getting late in the season for them. Some of the best Fuchsias ever seen at a show were put up by Mr. Davie; they were not remarkable for size, but they were perfect in symmetry, and literally loaded with flowers. Those from Mr. House, of the Eastgate Nursery, Peterborough, were fine plants, surpassing Mr. Davie's in size, but not in finish. Pelargoniums of all kinds were well shown, Mr. House, Messrs. Casbon, Mr. Atherton, Messrs. Wood and Ingram, and Mr. Ewart being the winners. In several instances small, bright, well-trained plants took the favour of the judges before larger and showier specimens wanting training, which stood beside them, to the surprise of many of the visitors. In one instance this was strikingly the case; for Mr. House presented a group of huge plants with abundance of bloom, which if trained in good time would have stood first without a question, but they were placed second to neat specimens that were unique in style of training, yet not a stick or tie visible, and every leaf and flower in its place, and all as fresh as the morning. The tricolors in this class were good, and there was a fine plant of Lady Cullum in one group, showing the fine red zone and high golden ground for which it has become justly celebrated. The zonals generally were good sorts, and it is agreeable to record that quality in this class is appreciated at Peterborough. The Petunias from Mr. House were admirably done—dwarf, stout, leafy, flowery plants; we see so many lean examples of these at country shows, that a variation in the direction of good culture is worth recording. In the classes for cut flowers, Messrs. Wood and Ingram put up fine collections of Carnations and Picotees; Mr. Draycott and Messrs. Casbon, Verbenas, the first particularly good. Six Gladioli were shown by Mr. Atherton; they were good, considering the time of year, but would not compare favourably with average samples later in the season. Messrs. Casbon showed good Hollyhocks in spikes, which is the only satisfactory way of showing them, though as cut flowers they are attractive and pleasing. The competition in Roses was spirited and close, Messrs. Paul and Son, of Cheshunt, and Mr. Draycott running a nearly even race, but the Cheshunt firm made the winning, and Mr. Draycott was a good second. Mr. Lawrence, Messrs. Wood and Ingram, Mr. House, Mr. Laxton, Messrs. Casbon, and Mr. Atherton also competed. New Roses were best shown by Mr. Draycott; Messrs. Paul and Son second. Here were good examples of Exposition de Brie, Abel Grand, Alfred Colomb, Comtesse de Jaucourt, Thorin, and others of good quality. Messrs. Paul and Son were first for Teas and Noisettes, which were shown in a separate class; and though the flowers were beautiful, they were not effective: they required to be grouped for effect with high-coloured roses, to bring out their qualities. The best mixed group of plants came from Mr. House.

In the general class for fruit, Mr. Davie contributed magnificent samples of black grapes, Mr. House and Mr. Spragg following honourably; the two last-named exhibitors also showed good samples of white grapes. Peaches and nectarines from Mr. House were fine, and the last-named put up the best collection of fruit. Of other fruits there were many good dishes; indeed, the fruit department was one of the most satisfactory.

The amateurs' tent was well furnished, the best group of stove and greenhouse plants came from Mr. James Ewart; second, Dr. Porter; third, Rev. W. R. Thomas. In the class for fine-foliage plants, the awards were in the same order. Dr. Porter sent the best Gloxinias; Rev. W. R. Thomas second. There was a large competition in the class for exotic ferns; all the groups contained good plants, but none of them were equally good throughout. The first prize went to Mr. J. Ewart; second, Mr. J. Whitwell. Very pretty groups were also contributed by Mrs. Whyley, Dr. Porter, and Mr. J. Thompson. As it may interest the cultivators of the district to know on what principle the first prize was awarded, the judges made a note to the effect that Mr. Ewart's plants of *Nothochlæna nivea* and the crested variety of *Pteris serrulata* were especially meritorious though small, and the other plants in the group were equal in merit to any others competing against them. A good *Nothochlæna nivea* will fairly count for two or three in such a competition, as it is a difficult fern to grow to a size fit for exhibition. The class for hardy ferns was also well filled, and the plants were required to be correctly named. The first prize group, from Mr. Whitwell, comprised many rare kinds in a good condition, with plenty of well-grown plants of popular and vigorous-habited varieties. The judges examined the names of all the plants in this class, and found in the first lot only two incorrect labels out of about two dozen plants, and those were not very bad—such, for

example as "*Adiantum nigrum*," instead of *Asplenium adiantum nigrum*. Second in this class, Mrs. Whyley. Miss Leeds presented a pretty group of plants. In the class for Solaginellas, Dr. Porter took a decided first position, having good plants, two of which were variegated varieties. The gold-tipped *S. denticulata* in this group was exceedingly pretty. The Rev. W. R. Thomas presented an interesting group, which was most deservedly placed second. The Begonias from Mr. Ewart were first-rate, —better leaves could not be desired, but the plants were, comparatively speaking, small. The Rev. W. R. Thomas contributed a very effective group. Achimines were not good, but the best came from Dr. Porter. Fuchsias were admirably shown by Mr. Ewart, Mr. J. Thompson, Rev. W. R. Thomas, and Rev. — Grsy. Other classes were equally well filled and equally satisfactory. A fine Oleander, five feet high, leafy to the bottom, and well covered with beautiful flowers, won for its owner, Mr. J. Thompson, an extra prize, and was well worth it; for, usually, as Oleanders increase in size they decline in beauty. Cut flowers were not good throughout in this section, but some beautiful roses were shown by Messrs. Laxton, Fryer, Rev. R. S. C. Blacker, Dr. Porter, and T. Macanlay. Dahlias from Mr. Fryer were good, and Dr. Porter sent a group of Gladioli which were of good quality, considering their earliness.

A very interesting feature of this exhibition was the competition of ladies in dinner-table decorations and bouquets. Mrs. Porter took the first place in decorations in a very decisive manner, with a plateau richly decorated with fruit. It was surmounted by a silver nautilus-shell filled with flowers. We thought the silver stand and shell the least meritorious part of the construction, the shape of the shell not being well adapted either to display or preserve the flowers; yet it was in its way beautiful, and the *tout ensemble* was at once novel, rich, tasteful, appropriate, and pleasing. Miss Leeds took second place with a group of glass épergnes of the well-known March pattern. They were too much crowded with flowers, and there was no special touch of grace about them to give finish; fewer flowers and more green would have greatly improved them. Mrs. Hopkinson and Miss B. T. Saunders also contributed. In the class for bouquets the contributions were numerous and good, but the bouquet from Mrs. Macaulay quite distanced them all in its freshness and delicacy of colouring, pink and white with a few small dots of blue, with a fringe of fresh fern-leaves constituting its elements, and quite defying description. For this was awarded the five-guinea cup most deservedly. For once in our time we can say we have seen a perfect bouquet. Miss Bland took the first prize in the money classes, G. Copley second. One fair competitor had adopted the *Land and Water* theory of complementary colours, presenting a bunch of flowers arranged in rings of red, white, and yellow, a sort of small flower-bed of the road-side garden type. Gallantry forbids us to condemn, but, as fair reporting is proper, we will respectfully suggest to our lady readers that they need not trouble themselves at all about the complementary theory, and in saying that we desire to be complimentary ourselves, having deeply at heart the increase of their enjoyments in the grouping of flowers.

In the fruit department special mention must be made of the well-grown fruit-trees in pots from the Rev. W. R. Thomas; for though they were much brushed by the company, owing to the position they were placed in, they showed to the last that they had had the care of a skilful cultivator.

In the cottagers's section the contributions were generally good, and in many instances remarkably so. We regret we cannot afford space to do them justice.

Messrs. F. and A. Smith, of Dulwich, presented a collection of their beautiful new varieties of gold and silver zonal pelargoniums (tricolor geraniums), which were greatly and deservedly admired. First-class certificates were awarded them for *Jetty Lacy* and *King of Tricolors*. Mr. Watson, of St. Albans, exhibited a collection of three varieties of the same, and obtained a first-class certificate for *Mrs. Dix*. Mr. Burlingham and Mr. Paviour, watch and clock makers, of Peterborough, made a large and attractive display of table decorations, flower glasses, vases, &c., &c., executed both in glass and metal. This part of the exhibition was eminently interesting.

To the promoters of this show, and especially to Dr. Porter, the Rev. W. R. Thomas, and W. D. Gaches, Esq., the honorary secretaries, the highest praise is due for the general arrangement, and for the measures taken to secure full justice to every class of exhibitors. Nor can we omit to mention that Mr. House contributed largely from his well-furnished nursery, and this without respect to the schedule—for the good of the cause, in fact, and not for his own good. He capped his labours by providing a luncheon for the judges. May the House last long that holds his generous nature! The judges were Mr. Pearson, of Chilwell; Mr. F. Smith, of the Dulwich Nurseries; Mr. Clarke, of Studley Royal, Ripon; Mr. Roberts, Mr. B. Taylor, Mr. Casbon, and Mr. Sbirley Hibberd.

THE BEDDING DISPLAY AT THE CRYSTAL PALACE.

That our annual reports on bedding should be delayed to so late a date is simply the consequence of the coldness and the general unkindness of the season. The weather has offered some practical commentaries on our essays upon the increasing necessity for hardy plants, and upon the relative merits of the plunging system. Every word that has been offered in these pages on the difficulties, expense, and uncertainties of the bedding system, and on the advantages resulting from a liberal recognition of the merits of hardy plants, has been illustrated by the events of this season. We were enjoying displays of bedding plants by the plunging system in the middle of May, and were then praising the beauties of the Pyrethrums and other May flowers that have places in well-kept gardens, and that no bad weather can do hurt to; yet on the 1st of July the bedding at the Crystal Palace was not quite completed, and the planting accomplished by that date was far from being gay with flowers. Mr. Gordon had been fighting with the elements, and of course had got worsted in the battle. The Crystal Palace gardens were in no respect in arrear of other gardens similarly situated; and in these remarks we simply select them as the best known examples for purposes of comparison, and to point the conclusion, that whoever practises bedding extensively must expect to be without flowers in the very pink and prime of the whole year, the months of May and June. Of course, these gardens are gay enough now, magnificently so; the bedders are right at last, and the splendour of the colours during August and September may amply justify the excessive labour and the great expenditure of money and time required to produce it. For a great place of general public resort, there can be no doubt that an elaborate display of bedding is most proper and desirable; but it is a sad mistake

when a lady or gentleman owning a small demesne expects grapes and flowers and bedding plants all from a small extent of glass, and considers the gardener incompetent because his out-door display does not equal or surpass that at the Crystal Palace. The fact is, the Sydenham bedding is not adapted for imitation in small private gardens. It is promenade work, and admirably suited for the entertainment of crowds; but it would soon tire all the crowds that now rejoice in it were the individuals, each and all, to be compelled to behold it daily during its season of magnificence. But while we regard it as matter for regret that many possessors of private gardens consider themselves bound to imitate the Crystal Palace bedding, we cannot for a moment forget that here is one of the best out-door schools of design for gardeners of all classes, amateur and professional. The practitioner who can walk over these grounds, and not obtain a hint or idea of some practical value, must need to be taught the use of his eyes. And not only may we learn here something about design and colour, but we may find examples of all the best bedding plants, new and old, and make useful notes on the subjects most likely to be useful to ourselves. A large number of amateurs residing near the metropolis, and indeed a large number who dwell far away, make a point of visiting the gardens at Sydenham every year, with this sheet in their hands, for the purpose of comparing varieties, noting distinctive effects of contrast and harmony, and otherwise checking, correcting, and improving their own schemes of out-door embellishment. To all such we can say that, though Mr. Gordon has had unusual difficulties to contend with, the Sydenham bedding is rich and satisfactory this year, and well worth inspection by practical men, no less than by the thousands of mere sight-seers, who are not very critical, provided they see plenty of colour.

This time we will take our stand at the top of the central flight of steps in front of the principal garden entrance. From this position we see the whole of the terrace colouring,—the Araucarias with their circles of blue and silver in the foreground, the bold line of colour which forms the string of the bow immediately at our feet, or, in other words, the chord-line of the great semicircle which constitutes the central block of the second terrace. Farther away, right and left, the wing blocks are seen to be in a different style to the centre, drawing out the vast pattern to its proper dimensions, and at the greatest distance revealing clearly the general purport of the design. Usually distance makes a muddle of a bedding display, but here it is not so; the space is so extensive that the patterns can be made large enough to show their lineaments when viewed from this central point, and the large use of gray, yellow, and pink in the outermost schemes gives them a sharpness and distinctness that would be wanting were they coloured in the same rich manner as the central compartment. If the reader will refer to the figures of the principal or second terrace at pp. 318 and 319 of last year's GARDENER'S MAGAZINE (July 14, 1866), it will be seen that the great central semicircular compartment (D, D, S, p. 319) is embellished on its upper or bow side with a line of Araucarias and pedestals alternating. It has always been the custom to plant round these, the trees having circles of Lobelias and Cerastium, the pedestals circles of geraniums. It is one of the special delights of a view of the garden from the first or upper terrace to look down on these circles, so distinct and beautiful are they in their regular alternation of scarlet and blue, with gray in each case to afford distinctness to the outlines. The planting of these circles may all be read off from the top of the steps by persons familiar with bedding and bedding plants; but as this report is intended for the use of the world at large, we must say that the Araucarias are planted alternately with Lobelia Paxtoniana and Cerastium tomentosum, and Lobelia Blue King and Cerastium tomentosum. It is not needful to go through the series, but the reader may do so without difficulty; and the planting of the pedestals will be found to be, on the north side, thus—One row of Alma outside, four rows of Stella, one row of Alma inside: one row of Alma, four rows Christine, one row Alma: one row Alma, four rows Crystal Palace, one row Alma. On the south side, that is to say, the southern half of the great semicircle, Flower of the Day takes the place of Alma, but otherwise the planting is the same.

Let us now go down to the chord-line, where the grandest display in the whole garden is presented to us. Here we have a series of circles and oblongs, forming a flower border next the main cross-walk, 680 feet in length. In the planting of this border the artist must be bold and decisive, and he must content himself with about half a dozen varieties of plants, for if he attempts the least complication failure is certain. It will be agreed by all that Mr. Gordon has added to his long list of triumphs in the colouring adopted here in 1867, for here is richness with perfect harmony, and decision with boldness, but without lack of refinement in the tone. The circles are edged with Flower of the Day, next within are two rows of Christine, the centre is Trentham Rose. The oblongs are edged with one row of Purple King verbena, next within that one row of Flower of the Day; next within, two rows of Gaines's Yellow Calceolaria; the central line consists of three rows of Stella. Viewing the planting ribbon-wise, it will be observed that the intense deep colouring of Stella is interrupted by the lighter and brighter tones of Trentham Rose and Christine, and the effect is a rich mixture of reds in the centre line, and on each side a yellow line is interrupted by lengths of gray. It will bear inspection more than once, and that from several different points of view. In criticising this arrangement I went northward, and, when at the extreme north end of the 680 feet length of colour, turned sharp round to return to the central steps by way of the semicircle, to which the pedestals and Araucarias form the boundary on one side; on the other side of the walk are circular and oblong beds, the positions of which are indicated by letters H H in the figure at page 319 of last year. We are now dealing with the northern crescent, that is to say, the right-hand H in the figure. The first bed on the way up from the great cross-walk is edged with Silver Queen, and the remainder is a solid block of Tropæolum Perfection, a very fine scarlet bedder. The next bed is edged with Flower of the Day, and the body of the bed consists of Crystal Palace Gem and Lobelia speciosa, plant and plant. This Crystal Palace Gem is one of the favourites of our Geranium papers: here you may see it and judge for yourselves. The next bed is edged with Lady Plymouth, and the body of the bed is geranium Fatanizzi: this last is an old favourite here, and a very good bedder of the salmon coloured section. The next bed is edged with Centaurea ragusina, and has a solid block of Amaranthus melancholicus. The next bed consists of Sottesbam Pet and Lobelia Blue King; no note made of the edging. The next is edged with one row of Silver Queen, and within that is a solid block of Excellent. The next is one row of Lady Plymouth for edging, and within that a block of Mrs. Pollock. Now our course is broken by a compartment of rhododendrons, next we pass the grand steps, next a companion clump of rhododendrons, and then

go on again the beds on the southern crescent, or the left-hand H in the figure at page 319 of last year. The first bed here corresponds with the last one; it is a circle edged with Lady Plymouth and filled in with Mrs. Pollock solid. Next, one Silver Queen and block of Excellent. Next, row and row alternating of Shottesham Pet and Blue King; no note of the edge. Next, edging of *Centaurea ragusina*, and block of *Amaranthus melancholicus*. Next, Lady Plymouth edge, and block of *Fatanizzi*. Next, one row of Alma, the filling-in consisting of Crystal Palace Gem and *Lobelia apiciosa*. The last in the series is the same as the first in the former, being, like it, a corner bed, at the junction of the crescent with the cross-walk, edge Silver Queen, filling-in *Tropæolum Perfection*.

We may now conveniently inspect the chain pattern in the compartment to which our attention has been partially directed while inspecting the beds last described. This compartment continues the line of the main cross-walk on one side (see K in figure at page 318 of last year), and opens the way to the flight of steps immediately contiguous to the ethnological department. The corresponding compartment flanks the cross-walk, and opens the way to a similar flight of steps near the north wing. Both compartments are planted the same, of course, and the description of one will suffice. At the corners are large blocks of shrubs, embraced by the heart-shaped beds which at these corners form the outermost parts of the chain. These heart-shaped beds consist of two rows of Crystal Palace Geranium and a block of *Gaines's Yellow Calceolaria*. On either side of the heart-shaped beds are circles, consisting of two rows of Christine and central block of *Perilla Nankinensis*. Beyond these again are oblong beds, which are planted the same as the corners. All are connected together by means of links, consisting of the well-known variegated *Alyssum*, and this goes round all the beds, and forms an edging to the whole.

There are many hits of colouring that we take no notice of, for the simple reason that it is impossible to describe every bed in such a place as this, and it would be of no use to describe schemes that cannot be easily discovered. But mention must be made of a bed comprising two meritorious novelties. We are now near the steps which lead to the first-class dining-room. The position is marked by the letter M in the large print at page 318 of last year. The last bed but one next the main cross-walk (L) at this point consists of one row of Cloth-of-Gold, two rows of Crystal Palace Rose, and centre block of *Duchess of Sutherland*, the last being one of the new nosegays specially recommended in the Geranium papers.

We may now deal with the two outermost compartments (L at page 318 E at page 319, of last year). There are four corner panels in each of these compartments, very prettily planted. The edge is *Gnaphalium lanatum*; next, two rows of *Gaines's Yellow Calceolaria*; at each end a circle consisting of *Trentham Rose*; the filling-in consisting of *Cottage Maid*. The slope next the railway corridor has a series of beds that are usually described as *Vandykes*, which is incorrect. Our figure will show that the idea is much more probably taken from a well-known feature in architecture. In former reports we have described them as resembling a series of medals connected with loops of ribbon, but such a description will scarcely suffice this season; for the style of planting adopted destroys the medal completely. Those who are curious enough to go so far in their inspection, will find the planting to consist of *Lobelia Paxtoniana*; next, one row of *Flower of the Day*; next, two rows of Christine; the centre, *Perilla*; at the north end, flanking the orangery, *Cryal Palace Scarlet* is put for Christine.

It will now be convenient to go to the Rose Mount. The ground-plan of the mount and its surroundings will be found at page 328 of last year's volume (July 21, 1866). There are six walks up, with large V-shaped beds at the corners, and circular beds right and left. We usually begin here with the walk nearest to the railway station, marked A on the plan just referred to, where the great V-bed consists of a centre of *Stella*, with two rows of *Gaines's Yellow Calceolaria* on each side, and an edging of *Flower of the Day*. This bed will serve to give the key to our course, so that those readers who take the book with them will have no difficulty in finding their way to whatever else is to be described. Before starting, however, it seems proper to call attention to one of the circular beds, which is conspicuous for its colouring, and is as nearly as possible situated exactly opposite the ticket wicket, where the garden is entered from the railway station. This is a circular bed, consisting of Mrs. Pollock, edged with *Alternanthera spathulata*. Let us now go up this walk, to have a look at the pavilion. The roses are over, or nearly so; but there is a good promise of a second bloom. The slope or *glacis* immediately surrounding the pavilion is extremely gay, and this year is planted in a series of festoons enclosing escutcheons. All along the top line is *Cottage Maid*; next below it are escutcheons of *Trentham Rose*, divided by festoons of *Coleus Verschaffeltii*. Below these are festoons of *Flower of the Day* and Christine, one semicircle of each repeated, and every semicircle enclosing an escutcheon of *Purple King verbenæ*. In the spaces between these last loops or festoons, on the lower side, are blocks or escutcheons of *Tagetes signata pumila*, the now well-known dwarf yellow marigold, which in many places has taken the place of *calceolarias*. The boundary on the lower side is a continuous fillet of *Blue King Lobelia*. This is very gay, rather novel, and tasteful in the highest degree: it is to be hoped the marigold will hold out to the end of the season. In the centre of the pavilion the beds in which the gey-ropes of the flag-staff are placed consist of an edging of *Shottesham Pet*, two rows of Christine, and centre of *Stella*. From these we naturally turn to the six sunk panels, which are planted as three pairs, each bed having its counterpart on the opposite side. One pair of panels consists of two rows of *Tagetes signata pumila*, two rows of Christine, and centre block of *Stella*. Another pair consists of edging of variegated *Ageratum*, three rows of *Cryal Palace Scarlet*, centre block of *Gaines's Yellow Calceolaria*. The remaining pair consist of edging of *Gnaphalium lanatum*, two rows of *Calceolaria amplexicaulis*, central block of *Cottage Maid*. Let us now go down by the same walk as we came up—that is, towards the railway station (A in the figure at page 328 of last year).

Going down from the pavilion by this walk, we have on the left a bed consisting of one row *Shottesham Pot*, filled in with *Brilliant*; this is very effective. The match to it on the right is *Stella*, edged with *Shottesham Pet*. Next down on left, a seedling *Lobelia* of Mr. Gordon's, not yet named, forming the edge; next, two rows of *Geranium Diamedatum erubescens*, filled in with *Fatanizzi*. This new *Lobelia* is of exceedingly dwarf compact habit; the colour a clear deep azure blue. A good name for it would be *Blue Cushion* or *Sapphire*, but Mr. Gordon has not determined yet what its name shall be. The match bed to this is of the same *Lobelia*, with two rows of *Geranium Countess of Devon* and a centre of

Sidonie. This brings us to the V-bed with which we began, and there will perhaps be no harm in repeating that it consists of one row of *Flower of the Day*, two rows of *Gaines's Yellow*, and centre block of *Stella*.

The circle on the right, exactly opposite the V-bed, consists of an edging of *Geranium Silver Queen*, filled in with *Tropæolum Perfection*, a capital small-growing scarlet. Next on the right, the bed previously referred to, in which *Alternanthera versicolor* figures for an edging, the remainder of the bed being *Mrs. Pollock*. The next circle on the right has for an edging the new *Lobelia*; next, two rows of *Centaurea ragusina*, and centre of *Coleus Verschaffeltii*. Going on to the right, we have a bed edged with *Beaton's Minimum Pink Nosegay*, a curious variety, with yellowish green leaf and reddish brown zone and pink flowers. The remainder of the bed consists of *Excellent*.

The next V-shaped corner bed (marked B on the sketch) has an edging of *Cloth-of-Gold*, two rows of Christine, centre block of *Crystal Palace*. On the way up, we have on the left an edging of *Smith's Light Fancy*, and centre of *Prince of Orange*.

Further on we have a pair of beds, the left being *Lady Plymouth*, and *Blue King Lobelia*, the match to it being *Variegated Prince of Orange*, and a seedling blue *Lobelia*; a very pretty one too, the blue being of a deep clear tone, the centre of the flower pure white. The top bed is an odd one; it consists of edging of two rows of *Harry Hicover*, filled in with *Madame Vaucher*, which has not shown a white flower all the season, but plenty of a nice blush. We go down again and meet with one circular bed not seen before, consisting of an edging of one row *Mrs. Pollock*, next two rows of *Sidonie*, filled in with another new and interesting nosegay, *Lady Constance Grosvenor*.

The great corner bed at this point projects beyond the true periphery of the scheme, in order to carry forward the route to the Palace, as shown by the arrow at G on the plan. This bed has for edging *Viola cornuta*, next one row of Alma, and within these a fine block of *Lord Palmerston*. We now head round to the right, and find our way to the next V-bed, shown at D on the plan. This has for edging one row of *Gnaphalium lanatum*, two rows of *Gaines's Yellow*, and a central block of *Trentham Rose*. Once more we go up towards the pavilion, and find on the left a bed edged with white *Lobelia*, next two rows of the new yellow-leaved *Iresene aureo-reticulata*, enclosing a block of *Iresene Herbstii*. Next on the way up, and still on the left, edging of *Nierembergia gracilis*, filled in with *Heliotrope corymbosa*. Again on the left going up, edging of *Lobelia Paxtoniana*, with block of *Geranium Countess of Devon*. The match to this on the right is *Lobelia speciosa*, enclosing a block of *Geranium Gipsey Queen*. The top pair consists of left-hand bed of *Silver Queen* edge, enclosing *Comte de Morny*, and right-hand bed of *Silver Queen*, enclosing *Lady Mary Fox*. Now, down again, and pass all that we have just described. The next beyond them on the right has an edging of *Arctotis repens*, enclosing a block of *Gazania splendens*. The next is edged with *Harry Hicover*, with block of a seedling geranium with rose-pink flowers, a truly splendid bedder, and of a class in which improvement is needed. The next is edged with *Shottesham Pet*, enclosing a block of *Tropæolum Perfection*, a splendid bit of colour. Once more we arrive at a great corner bed, the one marked E on the plan.

If we look to the left, that is, away from the Mount, we see a triangular compartment with *Wellingtonia*, and three large triangular beds. These are planted with an edging of *Gnaphalium lanatum*, two rows of *Crystal Palace geranium*, the centre *Lucius*. The V-shaped bed (marked E on the plan) which occurs in the usual place at the next walk up, has for edging one row *Purple King verbenæ*, next two rows of Christine, centre block of *Cottage Maid*. On the way up, on the left, an odd bed edged with *Crystal Palace Gem* geranium, the one of F. & A. Smith's aforesaid, and which had a leading place in the Geranium papers last year as a first-class golden-leaved variety. The centre block consists of *Madame Vaucher*. The next beds are a pair; that on the left consists of *Lobelia apiciosa* and *Shottesham Pet*, plant and plant; that on the right consists of *Blue King Lobelia* and *Cloth-of-Gold* geranium, plant and plant; both good beds, but not well matched. Again, a pair, the left being *Lobelia speciosa* edge; next, a ring of *Centaurea ragusina*, and a block of *Amaranthus melancholicus*. The right-hand bed is edged with two rows of *Lobelia speciosa*, two rows of *Centaurea ragusina*, and block of *Perilla*. These are not a good match. Now we go down again and wheel to the right, and passing the beds already scanned, we come to one with *Dandy* edging and block of *Excellent*. The next is edged with two rows of *Tropæolum compactum luteum*, with block of *Tropæolum compactum coccineum*. Here speculative amateurs not yet acquainted with them may form some opinion of the merits of Mr. George's series of *Compactum Tropæolum*. The next is edged with one row *Gnaphalium lanatum*, and within that *Verbena venosa* and *Cinoraria maritima* in alternate circles; a curious bed decidedly, and a change from things commonplace. The next is edged with *Japanese honeysuckle*, and the centre block is *Salvia patens*. The last in this series is a bed of *Prince of Orange*, edging not planted when these notes were made.

The next corner or V-shaped bed (F in the figure) consists of an edging of *Nepeta violacea*, the pretty blue-flowered *Salvia*-like plant we have so frequently recommended, and which is sometimes described as *Salvia chamædrifolia*; within the edging two rows of *Gaines's Yellow Calceolaria*, and a fine central block of *Cybister*. Again we turn to the right, and up. On the left, the first bed is edged with *Shottesham Pet*, enclosing a block of *Tropæolum Perfection*. To the right is a match bed with the same edging, and a seedling *Tropæolum* called *Gipsey King*, a fine dark variety. The top pair consists of left-hand bed of one row of *Cloth-of-Gold*, enclosing a block of *Purple Nosegay*, or *Fothergillii*, the right being one *Cloth-of-Gold* and block of *Lord Palmerston*. We now go down again and pass five beds, which were not planted when these notes were made, and which we hope may be spared from the report. So we come to another great triangle, the one marked G on the plan.

This last of the V-shaped beds is edged with two rows of the little marigold *Tagetes signata pumila*, next one row of *Brilliant*, centre block of *Purple Nosegay*. On the way up a pair of beds consisting of edging of *Golden Chain*, two rows of *Excellent*, and block of *St. Clair*. At this point we close the description of the Mount. Our notes were made on the 29th of June, with a view to publication of this report in the week following. We have kept it back till now, hoping to be enabled to make another visit, but other engagements have prevented us, and it seems better to make the best of the notes as they are than to delay any longer their publication.

There remains yet one magnificent piece of planting, the description of which will require but few words; but every student of these matters must

see it. As a matter of necessity, almost all visitors to those gardens on grand days do see it, for it is the series of oblong and circular beds which flank the main walk on each side on the way from the terraces to the fountains. Yet, important as the situation of these beds may be, few people, comparatively, out of the thousands who visit the Crystal Palace during the season see them; for when they get to the central walk which divides the upper garden into two equal parts, at the intersection of the great basin and the water temples, it does not occur to them to look over the parapet and down upon the beds. Those who have ever done so will doubtless be in haste to know how those beds are planted this season. The oblong beds here are each 30 feet long and 9 feet wide, and the circles are 9 feet wide to correspond with the others, and the first series extends about 350 feet. The long beds have an edging of *Geranium Mangle's Variegated*; next two rows of *Christine*; next two rows of *Gaines's Yellow*; next three rows of *Stella*. Ye who can paint all this in your mind's eye, say, is it not grand so far? Now for the circles. These are edged with two rows *Lobelia Paxtoniana*; next, one row *Golden Chain*; next, two rows of *Crystal Palace Scarlet*; and lastly, centre block of *Trentham Rose*. Then we find a bed of *Dahlia's* at the turn round the great basin, and then we go on again as before on the way down to the Temples. Let us suppose, for the sake of convenience, that the fountains are just about to play, and that the visitor, tired of this long story, is on his or her way down to be refreshed; what better can we do than suddenly snap the thread, and abruptly conclude our report on the Crystal Palace for 1867. S. H.

CUCUMBERS FOR THE WINTER.

Having been a successful grower of cucumbers for winter consumption for several years past, I have decided to detail my practice upon paper, and I do so with a hope that it may be useful, feeling that I ought to do something for the pages of the Magazine in return for the many useful hints I have gleaned from a constant perusal of its columns. In the first place, I must remark that the details given below refer to cucumbers grown in houses only, and not to those grown in frames with duug-heat, and I may state that the bottom-heat is furnished by a tank filled with water, through which a 4-inch flow and return pipe is carried, which is heated from the boiler, in conjunction with six other pipes of the same size for top-heat, in a small lean-to house, 16 feet by 10. I have full control over all the pipes, and only use those for top-heat when the weather is severe, and I wish to maintain a regular temperature for fruiting plants. And on this depends much of the success; for where there is a deficiency of heating surface the plants suffer materially in frosty weather if they are allowed to get chilled.

The soil I use is a sweet turfy loam, half decomposed leaf-soil, and well rotted dung, in equal parts. To every barrow-load of this I add about a gallon of coarse sand—either river or road sand is the best, as its particles are larger, and consequently they make the soil more porous. I do not like to use for winter work a loam that is destitute of its turfy surface, as it tends to make the bed too close and impervious to air and water. After the bed has been made up a few weeks, therefore, I procure a thin surface spit from which the turf has not been removed. When this has lain by for a few months, it cuts up with the spade in excellent condition. I cut it into pieces about half the size of one's hand, and well incorporate it with the other ingredients. It would surprise those who advocate the growing of winter cucumbers in a soil consisting chiefly of peat earth to see what luxuriant foliage they make, and how vigorously the roots ramify and extend themselves in and around these turfy lumps, and its nature gives to the other component parts an agreeable consistency, while its turfy texture admits of a free access to air and water, without which the plants cannot long remain in health. The rotten dung and half-decomposed leaves are both essential; the first to afford the roots a sufficient amount of nourishment, and the latter are valuable for the organic matter which they contain, and on which the plants will feed with avidity, and show their gratitude by exposing to the cultivator well developed foliage of the densest dark green, such as every good grower of cucumbers delights to see, and without which a satisfactory produce cannot be expected. The above compost should be put on the tank in a moderately moist but not in a wet condition.

As to the time of planting, many years' experience convinces me that it should not be delayed after the third week in August. Of course, they may be planted later and made to fruit during the winter; but requiring cucumbers from December onwards, which we do, I have never yet succeeded in getting a vigorous constitutioned plant when put out after the above time. When planted early, they have time to make a good growth before winter without the aid of fire-heat; and when plants furnish themselves well over the trellis under such conditions, I find they are much less liable to feel the effects of a varying temperature in the after management, as, not being coddled up in the first stages of their growth, they are more hardy, and will endure a certain amount of excitement without injury.

Among many Kentish gardeners, I find that struck cuttings from favourite varieties are generally considered the best for winter work, but for myself, unless I have some special sort I wish to increase or cultivate for the winter, I find seedling plants answer every pur-

pose, and, indeed, they are less liable to come to premature decay than plants from cuttings, as I have before now seen a whole house of cucumbers drop their leaves and wither up in a day during sultry weather in July, yet with no fault in the management. I have never seen the same with plants raised from seed. Whether they ever go off so suddenly I cannot say.

I must now deal with the planting, and whether the plants are from seed or cuttings the remarks will apply. Presuming that the plants are ready, the house thoroughly cleansed from all dirt, the paint all scrubbed, and the glass well cleaned, and the soil being in its place for some days, with the boiler and hot-water pipes in good repair, we may plant with a reasonable hope of success, if there is no break-down with the boiler and no steaming of the plants. Put the plants in the soil, with only just a gentle pressure round each. A small supply of water may be given at this time to settle the soil down to the roots. I prefer to plant of an evening, and then shade for the next two days, not longer, and not then unless it is very bright, as I always like to inure my plants to full exposure to the sun in all their stages, as it gives them a greater power of endurance against any other little vicissitudes that may happen. When cucumbers in houses flag, it is caused either by a weak constitution or for the want of water, or for the want of a judicious system of air-giving. Reader, remember this, and work out the rule until I can spare time to write the remaining portion of my management for an early number.

A KENTISH GARDENER.

NOTES ON SOME BEDDERS.

As usual, a great many new bedding plants were put out for trial in the borders at Stoke Newington in the spring of the present year. I shall not attempt to enumerate them all, or minutely describe the characters of any; but I shall make a few notes on such as have particularly struck me as worthy of a few observations. Many of my long-accustomed readers will remember that my date for many years past for the first start in bedding is the 10th of April. Generally speaking, in sheltered places geraniums and calceolarias that have been wintered dry and cool, and kept very hardy all the spring months, take no harm by being put out so early; and when we had to clothe walls as well as beds, and make pyramids ten to fifteen feet high without mounds of earth for centres, but with plants of the height required, it was very important to begin early, as experience had taught us that five or six degrees of frost did our plants no harm. The plunging system takes the place of bedding now, and whatever we plant out is for trial and comparison. The home garden does not of course suffice for all our practice in this way; but not far away from it we have some good collections, and plenty of work to do. We began planting this season on the 6th of May, a circular bed enclosed by two semicircular borders. The circle consisted of festoons of *Geranium Goldfinch* and *Geranium Mrs. Pollock*, enclosing half-moon-shaped blocks of *Coleus Verschaffeltii*, *Coleus nigricans*, *Iresene Herbstii*, *Alternanthera amœna*, *Alternanthera paronychioides*, *Alternanthera spathulata*, and *Teleianthera versicolor*. The border was planted with festoons of the same kind, but white and creamy-leaved geraniums and *Iresene Herbstii* were the principal features. The object was solely to ascertain how far our bold system of early planting would suit such things. They were all well hardened first, the weather in the latter part of April being quite as good as any we have had since, and much more like summer than any part of the defunct month of July. Everything went well till the 21st of May or thereabouts, and at that time there was a perceptible commencement of growth in the geraniums, which looked as if another week of nice weather would give them a good start. On the 23rd and 24th came a killing frost. I was away at the time, attending the Cambridge show. On the 24th I saw them, and found them slightly altered from the condition they were in when I left home. It must be remembered that the frost referred to was unusually severe. In the field, a furlong or so distant from the home garden, the whole of our collection of 160 varieties of potatoes, then in a forward state of growth, were killed back, with the sole exception of two kinds; and on the spot where these bedders were planted the temperature had twice gone so low as 10° of frost. To prevent any misunderstanding, let it be understood that our minimum register was 22°, just 3° lower than the minimum on the same night at Chiswick. The geraniums looked queer, but were not seriously hurt. The *Alternantheras* (including the *Teleianthera*) were as bright as before, not a leaf hurt; in every respect, so far as we could judge, as good as before the frost occurred. The two varieties of *Coleus* were dreadfully cut about, and some of the plants were quite killed; yet they looked as if, with a little patching and mending, and with downright good weather to follow quickly, they might make a decent appearance at last. As for the *Iresene*, it was literally destroyed. We could find its withered leaves on the ground, but until we looked for

them we might have supposed they had been pulled out of the ground and carried away, so complete was their destruction. From these experiences I conclude that the new *Alternantheras* are well adapted for places where the elements are apt to be unkind to bedding plants. They stood ten degrees of frost without harm, and to learn this much about them is well worth the loss of all the rest. As the scheme of festoons and crescents was ruined, we took up all the *Alternantheras* and potted them for plunging, and put blue *Lobelias* in all the places where the red and purple-leaved plants had been. In the semicircles we made front lines of the variegated *Dactylis*, and gave up all idea of novel colouring.

The mention of the *Dactylis* puts me in mind of the new variegated grass, *Poa trivialis argentea elegans*. It is quite hardy, and grows fast. I took one thin stolon with a scrap of root, or in other words a rooted scrap as thick as a worsted needle, with about five leaves, and potted it in February. It soon began to spread in the warmth of an ordinary green-house. In the first week of April I planted it out, and it now covers a space of ground exactly 20 inches across. In growth it very nearly resembles the *Dactylis*, spreading as that does in the likeness of a mat, but it is not so strikingly white as the *Dactylis*, yet it is more beautiful, for the leaves are narrower and the plant is shy to flower, and when the two are side by side, the *Dactylis* has a coarse appearance. Let it not be supposed I wish the *Dactylis* to suffer by the comparison, for it is one of the most beautiful variegated-leaved bedding plants we have. But the *Poa* is beautiful too and distinct. I have given you its true character, and you can take your choice.

All who have seen the *Golden Feather Pyrethrum*, which is a variety of *Pyrethrum parthenifolium*, at exhibitions have voted in its favour. Several times in the past season Messrs. E. G. Henderson have shown it in quantities in pots, and it has met with general favour. I have not yet seen it planted out any where except here, and I put out one plant so early that it had made a vigorous tuft a foot across before April was out. From that same plant, about the middle of April, we managed to steal a dozen cuttings, all of which were quickly rooted and planted out, and are now nice tufts of sulphur-coloured herbage. It is so good as we have it that I do not believe, in respect of distant effect, there is any geranium to equal it; it is truly brilliant in colour and of neat spreading growth. Where it fails in comparison with geraniums is its lack of individual beauty when looked down upon. Mrs. Pollock, for example, is not very striking when viewed from a distance, but to stand beside a good bed is to see a pavement of jewels, as if Alhambras could be grown to order. The *Golden Feather* will be as good in the golden way, for people who cannot tackle delicate plants, as *Stachys lanata* and *Cerastium* are in the silver way or the milky way; in other words, it is a hardy plant and a poor man's bedder. I had almost forgotten to say that its flowers are worthless, and must be picked off as fast as they appear.

A *Calceolaria* called *Gem* is undoubtedly one of the best for bedding. It is one of the shrubby class, of dwarf compact habit, with flowers of a gold yellow in huge trusses, the habit everything that can be desired and the plant not given to the slight failing of dying the same day as it comes into flower. There are several *calceolarias* bearing the same name, but how to fix the identity of this by its origin I know not, for I am ignorant of its history. Our able and enterprising nurseryman, Mr. Oubridge, of Stoke Newington has it, and no doubt could manufacture a few thousands of it for next season, if ordered now. It is certainly the best in these parts. That is all I can say of it.

Verbenas are plentiful enough, yet there will always be a demand for good bedding varieties, if in any respect in advance of established kinds. *King of Bedders* is first-rate, and whoever has it will be sure to propagate it for next season. To say that it beats Admiral Dundas is not mean praise, for that is certainly one of the best still. But it surpasses the Admiral in colour, being a more brilliant shade of crimson-red; the growth is free and dwarf, not subject to mildew; the flowers are produced in great abundance, the pips and trusses large, and with a fragrance that will revive in high summer the odour of spring violets. I know of none among the *White Verbenas* to equal *White Queen*. It is a pure white, even in the hottest and driest weather. Unfortunately, we have had little of such weather to prove it by this season, though we have had rain enough to wash it away; but it blooms as bravely whether sun or shower. This scarcely requires pegging; indeed, unless in very rich soil, which it does not require, pegging need not be attempted. Mr. Thorpe, of Littlethorpe Gardens, near Leicester, sent us a variety without a name, which has proved to be a first-class bedder. The flowers are large and stout, but not well formed, the trusses of good size; the colour blackish velvety crimson with a touch of violet in the eye. It is incomparably rich, and for a heavy royal sort of bed the very perfection of a verberna.

Tropæolums have become so abundant that there are just five times as many named varieties in cultivation as we require. The *Compactum* series, for which we are indebted to Mr. George, of Stamford Hill, have been better this season than last, the result,

doubtless, of the farther remove of the plants from a seedling state, propagation through several generations by cuttings having apparently improved and refined their natures, and increased their tendency to flower. The four best in the series we have, and for plants of which we are indebted to Mr. Cannell, of Woolwich, and Mr. Kirtland, of Stoke Newington, are *Luteum Improved*, a fine deep orange-yellow with small crimson spots; this is the most robust and free of all; it forms a round compact bush, and flowers without intermission. The next best appears to be *The Moor*, the colour of which is maroon-crimson, apparently the next in order of robustness, and readiness to grow and flower. *Novelty* must perhaps take the next place; this is decidedly diminutive in growth, and the flowers do not expand so flat as in the two just named; the colour is intensely bright orange-scarlet with a few touches of orange. Lastly, *Scarlet Gem* is the weakest grower of all, quite a miniature, and a gem of its kind, for it covers itself with flowers, and these are most neat and beautiful in form, expanding to an almost flat face, the colour being clear light scarlet. The best of all the *Compactum* series are *Luteum Improved*, *The Moor*, and *Scarlet Gem*, the last named being the weakest grower of the three. Since some time early in June, *Tropæolum Advancer*, sent by Mr. Chater, of Gonville Nurseries, Cambridge, has been pronounced the best in the garden. I never saw such a perfect plant as one that stands right in front of my garden sanctum, in the full sun on the ledge of a rockery. The plant quickly grew, after being turned out of a thumb pot, to the size of half-a-quarter loaf, as round as a ball, with little light green leaves, and with most beautifully formed flowers of the brightest scarlet, in such profusion as made it an astonishment for a time. Yes, for a time; there is not now (July 29) a single flower on the plant, and no promise of one either. I conclude, therefore, that *Advancer* will do for the London season, to blaze away from the beginning of June to the end of July, for the assistance of Parliament, who must want a little of the light of Nature on their work, even with such a trivial matter as the Reform Bill before them, and with the prorogation *Advancer* should disappear. While on this subject, allow me to remind all and sundry that once upon a time *Double Major* and *Minor Tropæolums* were not unknown to British gardens. Where are they now? It might be worth some one's while to make a stock of two or three good sorts, more especially the double orange colour *Minor*, and give them a fair trial out of doors next season.

Violas have been forced into fashion, and will soon be relegated to the herbaceous borders again. Some of my friends have been very much hurt that I did not join in writing up *Viola cornuta*; but I was content to say as much in its favour as it deserves—as, for example, that it is extremely pretty, quite hardy, and an agreeable tone of colour to soften down hard and glaring combinations. When our contemporaries were blazing away upon the subject, as if *Viola cornuta* were a new discovery, and capable of producing any colour in any quantity at the word of command, we had but a few plain observations to make, and there we quitted the subject. Time will justify our coldness, for in a year or two *Viola cornuta* will be scarcely heard of as a bedder, but many will owe to the extravagant laudation of the plant a knowledge of it, for as a hardy herbaceous plant they would never have accepted it on our quiet recommendation. There is a quite comic side to the *Viola* fervour, and it is that *V. calcarata* has been confounded with *cornuta*, and hence there are two *cornutas* in the market. *V. pedata* is possibly a better thing than either *cornuta* or *calcarata*; at all events, *Viola* hunters should look for it, and get a few tufts in growing order in some quiet place, ready to cut at when the rage for *pedata* as a bedder shall begin. An endeavour was made to puff *Viola lutea* into notoriety, but as a yellow bedder it would have to compete with two or three rather extravagantly showy subjects, and there does not appear to be any great chance for it. Yet all these *Violas* are lovely things; we have rejoiced in great tufts of them—"Velvet cushions" of mauvy blue, reddish slate, gray dashed with lavender, and bright gold-yellow—for at least twenty years past, and have praised them, perhaps, in public twenty times. But very few ever cared to hear of such things until they were proclaimed as bedders, and if by *that* means lovers of gardens are made lovers of beauty, let us be thankful. I am reminded of the case of the engine-drivers. The system of the companies has always been to bleed, purge, and de-marrow the men to the maximum for a minimum of pay, and so of course they were exposed to all weathers while performing their difficult duties. But one day there happened to fall a torrent of rain, and a driver, who thought himself the last on the road for the night, crouched down to avoid being blinded, for the rain smote him like a shower of arrows. Presently this train ran into another, a dozen people were killed, the company lost fifty thousand pounds by the business, and after that engine-drivers were provided with a sheet of iron to shelter them from the rain. Well, barring the loss of life, which is too dreadful a matter for the smallest word in levity, the fifty thousand pounds was well spent, though it was a long price to pay for the conviction that engine-drivers are human beings, and unfitted to face a blinding rain, and at the same time see far-off

signals, and keep their temper perfectly. Well, it has required a great row to convince a few people that *Viola cornuta*, *V. calcarata*, *V. pedata*, and *V. lutea*, are pretty hardy herbaceous plants. It was a row well worth making, I say, and I begin to be sorry I did not join in it. If a 40-horse power engine is needed to crack a nut, let us employ the 40-horse power, if the nut is worth cracking.

S. H.

BEDDING GERANIUMS.—No. XLI.

It is quite a proper thing to cast ourselves upon desert islands occasionally, in order to "realize" by fictitious means the relative values of the comforts in which our daily life is embedded. Who was it? Froude, surely, who said that if the Bible were blotted out from the literature of the world, nearly all the best books in existence must suffer obliteration with it, so much were they indebted to the Bible for facts, for ideas, for metaphors, for terms and phrases, for tone, purpose, spirit, and organization. I tried once to prove, for my own amusement solely, that Froude was quite wrong, and I took for my argument the text of Shakspeare; but I soon began to discover that, if not to the Bible directly and immediately, certainly to the systems and ideas that have grown out of it, Shakspeare was greatly indebted for a considerable portion of the spirit and life that pervade his works. What of the martial plays, in respect of the spirit of chivalry engendered by the Crusades,—those rash adventures that grew out of a zeal for the care of the Holy Places, and had for their sole object the vindication of the Biblical geography? What of the martial plays, in the wondrous part that the prerogatives of the Church assume in all of them, and to what else than to the Bible may we look as the fountain-head for their primary ideas? Even poor old Falstaff on his death-bed, "as cold as any stone," is "babbling o' green fields;" or, as Mr. Knight so ingeniously and happily suggested, is repeating in an hour of reflective penitence, in which memories of childhood are strong in the old sinner's heart, the 23rd Psalm: so if the Bible were blotted out from the world, that passage in Shakspeare—one of the grandest, too, in all the wide range of imaginative literature—must pass away, and be as if it had never been. We might go on in this way, but I shall pause, because I wish to return to the idea which started me on this discursion,—the idea that it is good sometimes to imagine ourselves cast away, solely that we may, in such a frame of mind as a sense of supposed extreme destitution might create, cast up accounts between ourselves and the world as to the relative values of things extremely precious to us. In a wreck of matter and a crush of worlds, when I saw the books being extinguished, I should endeavour to save the Bible and Shakspeare. To place these two books in so immediate juxtaposition will pain some good friends, but the lover of books, the real philosopher, the healthy humanitarian, will say that I am right. But I am quite ashamed to illustrate by this high argument the case that properly comes before me here,—such a case as this, in fact: if all the golden-leaved geraniums were threatened with extinction, which of them would you endeavour to save? I can answer the question for myself with the ease that a hawk drops from the empyrean to the clods like a stone, with the ease that always accompanies falling, but I fear with none of the dignity that has accompanied falls ere now, as when Lucifer fell, or as the waters of Niagara go on falling for ever, and are no whit degraded or lost. Yes, in plain prose, having got down to the clods, I can say plainly that *Golden Chain* is my first choice, and I say this after giving proper heed to every golden-leaved variety that ever has been known in this world, and with such heed as is needful in one who aspires to lead a company of believers in the right way. I am speaking solely for myself though; for *Golden Chain* would never give me any trouble, I could manage it as easily as Tom Thumb; but as there are people who profess it baffles them, we must consider the claims of *Cloth-of-Gold*, *Golden Fleece*, and some others that compete for notice when beds and bands of golden leaves are needed. The great vice of modern art, in all of its many departments, is *haste*. Men want effects produced in days or weeks that in gone time required months and years, and the periods of which have not been shortened by any legitimate mode, though they have been shortened by trickery. A painter now will finish a picture in the time that his master required for putting in the background, and they make wine old in a few days by means of a furnace, a thermometer, and a bottle containing in its texture a due proportion of baryta, which is the deadliest of all the poisons this bounteous earth produces. So, of course, only one per million of the folks who do bedding will give *Golden Chain* the time it requires; all the rest want to pave the ground with gold by an instantaneous process, and quick growth is of more consequence to every body except the one per million than fine quality. But to make short of this argument, I repeat that in the wreck of matter and the crush of worlds, I hope to save *Golden Chain*, should it happen at such a juncture that any geranium is worth a moment's thought. I can give it time, always did give it time. What if it requires three years to be effective, and seven years to

be grand? I can well afford that time, because in the interim, and while it is growing, there are a few other members of the vegetable kingdom capable of affording me amusement, and I can try my hand at getting up a variegated or double-flowered chickweed to drive dull care away.

For the quick race of mortals who want a crop in twenty-four hours after sowing the seed, one of the *Golden Fleece* school is the thing. And all three of that original group are good—that is to say, *Cloth-of-Gold* and *Gold Leaf*, in addition to the leader. And *Golden Fleece* is the leader, there is no denying that; and we need say no more about any of them, for they are just as well known as Tom Thumb or Aldgate Pump; and by the pretty star *epsilon* in Alphaus—a new thing to swear by—it is a wonder we have not yet heard of a geranium bearing the appropriate and elegant cognomen of Aldgate Pump!

"But to our tale," as one Robert once said, "ac market night." I heard of some good gold-leaved varietics, and went in quest of them, and they are now shining in baskets on the lawn, one basket—or rather one "*Leicester vase*" (fine vase too) being, in Miltonic phrase, "dight" with them. Now here in the batch is *Mrs Charles Barry* of the Dulwich Smiths, to which insufficient importance has been hitherto paid in this series. I can see in a garden that has no exact boundaries a clear furlong of it, as a front line to Hibberd's Pet, and the dark leaves and intense orange-scarlet flowers of the last show all the golden glory of *Mrs. Barry* to perfection. The new race of bronze zonals will light up this department in several ways, but they are as it were upon trial yet, and, for the rapid race and the steep descent that, like the water at Lodore, produces its effect at once, we must have sorts that are tried and cheap and quick growing, and certainly *Goldfinch*, in the classification of No. XL., would come into the Golden-leaved or Bronze Zonal class. Many of our favourites would go with equal ease into two classes, just as some dahlias do, and just as in every class that ever was devised, whether by Linnæus, Buffon, or Cuvier, the boundaries are such that some things can escape beyond them. Nature abhors a vacuum, said the old sages. Nature defies classification, we say; "but to our tale." *Goldfinch* has been extremely good here this season; but let no man talk of *Goldfinch* and *Luna* as if they ever could be competitors. But better than *Goldfinch* for golden leaves is one of J. J. Chater's, which we have here under the mysterious designation of 240. Wordsworth sang of "forty feeding like one," and I have seen ere now one feeding like forty. But here is 240 with a more golden leaf than *Goldfinch*, and a better scarlet flower, and a habit as compact as an exhibition cauliflower, but not a strong grower—moderate, in fact, that way. But why I should go from *Mrs. Barry* of F. and A. Smith to 240 of Chater begins to be a mystery, because beside it stands another labelled "J. J. Chater 142," which may be compared with *Mrs. Barry*, and will take a place beside it, and to some eyes be the better of the two. They are both bronze zonals, though the zone is passing into nubibus in both cases. In *Mrs. Barry* you can trace a zone; in 142 J. J. Chater you can see it, the colour being a light rust-red laid distinctly on a very strong yellow ground, very decisive, effective, and splendid. To say that both are good is to aver that I am not wasting time in writing this, and therefore superfluous; but I think 142 J. J. Chater will win in a hard competition, provided it will grow as compact as *Mrs. Barry*. Of the last our plants are in their third year, very compact big-headed bushes; but of the other yearlings, but big of their age, and brilliant in colouring. As to flowers, *Mrs. Barry* shows an abundance of neat trusses, in which the pips are as round as florins, and somewhat larger—very near indeed to the type that a florist can look at; the colour a clear light scarlet dashed with salmon or orange, or something less describable. In the other there is a starry, curly, small pip of a good strong scarlet. Flowers are no doubt useful sometimes, and in that case *Mrs. Barry* is the best, and the light scarlet over-spreading the yellow leaves is to me a pleasing harmony; but I can make allowances for people who don't seem to see it. *Annie Williams* and *Golden Nugget* I never did like, and never did praise; the first, to my eye, is waxy at the best, the other is indecisive. Yet these two have become favourites, and I may be in some degree fallible and in need of correction. *Crystal Palace Gem* of F. and A. Smith is first-rate, and you can see it in perfection now at the Crystal Palace: the colour is brilliant when the plant is in the full sun, and has a tide of sunny weather. *Jason*, *Lightning*, and *Waltham Gem* are good, but I see nothing in them to demand a chapter. *Neatness*, for plenty of flowers on a bronzy golden ground, is good; and *Canary Bird* is brilliant, and a grand bedder—in fact, one of the best bedders in the list. Of course, our readers are already impatient to see *Mrs. Pollock* in the competition here; but no, no, no, my dear friends, whose name is Legion. To look down on a bed or line of *Mrs. Pollock* is to look down on a pavement of vegetable jewelry—it is an event in one's life; but to go twenty yards away, and then look at the same bed or line of *Mrs. Pollock*, it is weak and indecisive, and *Golden Chain*, *Cloth-of-Gold*, or *Golden Fleece*, would beat it hollow.

S. H.

HORTICULTURE FOR THE CREDULOUS.

In the GARDENER'S MAGAZINE of June 22nd there is a paragraph headed "This is an age of wonders," wherein it is reported that a Mr. Firminger had discovered a process of growing peaches, plums, and cherries without stones, and at the same time describing the *modus operandi*. We agree with you "that such absurd inventions are calculated at the best only to provoke a smile at the expense of all who believe in them." We have not attempted to follow out the idea, so as to have the luxury of eating stoneless cherries, &c., but can imagine they would be very nice indeed. Some of your readers might be induced to try their hand at "the latest horticultural device," as the paragraph is headed in the daily newspapers, and perhaps the following may be of use to them. It may "provoke a smile," at all events, should no other good follow. In a book entitled "The COUNTRY FERME," published in the year 1586, the process is fully described. I give you a copy verbatim, and you will observe the process differs in no way with the modern invention. "If you hollow the branch of a Cherry Tree taking away the pith, and after set it againe it will bring fourth fruit without any stone: or else thus better: cut off a Young Cherry Tree within a foot of the earth cleaving it also even to the roote, take out the pith both of the one side and of the other, afterward ioyn them together againe, and tie them close with a straight band, and a Yeere after that this Cherrie Tree hath taken, graft therein a graft of a Cherry Tree which neuer bare fruit, and the fruit which cometh of such a graft will be without any stone. Otherwise, cut off from such stone fruit Tree as you desire, a graft which may be easily bended: sharpen it on the two ends, and graft it likewise on the two ends upon two partes of the Tree, make close the two grafted places with Mosse of fat ground, and tie them carefully with a band. The Yeere following if you see that the two ends of the graft have taken some force and strength from the stocke, putting forth sum buds, then cut the graft asunder in the midst, and take cleane from it the thickest sprig that it hath, and let the other grow, and it will beare in his due time fruit that hath no stone. The same will come to passe if you propagate the endes of the smallest boughes of the Yoong Chery Tree, Plum Tree, or other stone fruite Tree, and after that you have taken roote, if you cut off the thickest and fairest twig and let alone the leanest and slenderest. The reason and cause of this is, for that the Stone cannot grow, if the Tree lacke his pith, but in the tops and endes of little boughes there is no pith: therefore the fruit that cometh of them, whether they be planted or grafted after the Manner that hath bene said, will have no Stone, even no more than that which groweth of Trees whose pith is taken out."

The book from which these extracts are taken is entitled "Maison Rustique,"* or "The COUNTRY FERME." It contains amusing methods of "To fashion fruits after what shape that one will," "To graft a Vine upon a Vine," "Elegant Fruits," "One fruit having the taste of many fruits," "To Keepe Apples," and a multitude of other curiosities "too nnumerous to mention." I might give you extracts at some other time, should you think they would amuse any of your readers who may not have seen the book.

WILLIAM MEIN, *Kelso, N.B.*

Calendar.

WORK FOR WEEK COMMENCING AUGUST 3.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Winter greens claim the first attention, and it is necessary to ensure at once a good supply, and a variety. By this time Scotch kale, Brussels sprouts, broccolis, savoys, &c., ought to be strong, and where they have been planted between rows of peas, to stand the winter, should now be looked over, and every other plant taken out, to make fresh rows, if they are at all crowded. Cabbages of most kinds may be sown in the second week of August; Shilling's Queen, Sprotborough, West Ham, and Red Dutch ought to have a place in every garden. Sow also Prickly spinach on slopes in rich soil, and plenty of hardy green Hammersmith, Silioian, and Black-seeded Cos lettuce. Sow cauliflower from the 7th to the 20th to keep over winter in frames. The summer-sown endive will now be strong enough to plant out on slopes or raised beds. Give plenty of water, alternating with liquid manure, to celery, and do not earth it up until it is well grown, the earthing being only to blanch it for use. Give plenty of water to broccoli and cauliflower beds, and top scarlet-runners. In good open situations, vegetable marrows for a late supply may still be planted. Use grass mowings to mulch the ground between crops that are likely to suffer from drought. Hoe between the rows of potatoes in dry weather, but do not draw the earth to the stems; the admission of air and sun-heat to the roots will hasten the ripening of the tubers; the foliage, where it remains green, should be injured as little as possible. Those that are casting their haulm may be taken up. Earth-up the earliest rows of celery; earth-up leeks; thin out the rows of parsley, so as to get rid of every plant not well curled. Remove decayed leaves from cucumbers and gourds, to prevent the growth of moulds and fungi about them in damp weather, and take cuttings, or sow seed, for cucumbers to fruit during winter.

Flower Garden

AUGUST WORK IN THE FLOWER GARDEN.—Propagate bedding plants for stock; of geraniums, ripe hard shoots make the best plants. Fuchsias come best from the points of young growing shoots. Strike verbenas and petunias from the points of young shoots. Calceolarias should be struck in chopped moss or peat. Herbaceous plants may also be struck in quantities to keep over winter in frames, such as pansies, dielytras, double walls, double Canterbury bells, double feverfew, and hollyhocks. Keep dahlias and hollyhocks well fastened, and put stakes to chrysanthemums before their heads get heavy, as a protection against storms. Pompones may still be struck for blooming in pots. Plant out pinks and carnations in nursery beds, in well-manured loam. Give plenty of water to chrysanthemums, with occasional doses of strong liquid manure. Look over your bins and heaps of compost with a view to replenish for autumn potting, as there will soon be a heavy demand for that purpose. Pansies may be sown, as may also most hardy annuals, to stand over winter for early blooming next spring; the latter should be sown thick, on poor, dry, hard ground, to induce a stubby and hard growth. Some seed should be saved for a second sowing in September, as, in the event of protracted warm weather, such as we had last year, some of the first sown may bloom this season. The sorts to sow now are calliopsis, Clarkia, Collinsia,

godetia, larkspur, lupinus, nomophila, nolana, French poppy, and dwarf schizanthus. There is still time to raise a stock of hardy perennials for next season, but not a day should be lost in getting in the seed. The most useful are antirrhinums, delphiniums, dianthus, geum, hollyhocks, Indian pink, lupinus, phlox, potentillas, silenes, sweet Williams, and wall-flowers. Those already up in seed-beds should be looked over and transplanted before they get drawn through being crowded. Plants left for any length of time to spindle are likely to perish in winter, and never can make such good specimens as those that have had plenty of room from the first.

ROSES.—Continue to bud roses and fruit trees, choosing damp dull weather—they take best just after heavy rain. In budding on the Manetti stock, enter the bud just above the collar, close to the ground, the proper mode of planting afterwards being to sink the base of the bud below the surface, so that the rose will root as well as the stock.

CHRYSANTHEMUMS.—Pompones cbrysanthemums may still be increased. Either the tops may be struck for pot blooming, or shoots of eight or ten inches in length may be layered into five-inch pots, and removed when moderately well established. Dwarf plants of the pompones and liliputian varieties are very useful for decorative purposes at the end of the season, and are adapted to purposes for which large bushy plants would not be so suitable. The large-flowered kinds do not bear to be stopped so late as the pompones.

AURICULAS should be turned out of their pots and repotted in rich turfy loam in a very sweet state. If overpotted they never do well. Keep rather close for a week after potting.

BEDDING PLANTS to be stuck in quantities for next year. The great secret of keeping verbanas and petunias through the winter is to have them struck early, and either planted into boxes or pans by the middle of September, so as to be established before winter. Strike bedding geraniums in the full sun in open borders. Short cuttings make the best plants. One eye with its accompanying leaf is sufficient of any scarce varieties, but mere eyes should not be put in the open border, but in pans under glass.

DAHLIAS are, in fine condition this season and much benefited by the recent rains. Thin 'the blooms, and tie out the growth regularly, or they will spread about and get snapped with the wind. Set traps for earwigs, and use the sulphur-duster if there is any appearance of mildew.

HOLLYHOCKS to be looked over, to see if the ties are too tight; sometimes they get crippled by the swelling of the stem causing the ties to pinch them where carelessly tied in the first instance. See that they are safely staked, so as to withstand storms.

HARDY SHRUBS and herbaceous plants may be propagated now in quantities from cuttings and divisions. Use a liberal admixture of sand, and choose a shady plot of ground for the purpose.

PANSIES.—Plant out from the cutting pans during showery weather, and shade till they make fresh roots. Make the last sowing of seeds the first or second week this month.

COLLINSIA VERNA.—Collinsia verna, introduced by Mr. W. Thompson, of Ipswich, is one of the most beautiful of spring flowers, and deserves to be extensively cultivated, not only in mixed borders and in pots for the conservatory, but is well adapted for ribbon and marginal lines in geometrio gardens, where its effect when planted *en masse* is equal to Lobelia Paxtoniana, to which, in its colours and habits of growth, it bears some resemblance. It is no longer needful to vindicate the distinctness of this species, that has been satisfactorily established; but it may be remarked that it is the only Collinsia that can be had in bloom in the month of April, a peculiarity which renders it invaluable for grouping with other spring flowers. The seed of this charming annual must be sown in the autumn; it will not vegetate if kept till spring. The best time is from the end of August to the end of September. Mr. Thompson recommends sowing in pans of light soil, and keeping those in a frame till the seedlings have developed their first pair of leaves, and then transplant them to the places where they are to bloom. It would be well also to keep a few pans of it in a pit, in case of severe weather killing those that were planted out.

HARDY HERBACEOUS PLANTS.—This being a good time to purchase and plant hardy herbaceous plants, we offer our [readers a list of the best 50 kinds known:—

- Anemone japonica, and varieties; flowering in autumn; 2½ feet.
- Aquilegia alpina and Californica; blue; summer; 1 foot.
- Delphinium, in variety; blue; summer; 3 feet.
- Helleborus niger; white; winter; 1 foot.
- Herbaceous Præonies; various; summer; 2 feet.
- Dielytra spectabilis; rose-pink; early summer; 2 feet.
- Baptisia australis; blue; summer; 3 feet.
- Ceronilla varia; pink; summer; 1 foot.
- Galega officinalis, and its fine white variety; blue; summer; 4 feet.
- Lathyrus grandiflorus; purple; summer; 4 feet.
- L. latifolius, and pure white variety; pink; summer; 4 feet.
- Orobos vernus, and varieties; purple; spring; 1 foot.
- Lupinus polyphyllus; blue; summer; 3 feet.
- Achillea Eupatorium; yellow; summer; 3 and 4 feet.
- Aster versicolor; white and pink; autumn; 1 foot.
- A. lævis; blue; autumn; 2 feet.
- A. elegans; white; autumn; 3 feet.
- Pyretbrum roseum, single and double, in variety; red; summer; 2 feet.
- Phlox, all the tall herbaceous varieties; summer; 3 and 4 feet.
- Campanula carpatica, white varieties; blue; summer; 1 foot.
- C. persicifolia, and varieties; blue; summer; 3 feet.
- C. rotundifolia; red; spring and early summer; 2 feet.
- Statice latifolia; blue; summer; 3 feet.
- Gentiana asclepiadea; blue; summer; 2 feet.
- Iris pallida; pale blue; early summer; 3 feet.
- I. Germanica, in great variety; blue; early summer; 2 feet.
- I. Florentina; white; early summer; 2 feet.
- I. variegata; striped; early summer; 2 feet.
- I. sub-bisflora; dark purple; summer; 2 feet.
- I. flabescens; light yellow; summer; 3 and 4 feet.
- I. amona; blue; early summer; 3 feet.
- Lilium exoelsum; cream; summer; 2 feet.
- L. longiflorum; white; summer; 2 feet.
- L. chalcedonicum; scarlet; summer; 3 feet.
- Tritoma glaucescens; red; autumn; 3 and 4 feet.
- Pitillaria meleagris, and its beautiful white variety, known to some as F. precox, spotted; spring; 2 feet.

* A French book translated into English by Richard Sorlet, Practitioner in Physique.

Narcissus poeticus; white; spring; 2 foot.
Iberis Gibraltarica, syn. *corraefolia*; white; spring and early summer; 1 foot.
I. saxatilis; white; spring and early summer; 1 foot.
Arabis albidia; white; spring and early summer; 1 foot.
Alyssum saxatile; yellow; spring and early summer; 1 foot.
Aubrietia purpurea; purple; spring and early summer; 1 foot.
Erigeron speciosus; blue; summer; 2 feet.
Centranthus ruber, and white variety; red; summer; 2 feet.
Potentilla, in fine variety; various; summer; 2 feet.
Pentstemon procerus; summer; 2 feet.
P. gentianoides or *Hartwegii*, all good varieties of; summer; 2 feet.
Tradescantia virginica; blue; early summer; 2 feet.
Lythrum roseum superbum; red; summer; 2 feet.
Eryngium amethystinum; blue; summer; 3 feet.
Dodecatheon Meadia, and varieties; light purple; summer; 1 foot.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Throw nets over fruit bushes to keep off the birds, and give a little shade to keep a few bunches hanging for a late supply. Put wasp-traps about vines and peaches, or stick a few lumps of loaf-sugar among the branches, and as long as there is any sugar left they will not touch a single fruit. Nail in all good shoots on wall trees, that they may have the heat of the wall to ripen them. Encourage in every possible way the ripening of the wood of the season. If any trees have been allowed to get crowded, thin them a little now to admit the sunshine amongst the well-placed shoots and spurs. Windfalls to be sent into the house every morning for immediate use. Gather fruit in dry weather, and, as a rule, not till quite ripe. Plant strawberries.

Greenhouse and Conservatory.

GREENHOUSE.—Pelargoniums that have been trained out and pruned should be repotted as soon as they have broken regularly. Put them into the smallest pots into which their roots can be got, so as to allow of a series of shifts till they are once more in their blooming pots. Young plants and greenhouse shrubs should be well hardened now, before going to their quarters for the winter. Let canellias and azaleas have plenty of sun and little water. Summer-struck geraniums, achimenes, and fuchsias, may be got into bloom now, to keep up a display till Christmas. Shift all forward stock requiring to bloom early. Cinerarias should now be strong, and must have no check; see that they are kept clear of fly, for they are very subject to it. A cold pit is the best place for them. Sow now, for decorating the house in early spring, *Clarkia pulchella*, *Nemophila insignis*, *Erysimum Peroffskianum*, *Oenothera rosea*, *Collinsia bicolor*, *Veronica syriaca*, and Chinese primroses. Whatever needs potting pot at once. Late shifts result in deaths during winter. All plants winter best when their pots are full of roots.

AZALEAS must be trained into whatever shapes they are to have when in bloom, and the plants should be set out in a shady place to ripen their wood. Specimens to be exhibited next year must be trained out now.

CONSERVATORY to be kept gay by introducing a few specimen plants in good positions. Keep climbers regularly trimmed, and encourage the ripening of the wood of all hard-wooded plants, to ensure plenty of bloom next season.

CINERARIAS to be potted off from stock suckers and offsets; prick off seedlings; suckers not rooted to be put in as cuttings round the sides of pots, where they will make roots in a week. Beware of slugs and woodlice, which are tremendously fond of the young plants.

FUCHSIAS struck now will make nice plants to bloom early next season. To keep beds in bloom remove the berries, and shorten in any too vigorous growth; the side-buds will push and flower soon after.

PELARGONIUMS must be turned out of their pots, and the old compost shaken off for repotting, but never until they have broken well after having been cut down. Give plenty of drainage, and use as small pots as possible. Sow seeds gathered this season of all kinds of geraniums.

HELIOTROPES FOR WINTER FLOWERING.—Strike cuttings in August; the following spring select the strongest plants and pot into five-inch pots, and as they grow pinch back the shoots most determinedly, to lay the foundation for well-shaped plants. In June pot into nine-inch pots; place out of doors and frequently water overhead. By beginning of September they will be good specimens to take in for flowering all the winter and spring. Old plants, if cut back and watered with liquid manure, will produce several crops of flowers during the season.

HYDRANGEAS.—These are showy summer-flowering plants, and a few may be grown to assist in dressing vases, steps, or balconies. As they may, if kept rather dry, be put away under the greenhouse stage in winter, in spring they must be brought forward, and have good-sized pots, and plenty of liquid manure. The weak shoots must be thinned out, so that the principal shoots on which the next year's flower is to appear may be as strong as possible. The variegated variety is worth growing for its foliage; their flowers may be changed to blue by mixing iron filings and scales from the smith's forge in the soil. And very neat flowering specimens, only six inches high, may be had by taking off the points of the strongest shoots in August, inserting them in three-inch pots. Tie up their heavy leaves to a small stick; water freely, so as never to allow them to flag; place under bell-glasses till struck. The following season they will each produce a large truss of flower.

PELARGONIUMS FOR FLOWERING LATE.—Strike cuttings from the old flowering shoots as soon as the plants are out of flower; put them round the side of a pot; give no water for a few days, and place them on a shelf in the sun; for these cuttings are impatient of moisture until they have formed a callosity. If sufficiently rooted in September they may be potted singly into three-inch pots, kept in the warmest part of the house, and encouraged to grow. If nicely established in March they may be put into five-inch pots, and have their shoots pinched; they will then make nice little flowering plants. After flowering, place out of doors to harden, and in August cut well back, so as to ensure a dwarf compact specimen. As soon as their new growth begins, shade them out of their pots, trim their roots, and repot in pots the same size as those they came out of, or smaller, if the plants are weak; place in a shaded spot, and water overhead with a rose. In September remove to an airy shelf in the greenhouse for the winter, taking care to water cautiously, and not to wet the foliage, as water upon the leaves in winter causes them to spot and turn yellow. In February shift from five-inch to seven or eight inch pots, according to the strength of the plant, and place in the warmest and lightest situation at command;

pluch their shoots to the end of April, after which they must be allowed to run up for flowering. When approaching the flowering period use liquid manure.

STRIKING CUTTINGS.—Those who have the convenience of a hotbed may strike cuttings at various seasons, but those who have not such conveniences may strike most common greenhouse plants under bell-glasses placed upon the floor of the greenhouse at a distance from the light, during the months of July and August, and may raise seeds upon a shelf by placing a piece of window-glass over the mouth of the seed-pot, and shading with paper until the seedlings are fairly above ground, after which time both the paper and glass must be removed in the evenings, and be replaced during the hottest part of the day, until they have gained sufficient strength to dispense with them entirely. In July and August the shoots of most plants will be found in the most favourable state for cuttings—that is about half ripened—the air also sufficiently warm without artificial means to cause them to strike root, and by placing them under bell-glasses or hand-lights, at a distance from the glass, the light is so modified that they do not shrivel and dry up. Having filled the cutting-pots very firmly with sifted soil, in which an extra portion of silver-sand should be mixed, water thoroughly, and whilst the pots are draining prepare the cuttings, prick them round the sides of the pots with a small pointed stick, and close the soil about them by giving another slight watering, place upon the floor of the greenhouse with the bell-glasses over them, but remove the latter during mild nights, which will tend to prevent leaves rotting, and the cuttings damping off; but if the nights are windy, only remove the glasses for a short time. Water may not be required for several days, but this must be watched for, and when required, sufficient given to thoroughly moisten the soil. As they are found to have struck root they may be brought near the light, and the bell-glasses gradually withdrawn entirely from them, and those that are well struck previous to the end of September potted singly; but it will generally be best to leave those that are not struck by that time until the turn of the winter, otherwise they would not get sufficiently established before winter. Those who have no other convenience should provide a shelf very near the glass: the front of the house, if a lean-to, is best; but if a span-roofed house, of course either side will do equally well. This shelf should have a spline nailed on to both edges, so as to form a kind of trough; this should be filled with moss or sand, into which the small pots containing fresh potted seedlings or cuttings should be plunged; for if not plunged in some such manner there would be danger of their roots becoming too dry.

Stove and Orchid House.

STOVE.—All specimen plants in free growth must have attention now to secure a perfect ripening of the wood before the season closes. Let everything have now as much sun as can be borne without injury, which is best done by removing the shading from part of the house, and there placing whatever is likely to bear the exposure. Use water freely on the paths and beds to keep up a moist atmosphere, and give air at seasonable times liberally. Plants to be used for autumn and winter decoration ought now to be in a thriving condition; if any want a shift attend to it at once. Stop young plants of *Euphorbia*, *Aphelandra*, *Justicia*, *Poinsettia*, *Ixora*, *Æschynanthus*, &c. As the month progresses shut up earlier, and give less and less water to the roots of plants, and especially those which should be going to rest. If we have a period of dull chilly weather, use fire-heat, for a chill will do more harm now than in a month or two hence, when vegetation will be in a state of repose.

Forcing Pit.

VINES that have ripened their fruit to be cleaned. Where grapes are hanging give plenty of air, and keep the houses rather dry.

MELONS to be kept safe as to bottom-heat, or they will do no good. Shut up early, syringe on fine mornings, and give plenty of water, except when the fruit is ripening, and then keep them rather dry.

Correspondence.

MRS. PINCE'S BLACK MUSCAT GRAPE.

Seeing an inquiry in the GARDENER'S MAGAZINE of July 20th, respecting Mrs. Pince's Muscat, I beg to forward you a few remarks thereon. I was at Exeter some few days ago, and bought a fruiting cane of the new grape, and also saw the house of grapes, which I understood had been planted four years. From its appearance there can be no mistake regarding constitution; for the house, which is twenty-three feet long and thirteen wide, had over 230 bunches in it, which I consider more than one-half too many. The grape in all respects appears free in showing bunch and setting. The worthy proprietors have, I consider, not yet given the public a fair chance of seeing its merits, owing to heavy cropping. I think it a good grape in addition to our many late varieties; for Mr. Pince informed me that he cut bunches as late as the 4th of May from his house. The habit of the vine seems distinct, from its very wiry appearance of stem and leaf. I am going to plant the cane in our large lateinery, which no doubt you remember walking through when you were here in 1866. J. HANNAN.

The Gardens, Cyfarthfa Castle, Merthyr Tydfil, July 25th.

In reply to the inquiry of R. W. P., in page 318, respecting Mr. Pince's Black Muscat Grape, I have great pleasure in stating that I have seen it in its different stages of growth during the last three years. I have watched it with great interest, having had at the same time the care of three vineries, containing most of the newer varieties, in which I am greatly interested. Its habit is quite distinct; both wood and foliage look hard and firm, even when in a young state. In bunch it resembles the Muscat of Alexandria, when that variety is well done; in size and shape of berry, the Muscat of Hamburg, but the foot-stalks are shorter and more robust than in that variety. Its flavour is most agreeable—something like a mixture of Muscat and Frontignan. I believe its constitution to be such as to require for it but little treatment. The heavy crops of grapes ripened by the same vines in the Exeter Nursery for three successive seasons have proved it strong and prolific. But, added to the above, its chief recommendation is its valuable keeping qualities, which I believe far surpass "Lady Downe's." In flavour the latter has no chance against the former. In a garden where grapes are grown largely, I should recommend a house to be entirely devoted to Mrs. Pince's Muscat; where the object is to make

one house do duty over the largest possible time, I should say, to every four vines planted let there be one of this variety.

JAMES PEARCE.

The Gardens, Westlawn, Teignmouth, Devon.

I can venture to state that all who have had the chance of seeing Mrs. Pince's Black Muscat declare it a distinct first-class variety. It is one of those superb things which make a perfect photograph on the eye at first sight. Too much cannot be said for it. I first saw the vine in 1863, fruiting in a tub, smothered among hundreds of pot vines growing on for sale. In that unfavourable situation it looked at home, producing fine handsome bunches of jet-black oval berries. In the spring of 1864, I saw twenty-four anything but fine canes, planted in front of a small span-roofed house about 26ft. by 10ft. Feeling interested in the vine, I called from time to time to watch the character of it. It broke and bore fruit freely; the berries swelled off and stoned in perfection. Seeing the bulk of fruit they had to carry, I tried to persuade Mr. Pince to take one half off. Mr. Pince's answer was, "I intend to prove this vine thoroughly; they shall all bang. I will not send it out if it is not a beat on all its class." I expected to see the fruit no better colour than the old Warrington gooseberry, or that it would shank. Such was not the case; the bunches and berries were of the size and form of a well-filled bunch of Alexandrian Muscat. In 1865 these vines were more prolific, the bunches and berries much finer, keeping firm and free from rot up to April, 1866. The vines being then impatient of being longer retarded, what fruit was left was cut off and hung in a dry room, and in December, 1866, I had the pleasure of eating some of the fruit of 1865. In the year 1866 the vines had over 3 cwt. of fruit on them: the bunches were as large as in the previous year, but the berries were not quite so fine nor so well coloured; the want of colour was not owing to the heavy crop, but to improper treatment. As soon as the fruit showed colour, the moisture in the air and at the root was withheld, which was too soon for any of our solid-flesh grapes, and this is the most solid of any with which I am acquainted, and is a long time after showing colour before it is perfectly ripe. Not till the vines showed symptoms of distress did they get what they ought to have had long before, a good watering. With all this, the berries were a good passable colour: the true colour is equal to Trentham Black. After Mr. Pince had sent samples of it to different parts of the country, a few bunches were left in March, 1867, to hang as long as they would. Unfortunately they had drawn the attention of Mr. Rat, who could not resist the temptation to rob the vine of its finest black berries, there being but one bunch not touched; it was protected, and it hung to the end of April. The vines requiring much moisture, it was cut in as good condition as it was in November. This year the vines are again covered with long handsome bunches, and are in perfect health. The constitution of the vine has been severely tested by over-cropping and less than ordinary treatment. It has thoroughly proved itself to be the most prolific and the most free from disease of any vine which we have in cultivation; and as regards quality, it is quite a Black Muscat in flavour as well as in shape of bunch and berry. I am sure no connoisseur or cultivator of the vine who once sees Mrs. Pince's Black Muscat will fail to make speed to plant it.—WILLIAM CRAGG, *Gardener to J. C. Bowring, Esq., Larkbeare, Exeter, July 25th, 1867.*

I believe this grape to be quite distinct in habit and fruit, and I think there cannot be two opinions about its good constitution and prolific qualities, as the vines can be seen growing there, both with and without fire-heat, bearing enormous crops. Nothing can be more vigorous or healthy: splendid bunches were cut as late as May 4th this year. It proves to be a first-class grape, surpassed by none. I sincerely trust it will meet with the hearty reception it deserves from all grape-growers.—SAMUEL SALWAY, *Gardener to W. F. Splatt, Esq., Flete, Ivy Bridge, South Devon.*

CYPERUS ALTERNIFOLIUS.—The variegated form of this plant is frequently described as one of the most refined and beautiful subjects in cultivation. I well remember your description of a remarkable specimen that was shown by Mr. Tanton, at one of the Guildhall exhibitions, and I have observed lately that you have found fault with some amateurs for showing it with green leaves. What is very simple and easy to you is sometimes very hard to us, and this is a case in point. I know something of plant-growing, but this beauty beats me. I find it difficult to keep, much less to grow, and as to showing it wholly variegated, that appears to be out of the question, not only for me but for all other cultivators in the midland counties. Do pray afford us some practical help, or get your able correspondent, Mr. Tanton, who appears to be the first man in the country with this plant, to tell us the story of his management. I am sure such information will be a boon to hundreds of the readers of the GARDENER'S MAGAZINE.

R. W. STEELE.

WELCOME TO THE ROSES.

Roses, roses, beautiful flowers!
Pearly and pale and pink-lipped roses,
In ye, the light of the laughing hours,
The smile of the summer sun reposes.
Children of distant climes are ye,
Flushing the vales with your purple bloom,
Living your life on the breast of May,
And steeping her breath in your soft perfume.
Near ye the nightingale tenderly sings,
Loving and lone, in the pale moonlight;
His gushes of song, like falling springs,
Bathing in music the lids of night.
And when your reign in the east is o'er,
He looks to the sea and he prunes his wings,
And seeks once more, on our northern shore,
The rose that he loves in a later spring.
For blossom and bud you then are ours,
And ours the voice of the nightingale,
As it floats along on the breath of flowers,
Dewy and soft, through the star-lit vale.
Beautiful strangers! your home is far;
Yet welcome, and three times welcome here,
To us, who, beneath the ice-king's star,
Sit songless and flowerless half the year.

Chambers's Journal.

Replies to Queries.

Suffolk.—Your rose-trees are badly affected with red fungus, and there are evidences also of the ravages of thrip. The best mode of procedure, to prevent further mischief and to save the autumn bloom, will be to occasionally sprinkle the foliage on the under side at daybreak with fresh lime, slaked and powdered, and at the same time give abundance of manure-water to the roots. Probably three dressings above and below, at intervals of three days each, will make your roses right for the season.

W. C.—It is too late now to pinch trees of any kind; the reason there are so many failures is that people who do not understand it begin the work just when those who do understand it are leaving off.

Food Value of the Potato.—S. B.—You may admire Cobbett, and yet not be deluded by his notions about potatoes. The following extract from Dr. E. Smith's "Practical Dietary" will afford all the information you want, and be useful, perhaps, to others besides:—"That kind should be preferred which becomes mealy on boiling, and which, when well cooked, can be thoroughly crushed with the finger. The potato which is known as 'waxy,' and those which remain somewhat hard when boiled, do not digest so readily as the mealy kind; but for that very reason they are said to be more satisfying. . . . It is not material in reference to nourishment whether the potato be boiled or roasted, since in both methods it should be well cooked. In point of economy and convenience, however, it has been found better to boil than to roast them; for whilst the loss in boiling upon 1lb. of potatoes scarcely exceeds half an ounce, that in the most careful roasting is 2oz. to 3oz. It is also more economical to cook them in their skins, and to peel them immediately before they are eaten; but this is not very convenient in many families, and the colour of the potato is not quite so agreeable as that of those which have been boiled after peeling. When they are peeled before boiling, and particularly when they are small, and the operation is performed carelessly, from one-third to one-fourth of the whole weight of the potato is lost, and if there be no pig to eat the peelings the whole is wasted; whilst the weight of the peel which is removed after boiling would not amount to more than 1oz. in the pound. When potatoes have been roasted, the loss in weight from the skin and drying is more than one-fourth of the weight before cooking. An average sample of potato, after it has been peeled contains 11 per cent. of carbon and 0.35 per cent. of nitrogen; and hence in each pound there are 770 grains of carbon and 24 grains of nitrogen, and it is greatly inferior to bread. The economy of its use depends upon its cost; so that in times when potatoes are sold at 3d. and 1d. per pound they are very dear food as compared with household flour, whilst they are a very cheap food when produced by the labourer at the cost of the 'seed' and the rent of land. Thus, at 3d. per pound, only 1,024 grains of carbon and 32 grains of nitrogen will be obtained for 1d.; when the cost is 1d. per pound the quantities will be reduced to 770 grains and 24 grains. When the labourer, however, can obtain 50 bushels of potatoes from a quarter of an acre of land, at a cost of about 30s. for seed and rent, he will have more than 7lb. of potatoes for 1d., and the quantity of carbon and nitrogen thus obtained for that sum would be 5,770 grains and 200 grains. If, however, he were to sell a large part of his crop at the market price, he would procure with the money thus obtained far more nutriment in the form of flour than would have been derived from that portion of his potatoes. The weight of potatoes which alone would supply the daily nutriment required by a man would be about 6lb. in reference to the carbon, and 8lb. in reference to the nitrogen; but when a labourer in the west of Ireland lives upon this he is allowed 10½lb. daily, besides a large supply of buttermilk, and as both of these kinds of food are cheap in that locality, the proceeding is even then an economical one."

Rats.—B. B.—There are several ways of killing rats. The best way of all is to procure some Carbonate of Baryta, which is a cheap article. Pound it, and mix it with the meat of a good bloater, or with flour and water and minced fat. The mixing should be done without touching the stuff with the hands, and if the Baryta is in the proportion of a tenth part of the whole it will be effectual. It is not wise to place poisoned food in their runs, for they are suspicious of such marked consideration. It is better to place it in a vessel, as if intended to be preserved with care, with a lid which the rats can remove to get at it. Having to make an effort to obtain it, they will eat it greedily; but if they discover by their keen scent that it has been handled, and see it placed rather in their way than out of it, they will turn up their noses in disgust, and entertain the utmost disrespect for you. If arsenic is preferred, the best mode of procedure is to mix it with barley-meal in a clean basin, with a little milk or water, using a wooden or iron spoon. Or broil a bloater on the gridiron, and while cooking powder the arsenic upon it. We prefer the Baryta, because it can be compounded in a shed; but to arsenicate a bloater one must go to the kitchen, and we prefer that a deadly poison should never be placed in the neighbourhood of food intended for human beings.

Gourds.—S. S. writes to say that he is anxious to preserve pure seed of certain races of gourds, but he finds in his plantation several hybrids, the result of crossing last year, and which he regards as rogues. If he destroys these rogues, he spoils his plantation, for it is too late now to plant again; if he leaves them alone, they will possibly spoil for seeding purposes those varieties which are at present true. S. S. may easily escape this difficulty. He must remove all male flower-buds before they open; the females may be left to swell their fruit, as they will be fertilized by the males of the typical kinds. The fruits on the rogue plants may be used young as marrows, or when ripe for any of the purposes to which ripe gourds are put, but the seeds taken from them must be destroyed. To sum up the advice in few words, nip the male buds from the rogues, and eat all the fruits the rogues produce.

Grass Leguns.—G. Harris.—Yours is the common, too common case. You go on for years taking grass off the lawn, and you put nothing on. Of course the soil gets exhausted, and will only produce daisies. Guano or rotten dung, or any good artificial manure, will change the scene.

F. S. Barlings.—Your seedling potunia is a large semi-double flower, defective in form, and rough, but of good substance, and likely to be a superb bedder. The colour is brilliant violet-crimson shading to violet centro, exceedingly rich and massive.

R. Taxton.—Your seedlings are of quite average merit; throw them away. Do not take seed from Christine at all unless you practise cross-breeding in a systematic and scientific manner.

FORCED FUN.—When a man is as "cool as a cucumber," may he be said to be in a cucumber-frame of mind?

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. Imp. avg. of 43 yrs. Gravh	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.		Rain	Barometer.	Thermometer.				Rain	
1867			b. m.	h. m.	h. m.	h. m.	b. m.	h. m.	b. m.	h. m.	30.10	30.00	73	59	61.5	.32	60.9	Miltonia bicolor, M Brazil	11
11	S	8th Sunday after Trinity	4 41	7 29	4 54	p.m.	0 50	a.m.	20.76	29.64	68	53	60.5	.10	60.8			" candida, M "	12
12	M	Sir W. J. Hooker d. 1895.	4 42	7 27	5 37	"	1 47	"	20.80	29.84	71	52	61.5	.07	60.0			" spectabilis, M "	13
13	T	Trucksbury Hort. Exh. — St. George's, Wel-	4 44	7 25	6 15	"	2 40	"	20.84	29.73	68	45	56.5	.01	60.4			Peristeria alata, M Panama	14
14	W	Riton, N. B. — [ington, Salop.	4 45	7 23	6 49	"	3 38	"	20.90	29.82	65	47	56.0	.09	60.3			Burlingtonia Knowlesii, s Brazil	15
15	Th	Thunton Deane Horticultural Exhibition.	4 46	7 21	7 19	"	4 40	"	20.78	29.62	65	45	55.9	.05	60.3			Lælia autumnalis, M Mexico	16
16	F	Eugene Aram executed, 1759.	4 47	7 19	7 46	"	5 45	"	29.84	29.71	67	38	52.5	.00	59.5			" majalis, M Dolans	17
17	S	Frederick the Great died, 1786.	4 49	7 17	8 10	"	6 52	"											

The Gardener's Magazine.

SATURDAY, AUGUST 10, 1867.

Mrs. PINCE'S BLACK MUSCAT GRAPE has been the subject of anxious inquiry amongst grape-growers, and the result is that the whole of its history is now before the public. That it should excite curiosity somewhat beyond the average of similar subjects, may be attributed to two circumstances—first, the reports of its peculiar excellence as a table grape and its long-keeping properties; and, secondly, the somewhat out-of-the-way locale of the parent vine, which has prevented many of the best judges of grapes from seeing it. However, it has been seen by many of the best grape-growers in the country, and in these pages their testimony has been given in favour of its general adoption where a long-keeping grape of the finest quality is in any respect a desideratum.

The history of this grape is interesting. The late Mrs. Pince—who, like her much-respected husband, Mr. R. T. Pince, of the Exeter Nurseries, was an enthusiast in horticulture, and well versed in many of its mysteries—was one day eating a bunch of grapes, and observed that one of the berries contained a peculiarly large round stone. She desired it might be sown. This was done, the vine grew, and in the year 1862 first produced fruit. Mrs. Pince was not then living to witness the evidence of her good judgment and perception in regard to the sowing of the selected seed; but the seedling plant was observed to possess some peculiar properties, and it was named, in remembrance of her, "Mrs. Pince's Muscat," and has now become such a memorial of her virtues as those who hold her name in affectionate remembrance can best desire. On several occasions this variety has come before us for critical examination, and we have had in every case to report in its favour. Yet, in truth, it is but lately that the whole character of the variety has been manifested; its immense fruitfulness and its good keeping could be ascertained only by the test of time, so that, from promising at first to be an admirable grape, it has proved at last to be one of the very best at the command of the cultivator. In the "Garden Oracle" of 1864 we reported on it as "the best grape of the year," having become acquainted with it in the autumn of 1863. In the GARDENER'S MAGAZINE we have several times directed attention to it, and have made public our impressions, derived from seeing the original vine at home, surrounded by abundance of its progeny, the parent commencing its new growth while fruit of the previous year still remained upon the rods.

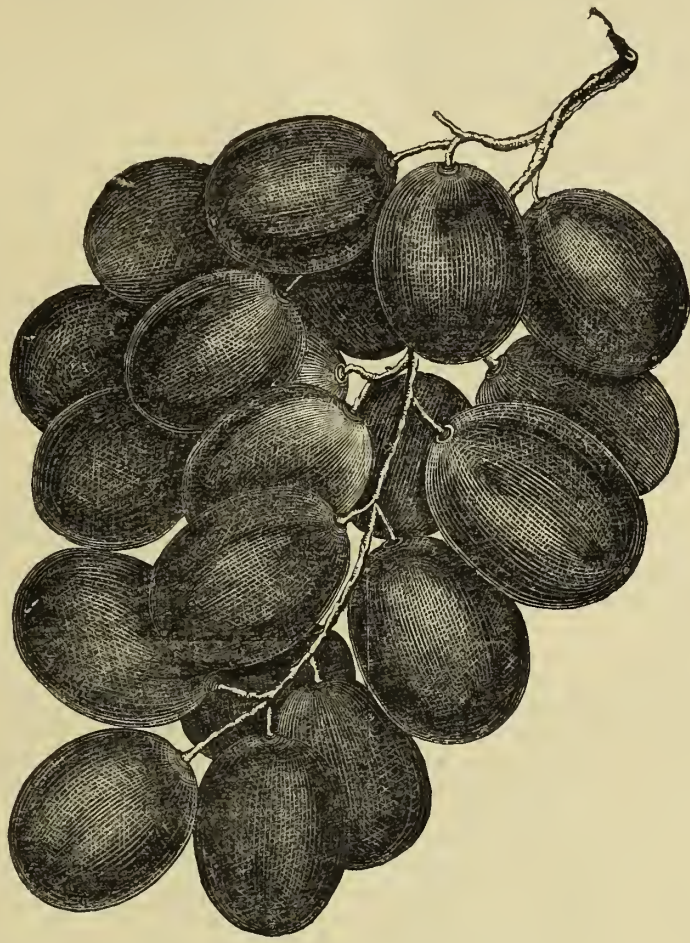
In growth this variety is peculiar. The young wood is of a purplish hue; the leaves are small, nearly triangular, deeply and elegantly lobed, and of a bluish tinge of green. The bunches are large, long, tapering, well shouldered; the berries oval, as large as those of the Muscat of Alexandria, purplish black with a thin bloom. They are borne on short, rigid, green stalks, with thick warted re-

ceptacles, a character which in some part accounts for the length of time the bunches will keep good if left hanging on the vine. The skin is tough, but scarcely thick; and this, again, is in favour of late keeping, for no tender-skinned grape can be kept long after ripening. The flesh is firm, sweet, exceedingly rich, and of a decided Muscat flavour, changing, however, to a Frontignan flavour after the bunches have been long kept.

One of the special advantages resulting from the distribution of this variety is, that in places where there is much demand for grapes in spring it will lessen the labours and anxieties of the cultivator, and in some cases render early forcing unnecessary. It is in its prime from the end of January to the end of April; keeping improves it, and the second-class varieties in cultivation which are valued chiefly for their keeping will have to yield up their places to it, for it will assuredly supersede them. Mr. Meredith, of Garston, who knows as well as most people the commercial value of a first-class spring grape, to be obtained in abundance without forcing, has lately built a house expressly for this variety, and in almost every good garden in the country young canes will be planted during the present autumn.

Now that Mrs. Pince's Muscat is in course of distribution we must cease to regard it as in course of probation.

Its character is established, its fame secured, and we confess a feeling of peculiar satisfaction in having been enabled to assist in giving publicity to the merits of so valuable an acquisition. With these remarks we present our readers with a figure of a portion of a bunch which measured 11 inches in length by 10 inches across the shoulders. The artist has depicted the shape and colour of the berries admirably, but he has not represented the foot-stalks and receptacles sufficiently stout to be quite truthful.



Mrs. PINCE'S BLACK MUSCAT (Portion of Bunch).

FUNGI ABOUND EVERYWHERE at this time of year, and many kinds that would furnish palatable and wholesome dishes are rejected through the common but not unreasonable fear of poison. Mr. Hardwicke, of Piccadilly, has just published two large coloured sheets of figures of fungi, one sheet comprising the edible, the other the poisonous kinds. They are from drawings by Mr. W. G. Smith, who has most happily hit the characters, so that they may be quickly identified when found. A volume of letterpress accompanies the plates. We earnestly recommend the introduction of the book and plates into every school-room in the country, and into every reading room, garden library, and wherever else a question may be likely to arise respecting the wholesomeness of a fungus.

EUROPEAN PLANTS FOR AUSTRALIA.—Dr. F. Mueller, of the Melbourne Botanic Gardens, writes as follows to Dr. Berthold Seemann:—"I should like to introduce, not only to the Lagoon in our hotanic gardens and its banks, but also to suitable localities in our mountain glens, lakes, &c., some of the very ornamental European swamp and other plants of the kind mentioned below, or of others of similar habits. May I, therefore, ask your kind assistance in begging you to collect for me, during your excursions, seeds (or living plants, if readily available), and forward them by one of the fast-sailing vessels to my address. In exchange, I shall be most happy to send to you seeds of our beautiful Australian plants. To indicate the class of plants specially referred to, I would name the following, and must leave it to you to add such others as you may have an opportunity to procure: *Lychnis Flos-cuculi*, *Lysimachia thyrsoflora*, *L. vulgaris*, *Hottonia palustris*, *Circea Lutetiana*, *Paris quadrifolia*, *Glaux maritima*, *Butomus umbellatus*, *Sagittaria sagittifolia*, *Menyanthes trifoliata*, *Parassia palustris*, *Stratiotes aloides*, *Pinguicula vulgaris*, &c. A collection of the various species of *Salix* and *Rubus* would also be most welcome."

THE SEASON.—After a second deluge, that has laid flat the ripening corn, we have accidentally taken up from a mass of papers a cutting from a popular magazine, which was sent to us some months ago for insertion in these columns. We produce it *now*, in illustration of the doctrine to which men of scientific experience cling tenaciously, that it is not in the power of man to predict the weather more than a few days, or at the utmost a week, in advance:—"The *People's Magazine* predicts that the coming summer will be one of the hottest on record, the deduction being made from the following axioms established by Dr. Kirwan: First, that when there has been no storm before or after the spring equinox, the ensuing summer is generally dry, at least five times out of six. Secondly, that when a storm happens from any easterly point, either on the 19th, 20th, or 21st of March (the equinox), the succeeding summer is generally dry four times in five. Thirdly, that when a storm arises on the 25th, 26th, or 27th of March, and *not before*, in any point, the succeeding summer is generally dry four times in five. Fourthly, that if there be a storm from S.W. or W.S.W. on the 19th, 20th, or 22nd of March, the succeeding summer is generally wet five times in six," &c., &c., &c. Any of our readers curious in this matter may be interested to know that in the *Floral World* of November, 1866 (p. 322), we pointed to the great probability of 1867 proving a bad season, but there was no admixture of prediction with the statement, and we begin to be firmly persuaded that predictions, come from whom they may, if they attempt to overpass a period of five to seven days in the future, deserve to be treated with contempt.

NIEREMBERGIA RIVULARIS, beautiful alike for its fresh green leaves and pure white salver-shaped flowers, promises to prove quite hardy in this country. For this we were not quite prepared, yet it is consistent with the geography of the plant. As it is easily propagated, we hope those who have strong plants will at once plant them out, to remain for the winter, and at the same time take a few cuttings to make plants to keep through winter under glass. It will be one of the neatest and most pleasing of all known bedding plants, and, if quite hardy, one of the most valuable.

SALE AT BRISTOL.—A sale of a portion of the stock, together with a series of plant-houses, of the Durdham Down Nurseries, Bristol, is announced for the 19th of August and five following days, in consequence of the approaching expiration of Messrs. Garraway and Co.'s lease. The catalogue comprises selections of azaleas, camellias, amaryllis, orange and lemon trees, ferns, palms, and other first-class subjects.

IN THE REGULATIONS FOR THE EXHIBITION to be held at Manchester on the 27th and four following days, it is announced that "Sale prices may be affixed to the objects exhibited." This is a good regulation, and might be much more generally adopted than it is. It appears that some intending exhibitors are in doubt as to when the plants may be removed. They will find a regulation to this effect, "The objects exhibited may be removed after six o'clock on the evening of Saturday, the 31st of August." Entries close on the 17th.

THE extent of land under potato cultivation in France is 2,040,364 acres; in Austria it is 1,308,148 acres; in Ireland, 1,050,412 acres; in Bavaria, 649,735 acres; in Great Britain, 498,843 acres; in Belgium, 369,850 acres; in Sweden, 334,000 acres; in Holland, 265,987 acres; in Wurtemberg, 167,948 acres; and in Denmark proper, 69,176 acres.

A GREAT variety of plants foreign to France have sprung up under the walls and around the buildings in the Park, the seeds of which have been conveyed to Paris in packages from various countries for the Exhibition. Especially around the house of "Gustavus Wasa" several plants may be seen which are peculiar to the country of that monarch.

THE *City Press* of last week gave an interesting account of a flower show held in the girls' parochial schoolroom of St. Dunstan's Fleet Street, when Messrs. Broome and Dale, of the Temple Gardens, acted as judges, and the rector distributed the prizes. Amongst the objects exhibited special mention is made of an india-rubber tree, also of rhubarb, potatoes, and hop plants, besides the usual geraniums, fuchsias, and musk plants, all of which were grown by poor people, mostly children, in the narrow ways that lie behind Fleet Street and the Strand.

THE SEMPERVIVUMS AND SEDUMS: A WORD ON THEIR CULTIVATION, WITH A SELECTION OF THE BEST OF THE HARDY SORTS.

Of all families of hardy plants, this is one of the most interesting and the most neglected. In fact, although some of them are among the most interesting and singular of all known plants, there are many horticulturists who do not know a sole species, except it happen to be the house-leek. People have rockworks, it is true, and a poor hand they make of them as a rule, generally substituting free-growing weedy plants instead of such things as the best of these Sempervivums, which are of all others most suitable for the choice rockwork. But this is not the end of their advantages. They are amongst the hardiest of all plants, standing any weather, though generally grown in pots, and living even in smoky London, where many things the people generally think much more hardy and vigorous perish in no time. There is not a window-sill in London to which the light of the sun can occasionally penetrate on which they may not be grown, either in pots or boxes, while in all open gardens they merely require to be kept free from weeds and "left to nature." To the cottage or garden of the poorest they will lend an interest; any of our largest gardens would be improved by their presence, suitably arranged and associated. Generally it is rare to see them in cultivation, but lately a splendid species, *S. californica*, has come into use as a first-class hardy edging plant, and a few of our nurserymen happily possess stocks, so that no reader need be in want of some to make a beginning with; and doubtless some day a large proportion of our nurserymen will find it to their interest to cultivate this neat and interesting class. We will now give a selection, premising it with the remark that our selection is not, as is too commonly the case, one from books, but from actual experience with a great number of the species. We will not confine ourselves to the best kinds solely, but enume-

rate all, or nearly all, in cultivation, indicating the best kinds with an asterisk. This is desirable for two reasons: nearly all the species are worth growing, all are neat and pretty, and if we omitted half those in cultivation our work might not meet the wants of those with wider range of selection than ourselves.

Almost the same remarks apply exactly to the very neat and interesting *Sedum* family, and therefore we will not repeat anything in the same strain, but furnish lists of the cultivated species of both families, beginning with the *Sedum*, as it has the first place in the orthodox botanical order of things. For all rockwork the family is indispensable, while occasionally they furnish a first-class plant for the fronts of borders, as in the case of *Elegans*, *Kamtschatium*, and *Pulehellum*.

THE SEDUMS.

A list of the species in cultivation in British gardens, with the best kinds indicated by an asterisk (*):—

<i>Sedum acre</i>	<i>Sedum hispidum</i>
* " variegatum; golden tinge on shoots	ibericum
aizoides	involutatum
Aizoon	Jacquinii
albescens	* Kamtschatium
album	libanoticum
" turgidum	littoreum
altaicum	Lydium?
" sibiricum	* monregalense
altissimum	maximum
anglicum	* multiceps
* Anacampseros	neglectum
arborescens	ochroleucum
" monstrosum	orientale
asiaticum	pallens
aureum	* pellidum; very good
Brauni	pulechrum
* brevifolium; rather tender, but very pretty	* pulehellum; very pretty
Beyrichianum	American species
cæruleum	populifolium
* corsicum	" msjus
* cruentum	reflexum
cruciatum	" collinum
cyaneum	rupestre
* dasyphyllum	* sempervivoides
dentatum	sexangulare
denticulatum	sexfidum
* elegans	Sieboldii
elongatum	" variegatum
* Ewersii	spectabile
Fabaria	speciosum
fabariform of C. Lemaire; the fine, new, and strong herbaceous species	* spurium; very pretty
Forsterianum	stellatum; distinct colours
* farinosum; tender, but very pretty	Stephani
* glaucum	Telephium
" monstrosum	telephoides
grandifolium	teretifolium
* hispanicum	ternatum
	triangulare
	villosum
	virens
	* Verlotii
	Wallichianum

THE SEMPERVIVUMS.

A list, with the best kinds marked (*):—

<i>Sempervivum acuminatum</i>	* <i>Sempervivum hirtum</i>
anomalum	juratum
* arachnoideum	Mettenianum
* " majus	molle
arenarium	montanum
* assimile	Neirichii
* Brauni; light green	* piliferum
canescens	* Pittoni
Catyledon	Pomelli
ciliatum	Requieni
* californicum	ruthenicum
dioicum; large and good	* soboliferum
Funkii	* stenopetalum
glaucum	tabulare
* globiferum; very large and fine	tectorum var. rusticum
grandiflorum	urbicum
Heuffellii	velutinum
	villosum

It should be observed that the above are authentic lists of the kinds really identified, and that there is no family in which mistakes of nomenclature are so likely to be made. We finish with a few observations on kinds of *Sempervivum* not in cultivation in England, or but very rare. They are as follows, and should be laid hold of by our readers whenever they have a chance, as they are very good:—

<i>Sempervivum Doellianum</i> , very neat	<i>Sempervivum violaceum</i> , distinct
barbatulum, slightly tomentose, and very pretty	assimile, very good
pilosella, ciliated edge; very good	calcareum, fine
tectorum var. rusticum, very good	fibriatum, very good
Connollii, very large and good	albicum, neat
Verlotii, good and distinct	soboliferum, if true, is one of the best, with large rosettes, surrounded by young ones of a pink tinge
Schleana, very good and distinct	piliferum of Jordan, very good
Boutignianii, also very good, distinct, and large	With these <i>Umbilicus chrysanthus</i> should be associated.
affine, A 1	

BEDDING GERANIUMS.—No. XLII.

The creamy leaved varieties, the *VARIEGATED par excellence* of No. XL. (class 4), are very curiously planted in the circle that opens close beside my garden sanctum. They form a circle cut through at two opposite sides, with a circular bed of blue lobelia within, the variegates forming two semicircles beyond, and they have for relief front lines of the variegated *Dactylis*! It is about the coolest bit of colouring possible—a centre bed all blue, and two outer semicircles all white; but it is pleasant, for there are green trees all round and about, and the only remark proper to the case would be, "What a queer taste!" Now there is reason in roasting of eggs, the adage says, though I never could see it, for I never did roast eggs. I once tried to bake some on the sly, in "the days when hope and life were young," and they burst and spilt their contents among the hot embers,—and contributed a most elegant varnish, or a sort of gutta-percha coating to some potatoes that were put into the same embers to keep them company. Like many other strange things, it admits of explanation; but to explain it from beginning to end will require about half a dozen folio volumes, which I have not time to write just now. But I'll tell you the use of the scheme. The *Dactylis* affords a great semicircle on each side, of a constant tone of gray or whitish vegetation, and with this constant tone in a great mass all the characters of the variegates behind it are quickly discernible; the *Dactylis* becomes in fact a point of reference for the eye, and it helps to show instantaneously the intensity of white in any particular geranium, or the depth of cream, the tendency of cream to pass to pale sulphur, and all the intermediate stages. It is a sort of standard of comparison, and its dwarf spreading habit eminently fits it to serve as a means of constant comparison; and this is the pith of the history that may be written, if I live long enough—say about the year 1900 perhaps, or perhaps not. In the circle there are 72 varieties, all of the creamy or white edged kinds, and amongst them the one to be taken, on the wreck and crush hypothesis, according to my taste and judgment of such matters, is *Daybreak*. I have carefully compared this with *Flower of Spring* and *Silver Chain*; the first of these two inclines more to cream colour, the second is nearest like *Daybreak* of any in the series, and all three are good. I find in *Daybreak* these special qualities,—free growth, leaf not more wrinkled than other good varieties, and frequently convex, which is better than concave; the margin is irregular, but it always shows a large breadth of creamy white. If a choice must be made between *Flower of Spring* and *Silver Chain*, then undoubtedly *Silver Chain* is the best, and only a shadow in point of merit below *Daybreak*. If I had to choose a second to *Daybreak* for my own keeping, it would be *Rosette*, for this would give me another shade of leaf, and an altogether different flower. The growth of *Rosette* is compact and dwarf, yet not wanting in vigour; the leaf is much wrinkled, but generally inclines to convexity, the margin is broad clear whitish cream, or creamy white, with the shadow of a pink zone; the flowers are a delicate shade of pink. A fine plant of *Rosette* in a pot is one of the most chaste and refined objects possible in all the range of bedding geraniums; and when bedded there is not so strong a reason for removing the flowers as in the case of variegates with scarlet flowers. I shall now go round and pick out a few good ones. *Oriana* grows very compact—I find a plant as round as a ball, though in a quite shady part of the ring; the colour approximates very nearly to sulphur; it is at all events as deep as the richest Devonshire cream, and the spare, starchy, yellowish green disk shades into the margin, producing an intermediate tint: its distinctness is one point in its favour, and its peculiar hue adapts it well for showing up a line of blue, or indeed for relief to any positive colour. *Silver Queen* is intermediate in tint between *Oriana* and *Silver Chain*; there is much sulphur in the disk, which we may call yellowish green; the margin is creamy rather than white; the leaf is peculiarly round, not much wrinkled, and generally inclined to a shield-like convexity; a robust grower, but compact, well-behaved, and effective. *Lady Palmerston* I like, though it is of the *Bijou* type, and the leaves are rather cupped, which is a fault; but the rosy pink flowers are plentifully produced, and a bed of it is chaste, pleasing, lively, and it makes an attractive pot-plant. It is, however, far from first-rate. *Flower of the Day* is far in arrear of many newer kinds in respect of quality, but it is a good serviceable thing, and keeps its place in all public gardens, by its ability to withstand dust and its free habit of growth. It must be remembered, however, that in great places, where they have a stock of an old thing like this, they go on using it for the simple reason that they have a stock, though if they had, or could quickly obtain, a sufficiency of some other kind, better in many respects, they would give up the old one. Another reason for the favour shown to some old things in great places is that they are used to them, and do not readily take to better things. Nevertheless I put *Flower of the Day* in the rank of reliable serviceable varieties, and we must not yet kick it out of the select list. *St. Clair* is good,

the flowers especially, but the clean creamy leaves are the proper criterion of its merit. The *Variiegated Stellas* number some half-dozen now, and all very much alike, and all beautiful, clean, slow-growers, with objectionable cup-shaped leaves. I was about to forget *Silver Nosegay*, *Snowflake*, and *Venus*, all good. I think we may very well stop at this point. We have enough, certainly, for suiting every taste and every soil and climate where variegates can be grown at all. Amongst the new ones, we have one of very fine quality, and a decided advance on *Daybreak*. It is labelled "40 J. J. Chater." A small plant turned out of a thumb in May is now a foot across, branching from the bottom, the leaves showing a large proportion of white, and the plant conspicuous in the circle of 72 by its distinct bright character and contour. From the same source we have a remarkable variety, labelled "147 J. J. C." It is hatefully coarse, with huge *Bijou*-like leaves, most of which are cupped, the disk dark green, the margin white as snow.

And this coarse brute of Chater's brings us to consider the bad ones, and I place *Bijou* front in this series; for, though beautiful, and when old exceedingly free to flower, it will not, as a variegate, bear comparison with the good ones named above. My old plants of *Bijou* have made shoots a foot long this season. As plants they are grand, but for any of the purposes to which variegates are usually put, this is about the last I should choose. I would never have it while *Daybreak* or *Flower of Spring* were to be had. *Bijou* will be swept out of the garden this season, with a hundred or two others that are condemned. In the list of the condemned I find *Argus*, which is not clean; *Perfection*, not enough variegated, and too rank a grower, but, like *Bijou*, fine for scarlet flowers; *Culford Beauty*, curly and coarse; *Hendersonii*, curly, coarse, and colourless; *Queen of Queens*, not so good as when it first came out—time has made a weed of it; *Meteor*, good, but no special character; *Attraction*, marred by the inconspicuous, almost dirty zone when it grows freely; *Countess of Warwick*, same objection as the last—remember, both are good in pots, and to breed from; *Mrs. Hoyle*, a bad form of *Perfection*; *Mountain of Light*, a poor grower; *Mountain of Snow*, not showy enough for the present day; *Brilliant*, nothing for leaves, and in other respects beaten by *Brilliantissima*, which can be bought now for a shilling.

There is a peculiarity in the growth of geraniums that very few are acquainted with, and yet it may be explained in a word. All the variegated kinds, including such as we are now especially dealing with, and all others, whether popularly known as bicolors or tricolors, are of compound constitution: in every leaf there are two or three classes of cells, which extend and multiply in different ratios. When we see young plants in pots, we see perhaps flat leaves, and we say, "This is perfection." We plant them out, they acquire increased vigour, some part of the leaf grows faster than another part, and the leaf ceases to be flat. There is no exception to this rule; it applies to *Mrs. Pollock*, *Luna*, *Flower of the Day*, *United Italy*; to one and all alike free growth always adds to their imperfections, though it may, and usually does, increase their attractiveness. The variegates proper, such as come into class 4 of our system, are the most subject to become cupped, or convex, or wrinkled, because between the green disk and the white margin there is greater antagonism, or rather greater difference in degrees of vigour, than between any two classes of cells in the leaves of other varieties.

Another matter of great importance is this, that free growth always increases the darkness of the zones. A rich soil will add to the aggregate of black in *Mrs. Pollock*, and give greater effect to the red and yellow thereby. A rich soil will fully develop the dark but generally obscure zone in *Countess of Warwick* or *Attraction*, and spoil them both. A rich heavy soil will so increase the black and diminish the red in *United Italy* as to make it almost worthless; to show its proper colours at their best, *United Italy* should be in a bed of light, fresh, rather poor soil, raised above the level; but to make the best of *Mrs. Pollock* a generous soil should be used, to give full effect to the colours. Geraniums of every kind are more healthy, and flower more abundantly, if the beds are raised a foot or eighteen inches above the general level of the ground—this is especially the case with such as are of delicate constitution. I can grow *United Italy* so that it shall glitter with shades of creamy white and carmine, or show so much of black as to be unsightly. When in heavy and well manured ground the black comes out prominently, and the leaves become deeply cupped; hence it frequently happens that people condemn it as worthless, after having themselves taken pains to spoil it. S. H.

When is a forcing-frame like a pigtail that always gets in your way?—When it's a-queene-umbering you. N.B. This joke, raised from a frame, is naturally a little forced.—*Fun.*

Messrs. Veitch and Sons, the well-known Chelsea nurserymen, have introduced a new pea this season. In recognition of the eminent services of our well-beloved Cole and Co., and to preserve a name the world would not willingly let die, they have named their new variety *The Brompton Boilers*.

CYPERUS ALTERNIFOLIUS VARIEGATA.

CYPERUS ALTERNIFOLIUS has been known in English gardens since 1781, when it was first introduced from Madagascar, where, in common with the Lattice-leaf plant (*Ouvirandria*) and other valued inhabitants of our stoves, it is an abundant river weed. It takes its specific name, "alternifolius," from the alternate arrangement of its leaves; and its generic name "Cyperus" carries us at once into the great family of sedges, to which it properly belongs in the natural arrangement of plants. The sedges (*Cyperaceæ*) may be collectively considered as plants removed one degree in the order of structure from the grasses (*Graminaceæ*). Many of them may be readily mistaken for grasses by unbotanical wayfarers when traversing an English waste, the British species being usually much more grass-like than those of exotic origin. The peculiar characteristics of the Cyperus family are the following: the leaves are usually hard and rigid, sometimes sharp as a razor at the edges; the stems are usually solid, not, as in grasses, hollow and jointed; the flowers of our British species of *Carex* are distinctly unisexual, the males presenting themselves in cone-like catkins, the females in elegant feathery plumes. There are other points of distinction, less obvious in their nature, and respecting which I must refer the reader to some good botanical work; I have simply pointed out a few in order to correct, without giving offence, those cultivators who persist in regarding the plant now under consideration as one of the grasses. In the order to which this plant belongs, it has for congeners our British species of *Cyperus*, *Scirpus*, *Eriophorum* (the well-known "cotton grass"), and the exotic *Papyrus* of the Nile, the very elegant *Isolepis gracilis*, which is almost a true *Scirpus*, and several other plants of less repute. The variegated form of this *Cyperus* is of quite recent introduction, and it is of this form alone that I intend now to speak.

There are few plants of modern introduction which really deserve more attention than this. Its graceful beauty justly gives it claim to be considered one of the most conspicuous of fine-foliage plants, and yet we seldom see it either grown as a fine specimen or luxuriating with that degree of vigour which is essential to the development of its peculiarly high and characteristic elegance. An unhappy stunted form of growth, with almost every alternate leaf diverging from the true character, is the general aspect of plants one is accustomed to see, both at exhibitions and in private gardens; and in the hands of manipulators, too, whose other performances would lead us to expect better results.

There are two reasons to account for this failure: in the one case a better knowledge is required of the peculiar requirements and habits of this charming exotic sedge; in the other the variety is at fault. As in the case of many other forms of beautiful plants, there have been distributed of this two distinct varieties. One is the true plant as imported, and increased by division; the other, speaking of the aggregate as one, consists of seedlings which have been raised from the true variety. Young plants, propagated from the former by division, always retain their character, which is typical, of tall, slender, vittately-marked footstalks, surmounted with a whorl of leaves about half-an-inch broad and upwards of a foot in length, and bearing the same character as the stems. The regular alternate lines of pure white and green, together with the pendulous habit of the whorl of leaves, gives a well-handled plant a most refined and imposing aspect. Seedlings seldom, if ever, acquire this beauty: their habit is dwarfed, the leaves generally push up green, are shorter, with the markings inconstant and indefinite, and withal are plants of no beauty in comparison with the true variety. I find propagation by division of the root can be done at any season of the year, and if your plants are rooted by the month of March they will make nice plants, bearing from four to six good leaves, by the following autumn. In potting, the several materials should be well prepared and incorporated, namely, fibrous peat, leaf-mould one year old, very old brick mortar, wood charcoal reduced to powder, potsherds broken very fine, and very sharp silver sand, in about equal proportions. The pot must be well drained, and a layer of cut sphagnum laid upon the drainage, upon which place the ball of the plant, carefully packing the material round, and pressing the mass gently to render all firm. The plant should then be put into a cool division of the stove, where plenty of direct light is secured. This is necessary to prevent a too great accumulation of chlorophyl—that is to say, a tendency to too great an accumulation of green in the leaves. This plant is semi-aquatic, and, with free and unimpeded drainage, delights in moisture. I find large pans filled with pebbles and water to the rim, in which the plant should be placed, most beneficial. The moisture imbibed by those roots ramifying amongst the drainage, and the slow and constant evaporation of moisture immediately around and beneath the leaves, has the effect of increasing the vigour, and thus enhancing the beauty of the plant. It likewise acts as an antidote to all kinds of insects. A moist genial atmosphere must be secured by the free use of the syringe throughout the summer, and until the month of October, when atmospheric moisture must be partially

withheld, and the plant taken off the moist pebbly pan, and kept drier throughout the winter or resting season. It is when in this condition that the plant really should be propagated. The ripe side eyes, if judiciously taken off, will readily root. From the specimen in my possession, and which has received high honours from the Royal Horticultural Society and other metropolitan exhibitions, I have this season secured upwards of two hundred fine young plants, all possessing those charming attributes of character of which my specimen is characteristic.—RANSLEY TANTON, F.R.H.S., Nurseryman, Epsom, Surrey.

CONSTRUCTING A VINERY.—No. I.

What are the principal points to be attended to in the construction of a vinery? is a question so often asked, that I have found it necessary to go fully into the details of the subject in order to furnish a useful reply. With a view of making the subject of general interest, I shall treat all the principal points under separate headings, giving such information as my experience has afforded me.

POSITION.

As a general rule a southern aspect is considered by many as the best under any circumstances; but in this I must beg to differ. A south aspect is eminently adapted for those who do not force grapes, or indeed for those who do not start their vines until February. But for those who begin forcing in November, a south aspect is not so well adapted as one a point more eastward; for this reason, the house that stands a point to eastward secures earlier in the day the sun's influence when our dull dark November climate admits of its penetrating the dense fogs and mists which then usually abound. By securing the sun's influence upon the house as soon as it is sufficiently risen in the horizon to distribute its welcome rays, the cultivator is enabled to give air early in the day, to dispel the stagnant atmosphere enclosed in the house, which every one knows is essential to the health of the vines. Moreover, when a house is so placed that the sun's rays fall upon it soon after it is risen, that house has the benefit of a greater amount of light than one on which it does not act for an hour later in the day; for the sun not only carries in its rays a certain degree of warmth even in November, but it also furnishes a great amount of light—and as most members of the vegetable world succeed best in proportion to the amount of light supplied them, the vine being no exception, we can readily understand the importance of so placing an early vinery that it may have the full benefit of all that it is possible to secure at a time of year when our climate only gives us a limited supply of daylight. I might properly add a note on the importance of securing the sun's heat early in the day, and how it gives strength and substance to the vines; and how much more agreeable is the heat so obtained for all vegetation than any that can be supplied artificially. But these are points that will appear clear to every unbiased mind without any arguments of mine.

I have briefly stated above that for later forced grapes a south aspect is admirably adapted, and so it is for those not forced at all; but it is a folly to suppose that even late grapes cannot be grown on eastern aspects. All they require is a very light constructed house, and a very well regulated system of air giving; that is to say, to open early in the morning and shut up early in the afternoon: as, for instance, houses facing south-east will bear shutting up at 3 p.m., while on a south aspect 4.30 or 5 p.m. will be soon enough.

THE WALLS.

The foundations should be concreted on a firm bottom, and the walls not less than nine inches thick; fourteen inches would be better for the back wall of a large house, or range of houses. For late houses, I like the front wall on arches, that the roots may work both inside and out; but for early work the border should be inside the house, and the roots confined to its dimensions. Brick piers for the front are objectionable, unless they are placed at every three feet, and an extra strong wall-plate to carry the roof. Where there are sliding lights on the roof, the back wall should be carried eighteen inches above the roof, as a sort of parapet. This affords great shelter from the north winds when air is given by the top lights; it also breaks off the rain, and is a protection against a sudden storm.

DRAINAGE.

To secure a proper drainage for the border and floor of the house is also most important, as well as to take away the water from the roof. But the roof-water should, in the first instance, be conducted into a tank or cistern inside the house, to be used in watering the borders, &c., an overflow being provided from the tank to the drain, to take away all superfluous water, for which there should be a gradual fall to the outlet, that there be no impediment to obstruct the water in its course away, as stagnant water is fatal to the roots of vines.

FLOOR OF THE HOUSE.

If the house is intended for very early work, the roots, as above stated, must be all inside, and the border for the most part covered with a wood trellis, that when the operator is giving the necessary attention to his vines there may be no treading upon the border, which tends to render the soil impervious to air and water. These trellises may be removed after the grapes are thinned, and the vines require less attention, except a line of them through the centre, or where there is most traffic, as the border will be all the better for not being covered up longer than necessary. If the roots are partly inside and partly outside, then a wood trellis to walk upon as a pathway will suffice, taking care to fork up lightly any footsteps that may from time to time be made upon that portion of the border not covered. A wood trellis is to be preferred to either a stone or tile paving, as it admits of a more even distribution of air and water to the roots.

MODE OF HEATING.

Unquestionably, for large houses, hot water is the best, but for a small single house a flue is not to be despised. For a house thirty feet by twelve a flue will answer every purpose, and I should advise that a flue be used, unless there are other houses in close connexion with it. In this last case a saddle boiler, with a sufficient quantity of four-inch piping, should be supplied. The quantity of piping required to heat a house of a certain size depends entirely upon the time it is intended to commence forcing the vines. For a house thirty feet long and twelve feet wide, four four-inch pipes will be necessary if the vines are started in November; but if forcing is not commenced until the 1st of March, then two four-inch pipes will do. The same remarks will apply to a flue—that is to say, the earlier the forcing, the greater length of flue will be required.

INSIDE versus OUTSIDE BORDERS.

In the foregoing remarks I have given the preference to inside borders for very early forcing houses, not because I prefer them to properly heated and constructed outside borders, but I have recommended them in this case because they are more simple in making, and of less expense, and when properly managed they answer every purpose. A good chambered and properly heated outside border, with every requisite appliance for protecting the border from wet and cold weather, is in some instances better than an inside one; but borders of this sort add considerably to the expense, and, from what I can gather from the communications of those asking for advice, they are not likely to be adopted by them.

In my next communication I propose to deal with the making of the border; meanwhile, those who are thinking of making new vine-borders should secure at once the principal ingredients, particularly a sufficient quantity of the top spit of a good mellow fibrous loam from a pasture field or a similar spot. J. C. CLARKE.

THE CULTURE OF VERBENAS IN POTS.

It is greatly to be regretted that many of the most useful local horticultural exhibitions have ceased to exist, and with no probability, at least for the present, of ever being restored. What caused them to decline? Perhaps this is a question not so difficult to solve. If we take a retrospective view of their rise and fall, we shall find that their decline may be traced in a degree to the desire, on the part of some of the exhibitors who were considered the lions of the show, to endeavour to monopolize the prizes, by the reduction of the number of subjects for competition, and thus turn the whole affair into a commercial transaction, somewhat similar to the system followed at our large horticultural exhibitions. Thus the purpose for which local shows are established, that of giving encouragement to many exhibitors, and the greatest variety of productions, is departed from. There can be no question but that the originators of local shows, from the manner in which the list of awards were framed, aimed generally to improve the cultivation of fruits and flowers in their own locality, and to inspire a spirit of laudable ambition to excel in the growth of their several products among gardeners. All gardens are not alike in size and accommodation for aiding the gardener in achieving great results in connexion with the several species of the vegetable kingdom, especially those which require a high state of cultivation. A gardener may be conversant with all the requirements for producing superior cultivation, and yet not have the means to aid his skill. It is then he resorts to the cultivation of plants which are best adapted to the circumstances that govern his operations; and local shows have been great helps in developing these resources, by offering prizes for subjects that are considered unworthy of a place in the schedules of our leading horticultural exhibitions. Amongst many good subjects that schedules of great shows do not recognise, and which ought, therefore, to have liberal encouragement at local exhibitions, the verbenas as a pot plant deserves a leading place.

Much has been said from time to time in the columns of this paper respecting the individual merits of the several varieties of verbenas. Having within the last week had an opportunity of viewing several of the best varieties in flower at Mr. H. Cannell's, The Fuchsia Nursery, Woolwich, and elsewhere, of which I shall speak at a future period, it has occurred to me that I might employ my pen usefully for a short while in an attempt to simplify the practice of producing specimen verbenas in pots. But I must endorse the opinion of the Editor in the issue of August the 3rd, respecting the qualities of the new crimson verbenas, the *King of Bedders*, having witnessed a bed of it in full bloom in the garden of the successful raiser, Mr. Todman, gardener to — Hudson, Esq., Clapham

Common. As a hedder, it was flowering in profusion, producing a most brilliant effect. In my opinion, it is far in advance of Admiral Dundas in colour and size of bloom, besides partaking of a more vigorous habit. It must become a general favourite as it becomes better known. But to return to their value as pot plants for ornamenting the greenhouse or conservatory when in flower. For that purpose they are far more beautiful subjects when trained with taste. Of course there are many varieties which are not suitable for pot culture, especially those which partake of the habit of Purple King. In selecting, make choice of those which produce large heads of bloom. Distinctness of colour is another thing to be observed, so as to make them when in bloom not only attractive, but interesting. The present is the season for choosing your sorts, while they are in flower, and in doing so you must question the grower as to their habits, if you do not see sufficient to justify you in your choice; for sometimes valuable varieties are overlooked for the want of inquiry as to their fitness for the required purposes. For selecting plants, the present time is about the best during the year, because most of the plants now growing are from late struck cuttings. Such being the case, they are generally clean and healthy, and more so if the pots have been plunged in any cool materials under glass, as decayed tan or leaves, for example. Besides, you have the advantage of seeing their flowers, they being more decided in colour now than earlier or later in the season.

Having procured your plants, reduce their shoots, if long, to two or three eyes—the object being to keep them bushy while young. As soon as the breaks are visible, pot them into five-inch pots. Use plenty of drainage. The soil should have mixed with it a fourth of silver sand. After you have shifted them, put them into a cool frame, and keep shaded from the burning rays of the midday sun. As soon as you consider them sufficiently rooted in the new soil, uncover them during the day, and continue to stop the shoots as they may require. The object in putting them under glass is, that they may be the more easily protected from heavy rains. Keep the wood as short-jointed as possible at this stage of their growth, by having the plants always near the glass, and freely ventilated. Do not think of further shifting them till the following February. The most suitable place for them during the winter is the top shelf of a greenhouse, or a pit that is heated by hot water or otherwise. The most destructive enemy they have to contend against during the winter months is damp, which creates mildew, and the green-fly, which, if allowed to gain the ascendancy, will soon destroy the vital energies of the plant. To guard against the former, give plenty of air on all favourable occasions; and as a preventive to the ravages of the mildew, always dust the plant with powdered sulphur at the first appearance of the disease, and so continue to repeat the dusting till there is no further signs of its presence. Fumigation with tobacco is the only remedy for the destruction of the green-fly; and by way of economy, if the other plants in the house do not require to be fumigated, then put the verbenas into a box or hand-light for the purpose, and when you consider the fly on them destroyed, give the plants a gentle syringing, after which replace them in their former position. If you are anxious to have them in full bloom by the latter end of May or beginning of June, you must, if the plants are thrifty, shift them in the month of February into their flowering pots; and that you may get them well established in the same, let their pots be plunged into a mild bottom heat. They will, from this time till their flower-buds appear, require to be grown in a warm moist atmosphere, and their shoots stopped often, if they show a disposition to become long-jointed.

As regards the style of training, that is a matter of taste. I have had them trained to a balloon trellis with good effect, and equally so on a flat surface, with a slight rise in the centre, similar to the mode adopted by the growers of zonal geraniums. Thus treated, I have seen some very large plants grown in nine-inch pots, and literally covered with bloom. In their final potting they must have plenty of drainage; any kind of soil that is sweet, and of a light loamy texture, well incorporated with decayed manure or leaf-mould, with some silver sand, will suit them. I have been favoured by request with the following list of varieties, as being the best adapted for pot culture, by Mr. H. Cannell, who grows all that is worthy of being cultivated for sale:—

Name.	Colour.	Remarks.
Harry Law	Shaded purple	Very large flower.
Queen of England	Salmon, and fiery scarlet centre...	Large, smooth, and flat.
Fanny Martin	Clear rose	Pleasing flower.
Antonia	Rich claret-crimson	Fine truss.
Leah	Pink, white eye	Good shape.
Triomphe de Massiffs	Grand blue... ..	Desirable flower.
Madame H. Stenger	Bright scarlet striped with white	Distinct and delicate.
Earl of Radnor	Rosy scarlet	Free bloomer.
Un pare	Cerise-purple	Largest flower in cultivation.
Mrs. Turner	Pale flesh	Splendid variety.
Mauve Queen	Mauve	Very fine.
Annie (Cooling's)	Striped	Finest striped ever produced.

JOHN F. McELROY.

OBSERVATIONS ON THE PORTRAITS OF KENT AND BROWN, AT THE SPECIAL EXHIBITION OF NATIONAL PORTRAITS.

I wish to offer a few remarks respecting the portraits of two landscape gardeners now on view at the Special Exhibition of National Pictures, South Kensington, namely, William Kent and Launcelot Brown, better known as "Capability Brown."

WILLIAM KENT was born in Yorkshire, 1685. He was apprenticed to a coach-painter, but, aspiring to a higher path, he repaired to London, and there, aided by some gentlemen of his own county, proceeded with Mr. Talwin to Rome, where he studied under the Chevalier Luti, and gained the second prize in the second class in the Academy. His first resources failing, he found a patron in Sir W. Wentworth, and finally in Lord Burlington. With this nobleman he returned to England, and resided at his house as a painter. Kent was painter enough to appreciate the charms of landscape; he was bold and conceited enough to dare and to dictate, and moreover he had genius sufficient to strike out a great system from the twilight of imperfect essays. Mahomet imagined an elysium, but Kent created many. It is said that Kent frequently declared that he caught his taste in gardening from the perusal of Spenser's picturesque descriptions; but we are indebted to Mr. Walpole, his contemporary, for the outlines of his style of design. The great principles on which he worked were perspective and light and shade. Groups of trees broke too uniform or too extensive a lawn; evergreens and woods were opposed to the glare of the champagne; and where the view was less fortunate, or so much exposed as to be seen

at once, he blotted out some parts by thick shades to create variety, or to make the richest scene more enchanting by reserving it to a farther advance of the spectator. Where objects were wanting he introduced temples, &c.; but he especially excelled in the management of water: the gentle stream was taught to wind about at its pleasure, and where interrupted by different levels its course appeared to be concealed by thickets, properly interspersed, and it glittered again at a distance, where it might be supposed naturally to arrive; its sides were smoothed, but preserved their meanderings. His ruling principle was that Nature abhors a straight line. The grounds in which the above principles were most strikingly carried into effect were those of Stowe, near Buckingham, then the residence of Lord Cobham. His lordship was an amateur designer, but employed Bridgman to assist him.

LAUNCELOT BROWN was born in Northumberland. His first employment was as kitchen gardener to a gentleman near Woodstock. He afterwards moved to Stowe, and confined his exertions to that department. Lord Cobham recommended him to the Duke of Grafton, who appointed him head-gardener at Wakefield Lodge, Northamptonshire, where his judicious formation of a lake first brought him into notice as a designer. Lord Cobham still continued his patron. Among other places, he was employed at Blenheim, where, by his easy completion in a week of one of the finest artificial lakes in the world, and other improvements, he rose to the height of popularity. He never went out of England, neither did he ever contract to execute his plans. He employed assistants to draw his designs. "Improvement," says Loudon, "was the passion of the day, and there was scarcely a country gentleman who did not consult him." The leading outlines of his system were easily copied, and imitators innumerable arose to supply the demand for designs. The spade and axe were at work in every estate, and so rapidly did the face of the country alter, that Sir W. Chambers declared that, if the mania were not checked, in a few years more three trees would not be found in a straight line from the Land's End to the Tweed. Whenever consulted upon the alterations to be made in the grounds, he invariably observed that there were "great capabilities about it;" hence arose the nickname of "Capability Brown." Brown possessed taste to comprehend that which is pleasing, and genius sufficient to obtain in some of his designs very good effect. His management of the water at Blenheim can never be excelled. In this material of landscape he was most excellent, but in the management of the ground he was less happy. He seldom varied in his plan. His declivities were all softened into gentle slopes. Plantations belted the estate, while clumps and single trees were sprinkled over its area. These were planted without any consideration or object which taste pointed out as desirable. That he was not always successful is most certain; it must be allowed that he undertook more than he could perform, and the art became most monotonous; and, as Mr. Loudon says, the professor required no further examination of the ground than to take the levels for forming a piece of water, which water uniformly assumed one shape and character, and differed no more in different situations than did the belt and the clump.

Brown was evidently aimed at, under the name of Layout, in a novel entitled *Village Memoirs*, published in 1775, in which he is represented as a general undertaker of gardens, who introduces the same objects at the same distances in all. The excellent translation of *Girardin de la Composites des Paysages* points out distinctly the correct and true taste in designing. The *Picturesque Tours* of Mr. Gilpin, the *Essays on the Picturesque*, by Mr. Price, and *The Landscape*, by Mr. Payne Knight, completed the expulsion of the Brunonian system of garden design, and prepared the way for the better fashions that now prevail.

WILLIAM GILES.

SUGGESTIONS FOR THE IMPROVEMENT OF THE VERBENA.

Looking at the numerous and remarkably diversified varieties of Verbena which now adorn our plant-houses and flower-gardens, or at the still more numerous and formidable array of names which fill large sections of nursery sale catalogues, none who have not previously ascertained the fact could possibly conceive that scarce thirty years have passed since the original representatives of this universally admired race of showiest summer flowers first received anything like general cultivation in British gardens; yet such is unquestionably the case. In 1826 Mr. Pousette collected seeds of several verbenas in the neighbourhood of Buenos Ayres, which he transmitted to John Hawkins, Esq., of Bignor Park, Petworth, Sussex, where, under the management of his gardener, Mr. John Perry, the first flowered in May, 1827, and was figured from a plant grown by Mr. Harrison, gardener to the Earl of Egremont, in Sweet's "Botanical Register" of the following year, under the name of *Verbena Melindres*, given to it by Lindley, in ignorance that it had been previously called *V. chamadrifolia* in Persoon's "Synopsis" by no less an authority than Jussieu, a circumstance which led to a little confusion, in consequence of its being known under both these names among cultivators. That such a brilliant-coloured and neat-habited plant should have been hailed as a most important acquisition was nothing more than what might have been expected; and accordingly it became the popular flower of the day, and was eulogised as follows in Maund's *Botanic Garden* for February, 1831: "Its flowers are intensely brilliant, without glossiness, and yet it has a dazzling effect on the sight, not unlike the lustre of polished metal. The eye cannot rest upon it without evident uneasiness. If any artist or artisan, in the pride of his heart, assume to himself excess of merit for the tints he has discovered, let him look on this plant, and subdue the intemperate heat of his imagination." Such was the admiration bestowed upon *V. Melindres* that verbenas in general were popular, and not only were old obsolete species resuscitated, but new ones were eagerly sought for, more especially in South America, which had become noted as the land of verbenas. Of the former, *V. bonariensis*, introduced from Buenos Ayres so early as 1732, and *V. Aubletia*, from North America in 1774, again became common inhabitants of our gardens; and of the latter, *V. venosa*, brought home in 1830, *V. Tweediana*, as well as *V. Sabini*, in 1834, *V. incisa*, in 1836, and *V. teurcroides*, in 1837, were received by cultivators into particular favour. Of these, *V. Tweediana* and *V. incisa* are so closely allied to *V. Melindres*, that notwithstanding their having been separated from it, and named by such an eminent authority as Hooker, the propriety of considering them as distinct species has been questioned. In the *Botanical Magazine* for December, 1836, *V. Tweediana* is described as having much affinity with the last-named species, but differing from it in being of a much taller and more upright habit of growth, "clothed with soft downy hairs, of a much more delicate texture, especially in the

leaves, which are considerably larger, more acuminate and serrated, more cuneate at the base, and decidedly petioled. The flowers are larger and more inclining to rose colour ('rich rosy crimson'), in greater number, and the racemes more capitate." In the same magazine for January, 1838, *V. incisa* is described as "another South American verbenas of the *Melindres* group; it is extremely handsome; the blossoms are of a deep red rose colour, with a yellow eye, and become paler in age; it differs from *V. Tweediana* in the broad and depressed (not spiked) corymbs; and in the broader leaves, which are more deeply lobed, and cut in a pinnatifid manner." In Paxton's *Magazine of Botany* for December, 1838, appeared a well-executed figure, along with the following description, of *V. teurcroides*:—"The plant is erect, and grows about 2 feet high; its flower spike is generally more than 6 inches long; the flowers are of a delicate pinkish white, gradually deepening into rich rosy pink as they begin to decay; and they are delightfully fragrant. It first flowered in the Glasnevin Botanic Garden in August, 1838;" and Mr. T. Handasyde, of Muselburgh, who purchased the whole stock, first sent it out in April, 1839.

From these four reputed species, *V. Melindres*, *V. Tweediana*, *V. incisa*, and *V. teurcroides*, have sprung almost all the most popular verbenas now in cultivation; and while it may be conceded that little room for further improving these seems now to exist, in the lines of advance which cultivators have hitherto chosen, yet there are others which would afford ample scope for the exercise of their skill; among which we would specially particularize those of habit of growth and of fragrance.

In regard to habit, it is a remarkable fact that among all the now popular verbenas none possess the dwarf spreading growth of the original *V. Melindres*, the departure from which first arose by crossing it and the *V. Tweediana*, and became consummated when that so-called "improved strain" became in its turn further incorporated with the still much more vigorous growing *V. teurcroides*. To overcome this strong up-growing tendency in modern varieties, recourse is had to the tedious and (to render it effectual) continuous operation of pegging down, which, even when best performed, never gives that close surfacing of foliage which the *V. Melindres* spreads around of its own accord. As flower and not leaf improvement has hitherto been the principal end aimed at by growers, it follows that some of the most perfect blossoming kinds are, in both the earlier and latter parts of the season, little different in appearance from common nettles; and while this is the case in the warmer and drier districts of the country, it is more noticeable in the upland and moister parts. Hence some eminent horticulturists who are so situated never attempt growing the coarser leaved kinds, and even still depend largely on the *V. Melindres* and other low-growing sorts for their principal floral display. Dwarf compact growth is not, however, the only desirable habit for verbenas; but a much taller habit than has yet been attained is also desirable, provided it can be acquired in combination with good foliage and stout graceful outline. The six feet high *V. bonariensis* possesses these desirable characteristics, and is only deficient in size of flower. This defect might, however, be overcome by hybridizing it with some of the large-flowered kinds, which might produce a new race of verbenas far more elegant and effective than anything yet seen.

Fragrance is a property which verbenas improve have almost entirely ignored, and among all the varieties now in cultivation it is doubtful if any will stand comparison in this respect with the old "delightfully fragrant" *V. teurcroides*, from which most of the whites and other strong-growing large-foliaged kinds are descended. And what a success would be obtained were a hybrid connexion produced between that universal favourite, the lemon-scented *V. triphylla*, and the showy-flowered kinds! In attempting the attainment of this highly-desirable result, we would caution hybridizers not to be deterred because botanists have separated this old favorite from the verbenas, and restored to it its original name of *Aloysia citriodora*, for by art and skill they may be enabled to overleap this fanciful barrier, as easily as they have already done seemingly more difficult obstacles, in amalgamating other separated genera.

Variating the foliage and doubling the flowers of verbenas are other lines of improvement in which little or almost nothing has yet been done. By prosecuting the former the most objectionable features in the plants may not only be overcome, but rendered really ornamental; and by the latter, longer endurance in the flowers, that invariable accompaniment of doubling, will at least be obtained.—*The Farmer.*

THE BOG PIMPERNEL.—On occasion of visiting the College Botanic Gardens lately (says a writer in the *Irish Farmers' Gazette*), and passing through the cool conservatory, in which there are many interesting plants, our attention was at once arrested and fixed on two—a palm and a Dracena—not exactly on their own account, but by reason of the beauty with which our little *Anagallis tenella* clothed the surface and sides of the pots in which they grew. The pots were large—one, indeed, of the largest size—and the surface of the soil in both was cushioned with, and their sides beautifully draped and almost hidden by its very long thread-like stems that dropped perpendicularly from the rims. Each of these stems was prettily strung with its double row of round bead-like leaflets, and glistening for nearly half its length to the point with its exquisite little flowers; numbers fully expanded, and others, perhaps not less beautiful, in the bud. We may remark here, in passing, that pretty as are the flowers to the naked eye, they are still more so under the lens. The delicate transparent wool-like processes that surround and enclose the anthers are specially deserving of examination, as, instead of being the simple hairs they appear, the glass shows their beautifully jointed or necklace-like structure. Mr. Bain informed us that the *Anagallis* was not grown in these pots with any special preparation or cultural care, with a view to increasing its vigour and development. A patch or two of it had been merely planted in these pots, together with an occasional plant of another of our loveliest wildings, *Pinguicula grandiflora*, to have at hand for botanical purposes. We should therefore apprehend that, treated specially, it would be perhaps even more effective. At all events, no one could look on it as growing in the College Garden and not admit that in it all have at hand one of the prettiest and most effective little things possible for growing, suspended or otherwise. To keep it well supplied with moisture from below would, of course, be always necessary. The little *Campanula hederacea* we also noticed growing in other pots, and its elegant appearance, apart from the consideration of its being one of the many interesting plants our country calls her own, and perhaps from agreeable associations connected with its native haunts, at once suggested it as one of the prettiest and most interesting things possible for a hanging basket.

MR. WILLIAM PAUL'S NURSERY, WALTHAM CROSS.

The county of Hertfordshire has achieved great notoriety for the very extensive cultivation of the Rose, and the production of many improved varieties of the queen of flowers. Prominently with such flowers are associated the names of Messrs. Paul, Rivers, Francis, and Lane. Not only are these cultivators celebrated for the encouragement given to the growth of the rose, but there are numerous private gardens in which the flower is extensively cultivated, so that the county of Herts has been not unjustly styled the "Rose Garden of England." But we must not be unmindful that at the present period there are other portions of this country that can compete with Hertfordshire for this distinguished position. In the raising of new varieties, we believe that Mr. William Paul occupies the foremost rank among English growers, for not only has he produced many new varieties, but it happens that they are all good. A visit to the Rose Exhibition at Kensington had kindled in me a desire to inspect the collection at the Waltham Cross Nursery; so in due course of things I started from Bishopsgate Station, and I was somewhat pleased to find that one of my fellow-passengers was a brother chip bont on the same errand as myself. We soon became mutual friends; and so absorbed were we in our conversation on the rose that we actually passed the Waltham Cross Station, the platform of which is almost connected with one of the entrances to the nursery, through a pathway in which roses are flourishing on either side. However, our mistake cost us a circuit of a mile and a half from the Cheshunt Station. Yet we did not regret the walk, as we had an opportunity of viewing the village and its surrounding objects. As yet, the progress of time has done but little towards altering the appearance of the homes of the peasantry; they still retain their primitive character—so much so, that we could not refrain from muttering to ourselves the beautiful lines by Mrs Hemans—

"The free fair homes of England,
Long, long, in hut and hall,
May hearts of native proof be rear'd
To guard each hallowed wall!"

On entering the nursery, we were most courteously welcomed, in the absence of Mr. Paul, by his manager. On leaving the spacious seed-shop, to take a survey of the grounds, the first object that confronted us was the avenue, as it is styled by the firm. It is a turf walk of noble dimensions, extending the length of the grounds in continuity, and affords a charming landscape prospect as far into the country as the naked eye can discern. The only thing that tends to mar this beautiful scene is one of those huge shafts, or tall chimneys, which is no uncommon sight in the suburban districts of manufacturing towns. Beyond this we could obtain a glimpse of the quaint old tower of Waltham Abbey Church, a spot famous for certain historical facts in connexion with the Norman Conquest.

On either side this avenue or walk were planted several unique specimens of Conifers and their allies, besides choice evergreen and deciduous trees and shrubs. They are in excellent condition for removal, having been subject to the usual system of transplanting. We must not omit to notice various species of variegated trees, some of which were exceedingly attractive, especially the remarkably white-leaved *Acer negundo variegata*. I thought as I gazed on this most beautiful species of the maple tribe, that it would be good taste to introduce this kind of tree more generally in the arrangement of our plantations, and thus produce an interesting but striking effect. No doubt, as we become better acquainted with the variegated species of forest trees, they will in time form part of the ornamental timber of our parks, and thus such trees, of which this nursery has many splendid examples, as *Ulmus campestris variegata* (the Silver Elm), and *Cerasus padus acubifolia* (the spotted-leaved Bird Cherry), will become majestic subjects of admiration for future generations. Not only the above species, but many other hardy pictorial trees, descriptions of which are to be found in Mr. Paul's catalogues, are to be met with in the borders of this avenue. We must not forget to say that, before we quitted this interesting spot, we saw growing several beds of the different sections of Zonal Geraniums, for which this nursery within the last few years has become celebrated. As there had been a heavy fall of rain previous to our visit, they were not in a fair condition for criticism.

We now find ourselves among the roses, which were the principal object of our visit; and certainly the severe winter and late frost of spring have told tales here as elsewhere. However, as my companion remarked, if you wish to judge of the qualities of the various roses there, visit them in the state in which they are growing for sale, as then you will have a capital opportunity of observing what the flower will do and what it won't do, either in point of size, thriftiness, or abundance of bloom; and if you have any doubt as to their adaptation to the locality in which you reside, then let the nurseryman decide, as he must from general practice be better conversant with their habits. Although many varieties may produce very beautiful flowers, yet they would prove but indifferent growers in or near large towns. It was really a delightful floral treat, as we strolled from spot to spot, amidst the brilliant glow of all shades of colour and their sweet perfumes. They literally loaded the breeze, and made breathing a luxury. Blooms of many of the sorts were extraordinarily large, particularly Charles Lefebvre, Alfred Colomb, Dr. Andry, Fisher Holmes, Lord Macaulay, Séateur Vaisse, Victor Verdier. The above belong to the very bright or rich carmine classes. Of the light, or those approaching white colour, we would particularize *Impératrice Eugénie*, *Caroline de Sansal*, *Madame Emile Boyau*, *Madame Rivers*, *Queen Victoria*, *Semiramis*, *Madame de Stella*. These are but a few of the many sorts that prominently attracted our attention. Of the tea-scented roses we say but little, as every one of them is acceptable for the purpose of intermixing both as cut blooms or otherwise. Of dwarf roses there is an immense quantity. Among all the classes we beheld we recognized many good old varieties that were popular favourites in days gone by.

On quitting the rose ground, we took a glance at the fruit-trees, the plantations of which cover several acres. They consist of all kinds and shapes, both pyramidal and trained trees, and they were in the best possible state of health, every care being taken to keep them clear of insects. We saw boys with brushes and pots of mixture busy washing their shoots, with a view to the destruction or prevention of vermin. The soil of the nursery being of a loamy or adhesive nature, is very favourable to the removal of trees, as it encourages plenty of fibrous roots. We concluded our visit by taking a hasty survey of the contents of the houses, one of which was full of tea-scented roses, growing in 6-inch, or 32-sized pots; and without exaggeration, I must say they were examples of first-class culture both in training and vigour. A very pretty sight to witness were tea-scented roses trained along

the rafters of the house, for the purpose of affording cut blooms. Another house was filled with some remarkably strong pot vines, some of which were bearing excellent crops. The other houses contain the usual kinds of nursery stock: in one we observed a very healthy batch of camellias. The last house we entered was a perfect blaze of bloom of the various nosegay and zonal geraniums; Mr. Paul's name being identified with the origin of many of the sorts. As the proverb says, "Time and tide wait for no man," and as we were anxious to catch the next train, then nearly due, we did not take notes of any of them; but we saw sufficient to justify us in assuring our readers that there were among them some real gems, both in regard to distinctiveness of colour and size of truss. Thus far we were much gratified and instructed by our first visit to Mr. Wm. Paul's Nursery at Waltham Cross.

JOHN. F. M'ELROY.

GRAPE-GROWING AT BANSTEAD PLACE,

THE SEAT OF GEORGE GLYNNE, ESQ., M.P.

Now that much controversy is going on respecting this important branch of horticulture, it behoves all interested in the matter to glean what they can of the *modus operandi* practised by men who stand pre-eminent as growers of this favourite fruit, and from the success which has attended the system carried out here, Mr. Breeze, the gardener, must be classed among the foremost of cultivators, being a pupil of the celebrated Hill of Keele, and subsequently spending much time in the fruit-growing localities. It is not surprising that, in spite of the up-hill work and wearying disadvantages which Mr. Breeze has had to fight against, he has acquired a name which will ever identify him with grape-growers of A. 1. celebrity. In making his borders Mr. Breeze is not partial to, in fact he sets his back to all intents and purposes against all carrion. His compost is an admixture of the following: Good top-spit loam one-half, old mortar, crushed bone, wood charcoal, and ashes, with well rotted stable dung, which are all well thrown together, mixed, and thoroughly incorporated. If outside the border, in all cases is protected from rain, thus as much command of moisture of the border is secured as a pot plant. The long rod closely pruned system is practised, and the result can be judged from the immense vigorous growths which these closely spurred rods make. The bunches of fruit are closely set down at the base of the annual shoot, with stout woody pedicels, upon which are seated finely-swelled berries of a jet black colour, and although the bunches are of immense size the arms are sufficiently strong to render them self-supporting, thus proving that a well-grown bunch of grapes, when judiciously thinned, does not require ligatures for support. Among the many sorts of grapes grown and honestly tested here, Mr. Breeze speaks very highly of the *Muscat de Saumer*. It is, he says, a fine grape, noble in bunch, delicious in flavour, and sets freely in a Hamburgh temperature. Now, being a white grape and with a Muscat flavour, this information is worth making a note of. The True Kempsey's Alicante is well done here, and proves itself to be a variety of tip-top quality. Near to the vineries I saw a superb crop of well-coloured peaches in a span-roofed house, and which should have been more prominently noticed, besides many more fine points in the cultivation and keeping of this place, but an engagement which I was compelled to keep limited my stay, and it was with much regret that I could not prolong my visit, and make a few more mems, before bidding adieu to the open-hearted, kind, urbane, and clever gardener, Mr. W. C. Breeze.

T. R. J.

THE GARDEN OF T. JONES, ESQ., WHALLEY RANGE.

Having lately made a visit to the garden of T. Jones, Esq., Whalley Range, Manchester, I trust a few remarks on some of his plants may not be out of place, containing as it does many well-managed examples of the choicer varieties of orchids. The East-India house, which is double roofed, is a model as far as construction and ventilation are concerned, and is highly spoken of by the gardener, Mr. W. Swan, contains some strong plants of *Vandas*, six feet high, well furnished with three and four breaks. *V. teres* was flowering here. *Aerides odoratum purpurascens* was good, bearing twelve spikes, with flowers of good colour and substance. *Dayii* and the short-leaved variety of noble were fine, making a pair of plants five feet high, the former with three spikes in bloom, the latter with the same number just opening; a fine branching variety of affine was also good. We saw a fine plant of the true *Veitchii*, with twenty-four leaves, having just gone out of flower, with a spike two feet long, and four laterals. Among *Saccolabiums*, *gutatum*, *giganteum*, *retusum*, and *Holtfordii* were fine plants. *Curvifolium* also, in baskets suspended from the roof, were in perfect health. *Angræcum sesquipedale* was a noble plant with twenty-seven leaves; and *caudatum* was also good, having a spike with six of its singular tailed flowers. *Cypripedium* were grown remarkably well; *Lowii*, *Stonei*, *hirsutissimum*, and *villosum* being large masses, while *caudatum*, *lævigatum*, *Dayii*, and *Veitchii* were also doing well. We saw a mass of concolor with about twenty leaves. The *Phalæopsis Ludemanniana* was still in bloom, but as we were informed, some of the flowers had been open eight weeks, they were losing some of the rich colour they had when it was exhibited at the late Manchester show. *Lowii*, of which we saw three plants, were looking well, one having made a leaf four inches long. *Dendrobium Wardii* was just coming into flower, and *D. devonianum* was also fine, with growths four feet long. *Zygopetalum rostratum* was in this house doing well, and the rare *Oncidium Krameriana* was just coming into flower. The *Cattleya* house is a lean-to, and contains some nice plants of *L. purpurata elegans*, *C. Mossiae*, *Leopoldii*, *Skinneri*, and a magnificent specimen of *Warnerii*, having nine of its large rich-coloured blooms on it. *Wagnerii* was also in bloom; *Reynellii* and *bulbosa*, in baskets, were looking well. In this house we saw a fine plant of *Oncidium sessile*, having eight leads hung up in a basket. *Pleiones* were maturing some fine bulbs. The *Odontoglossum* house joins this one, and contains some nice plants of the Mexican and New Granada varieties, all doing remarkably well; *Coronarum*, having four leads, and the lovely *Phalænopsis*, of which we saw two plants, one having seven leads, and the other eight. *Lycastes* were in this house breaking very strong, and the major variety of *Vitellium* was here, and in flower, surpassing as it does the old variety in size, colour, and substance. The *Dendrobium* house is a half span, and in it we saw some fine specimens of *nobile*, *densiflorum*, *clavatum*, *densiflorum album*; while *crepidatum* and *lituiflorum*, on blocks, were breaking well. *Calanthe masuca* was a fine plant, with twelve spikes of bloom, and

Cœlogyne cristata was also good. *Miltonias*, in pans suspended from the roof, were showing flower freely. In this house we also noticed *Eriopsis biloba* and the rare *Cattleya Dowiana*, just opening their flowers. Some fine *Lilium auratum* were in bloom in the conservatory, and a nice lot of *Azaleas* we noticed in another house, making some good growth. J. T.

Calendar.

WORK FOR WEEK COMMENCING AUGUST 10.

Kitchen Garden and Frame Ground.

CARDOONS must now be tied and banked up with earth to blanch the fleshy part of the stems. They will not be perfectly blanched for five or six weeks, so it would not be wise to delay the earthing-up much beyond this time.

LEEKs may still be planted out, and those already grown to good size may be earthed-up to blanch them.

PEAS.—It commonly happens that late-sown peas become hopelessly infested with mildew, and make no return. We have explained on several occasions how to prevent this by sowing in shallow trenches, which admit of frequently flooding them with water. Where they have been sown on the level in the usual way, they must of course be earthed-up slightly, but it would pay well for the little trouble occasioned to make a channel on each side of the row to receive and hold a liberal allowance of water.

SPINACH must be sown now for winter. The common prickly spinach is an excellent variety.

TURNIPS may still be sown to stand the winter, but it will soon be too late to sow any kind of seed for winter crops.

CELERY to be earthed-up with care after a heavy rain or a good watering; take care the mould does not get into the hearts.

MUSHROOMS can be accommodated in many ways at this time of year, as melon and cucumber frames are going out of use. Though we so often hear of failures in growing mushrooms, it is very certain that there is no esculent more easily grown; indeed, many gardeners find themselves well supplied by the spontaneous productions of dung-beds and compost yards. A mixture of turfy loam and short stable dung is to be preferred to a bed consisting of dung only. Collect the manure in a dry state, and spread it out in a shed till you have enough. Then add a fifth part of loam, chop them over well, and lay up the mixture eighteen inches thick, beating it down well as the work proceeds. In the course of a few days the bed will have a nice warmth, and the spawn may be inserted in pieces of the size of an egg. Throw over the bed a thin sprinkling of loam, and over the loam a little loose straw. Water occasionally, but take care not to make the bed wet. In the course of six weeks the crop will appear; then make up another bed to take its place, and so on all the year round.

WINTER GREENS.—This week offers the last fair and favourable opportunity for securing a sufficiency of winter and spring produce in the kitchen garden, and whatever is to be done *must* be done to make sure of supplies at a time when it is impossible to get them up quickly. Plant out every morsel of winter greens that may be left in seed-beds, or where first pricked out to strengthen, including broccoli, cabbage, kale, &c., &c. Sow collards, Red Dutch and Sugar-loaf cabbage, endive, Hammersmith lettuce, salad onions, Golden and Normandy cress, Flanders spinach, Stone turnip.

Flower Garden

CHRYSANTHEMUMS should not be topped any more, as in the event of a cool autumn those topped later than the first week in August will fail to bloom. The quickest way now to secure a few nice small plants to give two or three blooms each is to layer the shoots in pots. These late layers, if taken from the tops of strong shoots, make pretty specimens for the conservatory. In selecting the shoots for laying, take such as will make plants of good shape at once. Many ugly old plants now sprawling about to the discredit of the place might be turned to good account to supply small plants by layers.

INTERMEDIATE STOCK to be sown in pans and boxes in frames, or in some shady place under a wall. When large enough to handle, pot them for the winter, and house them in a light, dry, airy pit. A little frost will not hurt them.

LILIES.—The time is at hand when Lilies, having lately rested, begin to grow again. The brief period of rest affords an opportunity for taking them up and dividing the roots. This is the time too for making preparations for planting Lilies out of doors. There can be no doubt that all the *Lilium* in cultivation may be grown to perfection in good borders in the open ground. Those who are thinking of making a display of Lilies next year would do well to refer to The O'Shane's article on the subject in the GARDENER'S MAGAZINE of July 29, 1865.

BULBS of all kinds must be thought of in good time. If there is not a good store of stuff for potting, set about preparing it without loss of time. There can be no harm in potting a few Hyacinths and Van Thol Tulips at once.

AURICULAS require repotting to remove offsets, and secure a good bloom next season. The soil should be full of fibre, and in a sweet and fresh condition. Put the offsets in thumbs, singly, in a sandy mixture, and shut them up close for a week; this is better than inserting them round the sides of pots, as they can be allowed to fill the thumbs with roots, and then have a good shift at once.

BEDDING PLANTS to be propagated without delay for next year. To save trouble, both now and during winter, select a few strong plants of *Verbenas*, *Tropæolums*, *Petunias*, and *Lobelias*, and pot them in large pots, with one-third of drainage in the pots, and shut them up in a frame and keep shaded for a week; then let them be exposed to all weathers till the probability of frost requires them to be housed. Keep these to force for cuttings next spring, so as to be free of the necessity of propagating any of them now. The whole stock of *Geraniums* and *Calceolarias* for next year's bedding should be struck this season—*Geraniums* at once, *Calceolarias* within a fortnight—in a moist shady pit. Save seed of *Cineraria maritima*, if you want anything new in the way of silver edgings. *Cerastium* may be left out all winter, so no need to propagate that now. If thought desirable to propagate *Verbenas* now, in order to have an early bloom next year, take the points of growing shoots about three inches in length, and strike in pans of sand, and from those shift—not into pots, but into shallow boxes of any convenient form and size, in which they will winter better, and occasion less trouble in watering.

HOLLYHOCKS require plenty of water to open their top buds well, and all choice kinds on which it is desirable to have a few good blossoms to the last should be disbudded. Take off first every other bud all the way up, then remove a few more on the side farthest from the walk, on what may be called the backs of the plants, and then go over them again and remove a few buds wherever they are crowded; finally, top the stems to uniform heights, if the plants form a compartment of themselves; when they are scattered about, there is no occasion to top them.

THRIP.—Tobacco-water will do something to render the flower-buds and young tops of dahlias unpalatable to this insect, and that is the only chemical agent we can recommend. In every case where plants are infested by thrip, we consider it of the very first importance to give abundance of water at the roots; this will do wonders.

HERBACEOUS PLANTS may be divided now, and many may be raised from seed for next year. All the low-growing tufted plants, such as *Aubrietia purpurea*, *Arabis*, &c., may be parted, so that each little tuft has a few fibres; if shaded and kept watered for a week, they will soon make new roots, and form nice tufts to remove from the reserve ground to the borders and beds in early spring. It is not too late to put in cuttings of that best of all spring flowers, *Iberis sempervirens*.

Fruit Garden and Orchard House.

STRAWBERRIES to fruit next year should be planted at once, and the surplus runners finally removed from the old plants. Those rooted in small pots will want a shift; replot them *firm* in a sound loamy compost, and keep well watered.

WALL TREES may now be trained in and moderately pruned; remove the foreright shoots, and all superfluous shoots, however well placed, and train in none but good wood, and that sufficiently far apart that it may ripen perfectly.

STRAWBERRY PLANTATION.—A deep heavy loam, inclining to clay, well drained, sloping to the south, abundantly manured, and in a breezy open country, will make a good strawberry plantation. But people want strawberries where there is no such combination of favourable circumstances. Thin sandy soils may be improved by the addition of clay and manure. The soil from the bottom of a pond or ditch is the best dressing to be had in a sand or chalk country to improve the texture of the plot for a plantation, and it should be dug in to the depth of two feet if there is that depth of soil to work upon, and at the bottom of the trench should be laid six inches of half-rotten dung. This will be mellow before the roots of the plants reach it, and when they do get hold it will keep them hearty during seasons of drought, which are very distressing to strawberries planted on sand or chalk. On very stiff clays it is a folly to expect strawberries unless the ground is well drained; but with perfect drainage, clay soils lying open to the sun will produce the finest strawberries, and continue long in bearing. But greasy clays may be improved by liberal dressings every autumn with the ashes of charred rubbish, and in spring with half rotten dung. Strawberries may be obtained in good seasons in tolerable abundance from almost any kind of soil or situation, but the precariousness of the crop, and its inferiority both in quantity and quality when placed under unfavourable circumstances, are sufficient reasons for the exercise of discretion and spirit in the culture, for when liberally treated there is no plant in our gardens that makes a better average return on outlay than the strawberry. Therefore it is we advise the grower never to plant under trees, to dig and manure without stint, and to lose no reasonable opportunity of improving the plantations.

PLANTING STRAWBERRIES.—It depends so much on the state of the plants whether it is well or ill to plant at this or that season, that no definite rule can be laid down. We wish to be distinctly understood on this point. We have planted strawberries in every month of the whole year without accident of any kind. Well-rooted plants can always be lifted with good balls when they are simply to be moved to another part of the same garden, and plants in pots can always be turned out without breaking the balls, even if loaded with fruit without injury. But when the plants are taken up in nurseries, much of the soil shaken from the roots, the plants then packed for transit, perhaps exposed in a London seedman's window before being sold, there will be so much exhaustion that the plants must have time to recover before they can fruit satisfactorily. Therefore, those who plant stock supplied from a distance had best plant in August or September; if the plantation is made in spring, February is a good time to plant, as the plants have still time to make roots before fruiting; but if obtained in pots they may be put out at any time. Plant at distances suited to the habit of the variety. Such as British Queen, Nonpariel, Goliath, require to be two and a half feet between the plants, and the rows three feet apart. Varieties less robust in habit, such as Black Prince, Wellington, Comte de Paris, &c., one foot to eighteen inches between the plants, and two feet from row to row. All the varieties will bear well at less distances, but the distances we give will pay the best in the end, for the rows can be stirred and manured conveniently, and the free circulation of air amongst the plants will give the fruit its full size, colour, and flavour. We see everywhere crowded plantations, and we never ask about the result, knowing that the possessors of those plots have really no clear idea of what strawberry plants should produce with good culture. *Plant firm*, water liberally if the weather is dry, and continue till rain comes. If possible, plant when there is a probability of rain following, and in any case of planting during hot sunny weather cover the plants with large inverted pots from ten to five every day, and always leave them uncovered at night. Dispense with the shading as soon as possible, and if possible remove the pots during cloudy or showery weather.

Greenhouse and Conservatory.

CAMELLIAS must be looked over at once. Many old plants will be found wanting water, and the best way to deal with them will be to plunge the pots to their rims in a tub of water for half an hour, to thoroughly soak the ball through. If allowed to continue very dry now that their buds are set, the buds will fall off. Young plants that have not quite filled their pots with roots must be only moderately watered.

HARD-WOODED PLANTS that have been exposed to all weathers in pits and plunge-beds, and in the flower garden, must shortly be returned to their proper places in the greenhouse for the winter. It is not that there is any fear of frost just yet, but we may have long-continued and chilly rains, and these plants ought not to be exposed to such vicissitudes. At all events, where plants of any value, as *Epaeris*, *Boronia*, *Correa*, &c., are now out of doors, let the first cold rains that occur be the signal for housing them.

CINERARIAS will in many cases need to be shifted on, and it is well to take advantage of the forward state of some of the plants to obtain a few

extra fine specimens by encouraging vigorous growth. Starvation and fly go together in the cultivation of the Cineraria. Keep the stock sufficiently watered, and use a good holding compost, and there will not be much fly.

GREENHOUSE to be cleared out and cleansed, and if needful repaired and painted, and made ready for re-stocking. All wood-work and brick-work should be scrubbed, and the latter lime-whited, and all holes stopped with cement. This process will clear away vermin, and do much to prevent mildew and other plagues in winter. If painting and glazing are not done at once, the house may have to be re-stocked before the effluvia consequent on the operation has been dissipated, and losses of plants will be the result.

LAOENALIA TRICOLOR.—Amidst the numerous varieties of bulbous-rooted plants that adorn our greenhouses during the earlier months of the year, few deserve or are better entitled to the gardener's attention than the one named above. Their beautiful spikes of trumpet-shaped red and yellow coloured flowers, wholther intermixed with other plants or otherwise, are sure to be attractive. Unlike the hyacinth, narcissus, &c., they do not require to be purchased annually that sound and good flowering bulbs may be secured, as the Lachenalia increases every year in number and strength, if the grower will bestow some degree of care. It is time now to turn them out of the pots in which they flowered in the spring, and to repot them for next season. In sorting them the stronger bulbs are selected, and five of each planted in a six-inch size pot, commonly known as 32's. Good drainage and clean pots are indispensable. They thrive best in a strong loam (not clayey), but of a silky or soft texture; add to this about a fourth part of dry rotten manure, with a little sand. If the manure be decayed cow-dung, so much the better, provided it is free from worms. They should be placed in a cool pit, the object being in the present stage of their growth to check too rapid an evaporation in the soil, as frequent waterings when there is not an abundance of rootlets to absorb the fluid is an injury alike to the plant and the soil. When they have begun to vegetate freely, expose them more fully to the light and air; their rich dark green speckled leaves will then soon begin to strengthen in growth. That a healthy vigour may be preserved during the winter months, place them on the upper shelf of a greenhouse, near the glass, but do not neglect carefully watering them. As the flower-spikes become perceptible, allow the pots as much room as your means will admit of for the display of their vigorous foliage. During the blooming season, shade on hot sunny days; this will preserve the colour as well as the flowers. When they have ceased blooming, gradually ripen the bulbs by reducing the quantity of water, till you wholly discontinue the supply, when they may be put in any corner of the greenhouse till the period of disturbing them as above recommended. The offsets or smaller bulbs may be planted, ten or twelve or more in number, according to their size, in a five-inch or 48-sized pot; they will not all flower, yet you may increase your stock of strong-flowering bulbs for selecting from in the ensuing season. The Lachenalia will submit to be forced, but it is at the expense of weakening both the bulb and the flower-spike.

Stove and Orchid House.

CLIMBERS will in many instances need to be cut back in order to obtain an immediate and quick growth to produce a late bloom.

ORCHID HOUSE requires now some revision, so as to separate plants that are going to rest from those that are still actively growing. Encourage growth in young specimens recently potted, but as the growth of any orchid appears to be completed gradually withhold water, and remove them to a cooler part of the house.

STOVE PLANTS must be prepared betimes for the winter by gradually withholding water from such as have completed their growth, and exposing as much as possible to air and sunshine all hard-wooded plants, that the growth of the season may be completely ripened. Shut up early and use fire-heat if needful.

ORCHID HOUSE.—Orchids in full growth must have moisture and heat sufficient to maintain them in health, but the judicious cultivator will not often have to light a fire this month. Those going to rest to be encouraged by removal to a cooler part of the house, where they must have less water, but be kept plump by frequently sprinkling the paths and stages. This is a good time to separate pseudo-bulbs for increase of stock, and to pot on small plants. Orchids that have been a long time in the same pots need top-dressing with fresh material. Shut up at four till the third week of the month, and then shut up at three. After shutting up, syringe gently with water of the same temperature as the house. Temperature of Indian house, 70° to 75° by night, 75° to 85° by day; Mexican house, 65° to 70° by night, 70° to 85° by day.

Orchids that may be in bloom in August.—*Aerides nobile*, *Quinquevulnerum*, *quinquevulnerum album*, *suavissimum*; *Angrecum caudatum*; *Arpophyllum cardinale*; *Bolbophyllum Henshallii*; *Barkeria melano-caulon*; *Brassia Lanceana*, *Wrayii*; *Broughtonia sanguinea*; *Burlingtonia Knowlesii*; *Calanthe Dominii*, *furcata*, *masuca*; *Cattleya amabilis*, *candida citrina*, *crispa*, *crispa superba*, *granulosa*, *Harrisonia*, *Harrisonia violacea*, *labiata pallida*, *Lemoniana*, *Loddigesii*, *Mossia*, *Schilleriana*, *violacea*; *Coryanthes maculata*, *Cycnoches Loddigesii*, *ventriosum*; *Cymbidium pendulum*; *Cypripedium barbatum grandiflorum*, *Lowii*; *Dendrobium calceolaria*, *sanguinolentum*; *Dendrochilum filiforme*; *Epidendrum Phœniceum*, *vitellinum majus*; *Galeandra Bauerii*, *cristata*; *Miltonia bicolor*, *spectabilis*; *Mormodes citrinum*; *Oncidium divaricatum*, *pulchellum*, *pulvinatum*; *Peristeria elata*; *Phajus albus*; *Phalænopsis amabilis*, *grandiflora*; *Promœna stapeloides*; *Saccolabium Blumei*, *furcatum*, *guttatum*; *Sobralia liliastrum*, *macrantha*, *macrantha splendens*; *Stanhopea aurea*, *Devoniensis*, *insignis*, *Martiana*, *oculata*, *tigrina*, *tigrina lutescens*; *Trichopilia picta*, *Vanda Batemanni*, *Roxburghii*, *teres*.

Forcing Pit.

PEACHES and NECTARINES under glass should now be fully exposed night and day by removal of the lights. Thin out the young wood of the season, to promote the ripening of all the good shoots that have been laid in. The borders in which the trees are planted may be allowed to get comparatively dry with advantage.

VINES from which the fruit has been cut will be better if treated the same as advised above for peaches. If the lights cannot be removed, open all the ventilators night and day, and slightly reduce the number of laterals. Vines in pots to be laid on their sides as soon as the leaves wither, in order to induce a state of complete rest.

PINES in a growing state to have a moist air and a steady bottom-heat. Shut up early, and at the same time sprinkle the bed; this will greatly help any fruit now swelling. The bottom-heat for pines must be not less than 90°.

CATALOGUES.

AMB. VERSCHAFFELT, RUE DU CHAUME, GHENT. *List of Palms, Cycads, and Pandanus*, with prices.—An excellent list for purchasers of conservatory plants. There is added a list of selected novelties of various kinds.

DILLISTONE AND WOODTHORPE, SILLE MEDINGHAM AND BRAINTREE, ESSEX. *Catalogue of New and Choice Plants of 1867*.—In this catalogue the novelties of the season are offered at low rates. The system adopted is a sort of horticultural express. The novelties sent out by the great houses in the spring are purchased, and multiplied, and made ready for distribution in time for amateurs to buy them cheap the same season they are sent out.

WILLIAM ROLLISON AND SONS, TOTTING, SURREY, S. *Catalogue of Stove, Greenhouse, and Hardy Ferns*.—A first-rate list full of interesting and useful notes, the classification sound, the printing beautiful, and the book well adapted to keep at hand for reference, wherever ferns are cared for. A pleasing feature is the announcement that "the present catalogue has been prepared by our manager, Mr. Wilbraham Buckley." Mr. Buckley once did us a service; we asked him for a few van-loads of plants for an exhibition got up for a philanthropic object, and he gave them in a ready and generous manner. It is agreeable to find by this book—for it is a book—that he is as good at ferns as in acts of benevolence. Bravo, Buckley!

HOOPER AND CO., COVENT GARDEN. *Price List of Ferns, Hardy and Exotic*.—A short comprehensive list, prepared for ready reference, and comprising all the good ferns in cultivation.

Replies to Queries.

J. R.—The seedling nosegay is full of promise, though we have in Christine Nosegay, Pink Stella, Rose Rendatler, and some others, good varieties of the same class, though we believe none of precisely this shade of colour. Think a second time about the name you propose. It would be advisable to cut up the plant at once, and make stock, and next year bed it out to prove it, for pot culture is but a partial proof of a variety of this type.

Sizes of Flower Pots.—Colman.—The London potteries follow what is called the "Chiswick Standard," the name and sizes of which are as follows: Sixties, 4 inches deep, 3 inches wide at top; forty-eight's, 5 inches deep, and 5 inches wide; thirty-two's, 6 inches deep, and 6 inches wide; twenty-four's, 8 inches deep, and 8 inches wide; sixteen's, 9 inches deep, and 9 inches wide; twelve's, 10 inches deep, and 11 inches wide; eight's, 11 inches deep, and 12 inches wide; six's, 12 inches deep, 13 inches wide; four's, 13 inches deep, 15 inches wide; two's, 14 inches deep, and 18 inches high. "Uprights" have gone out of fashion; probably the last seen of them at exhibitions was when Mr. William Paul presented his first lot of hyacinths in them, and people thought he had taken to chimney-pots. We have for some time past been using for specimen plants that do not require a great depth of root-room a superior style of pot, made for us by Messrs. Adams Brothers, of Belle Isle; they are made of the best clay, and with more than ordinary care, and are intermediate in proportions between pots and seed-pans. The most useful size for small specimens, and one admirably adapted for ferns, is one measuring 9 inches deep by 15 inches wide.

Tree Ferns, &c.—G. M.—When your tree-ferns and grass-trees arrive from New Zealand, put them in an upright position in some cool, close, rather dark place, such as a shed, or under the stage of a greenhouse, and syringe them once a day for a week. The next week syringe them two or three times a day, and protect them against draughts of air, so as to keep them constantly damp. In about three weeks after the date of their arrival they will begin to show signs of growth; they may then be potted. In preparing them for pots, cut clean away all hard, dead, wiry roots, so as to reduce their stumps considerably. It is seldom, however, that there are any roots left to cut away, they are so closely trimmed before being packed for transit. The best soil is one consisting wholly of tough fibrous peat, with plenty of sharp sand. When the crocks are placed, lay over them some rough charcoal, then pot the trees in the usual way, and fill the stuff in as firmly as possible. Put them in as small pots as possible; it is easy work to shift them on as they grow, and it is a great help if the roots soon touch the sides of the pots after they begin to grow. Do not make the soil wet at all until the growth has advanced somewhat; to keep it regularly damp will suffice, but continue to syringe the stems frequently, as the moisture absorbed that way will soonest arouse the energies of the plants. It is a matter of choice whether you take up the hyacinths. They will do very well as they are.

New Subscriber.—Yes, one strong industrious man may do the work, but it is full as much as any one man can do.

Propagating Bedding Plants.—Novice.—The common soil is now like a hotbed, and almost any cutting, even if badly taken and badly inserted, will strike roots if covered with a bell-glass. The way to learn propagating is at once to begin practising; even if you fail at first, you will soon learn why it is, and will soon after succeed. As a rule, any bedding plant may be propagated now by taking rather young, but not the youngest shoots, and cutting them to a length of two or three inches, removing one or two of the lowest leaves, and then planting them firmly in sandy soil, and covering with a hand-light or bell-glass. Look at them once a day, and at the same time sprinkle them with water. A common frame or a raised bed of earth now becomes a hotbed if kept shut, and any amount of propagating may be done by means of a frame and a raised bed surfaced with four to six inches of sandy soil.

Books.—J. S., Staplehurst.—So far as we know, Withering is obtainable only of the second-hand booksellers. It is a long time since we saw it announced as a trade book. Grindon's "British and Garden Botany," published by Routledge, price about 12s., is admirable as a help in determining the names of British plants, and withal a most interesting and instructive work on plants generally. Deakin's "Florigraphia Britannica," in four volumes, published by Groombridge and Sons, is a most valuable work, not much known, and perhaps not fully appreciated. Considering the abundance of plates, and extent of the work, it is cheap, the price being about £3 10s. The grand book on British plants is that by Professor Syme, published by Hardwicke, of Piccadilly. It is costly, but there is nothing to equal it. Bentham's "Handbook of the British Flora" should be in the library of every student of British botany. There are two editions, one at 12s., the other (with engravings) at £3 10s., published by Mr. Lovell Reeve.

John Redshaw, Bourne, Lincolnshire.—Your ivy-leaved geranium is extremely pretty. It differs from *L'Elegante* in its more decided creamy

edge. The plant is of vigorous habit, very bright and pure in colouring, and will make a fine edging plant to serve just such a purpose as *Manglesii* is so much valued for.

Delphinium Seed.—S. B.—If you wait till it ripens on the plant you will lose the greater part. The way we save it, and obtain it all, is to take a dry bell-glass, and stand it open end upwards, on a flower-pot in a sunny greenhouse. We cut the seed-stems just before they burst, and put them in the bell-glass. The sun finishes them, and the seed is all shed into the clean glass, and is ready for use. Sow at once if you want strong plants.

Paxton Manure.—Constant Reader.—We really know nothing at all about it. The manufacturers of such things should advertise them. You might, no doubt, soon revive your lawn by the occasional application of a thin sprinkling of guano or saltpetre.

THE LATE MR. JOHN NITCHELL.

We have to record the death on the 17th ult., at Enville Cottage, Addlestone, Surrey, of Mr. John Nichell, at the patriarchal age of 83, the oldest English royal gardener, having been connected for more than fifty years with the royal gardens of Kensington and Kew, and lastly the Royal Lodge and Cumberland Lodge Gardens in Windsor Great Park. During the half century he served with strict integrity four monarchs: viz., George III., George IV., William IV., and lastly, our beloved Queen; who, as a reward for his long and faithful services, about ten years ago allowed him to retire, at the same time granting him a liberal pension for life. After this he settled down on his freehold, known as Enville Cottage, Addlestone, which was the place of his last earthly abode. The name of Enville Cottage was given to it by him from his early associations with Enville Gardens, at which place he served his apprenticeship, about the time the well known Enville pine-apple was introduced there. From thence, in quest of further horticultural knowledge, he came to London, and worked for some years in the then celebrated gardens of the Earl of Tankerville, at Walton-on-Thames. From there he, to obtain further improvement in the science or art of gardening, entered the Royal Gardens at Kew; from which place he was selected by Mr. Aiton to conduct all the gigantic improvements then in progress and contemplation at the Royal Lodge and Cumberland Lodge Gardens, where the largest vine in England is now growing, in Windsor Great Park. At the same time the island on which the fishing temple at Virginia Water is erected was being embellished under his direction, as was the formation of the celebrated *ruin* and magnificent drives in the locality of that enchanting spot, Virginia Water, one of the most picturesque *minor* lakes in England, the whole of which was carried out under his direction, during which operations frequently as many as 110 to 120 men have been employed by him, many of whom have ranked, and those left behind soon to follow him do rank, as horticultural celebrities, and who must ever owe him a debt of gratitude and profound respect, and entitle his memory by them to be revered with filial honour and affection, not only for his parental kindness to them, but for the scientific and practical information imparted and advice inculcated; and, last of all, though not least, for the position in life they at present fill and enjoy. Among many now living recipients of his kindness, I may enumerate Mr. John Mann, manager of Hyde Park, St. James's Park, and Kensington Gardens; Mr. James Drewett, of Denbies, the renowned Muscat grape-grower; Mr. J. W. Thomson, formerly head gardener to the Duke of Northumberland at Syon House; and many others of equal celebrity too numerous to detail on this occasion; and although a very strict disciplinarian as an employer, his urbanity and kindness made him respected, not only by those placed under him, but by every other person who had the honour of his acquaintance. Therefore he has gone to his last abode not only full of years and honour to his name, but beloved, regretted, and respected by all who knew him; and I fervently pray that the all-wise Disposer of events, in His mercy and love for us unworthy sinners, has received his immortal spirit into His everlasting kingdom, as a reward so just and honourable a man merits. He was interred in Addlestone churchyard on the 23rd ult., followed by several friends, among whom was Mr. J. W. Thomson, he being the only horticulturist connected with royalty present. The name of Nichell is rather uncommon, and by his death the name and family becomes extinct, as no member is now known to exist.

Correspondence.

VARIEGATED PELARGONIUMS AT BURY.—I am one of the many persons who were started by the decision of the judges on this portion of the exhibition at Bury. It begins to be evident that justice will not be afforded in the quarter we might have looked to, and *did* look to for it, and we appeal to you. Possibly you will ask, and if so, properly so, for the case to be stated. Very well. The schedule invited competition in 12 Seedling Pelargoniums of 1866 or 1867. The schedule did not state by what standard they were to be judged, nor did it demand clean plants. But I, in common with many other cultivators and raisers of these things, took it for granted that the plants should be shown in a *complete state*; that is to say, clean, with none of the original green leaves: in other words, variegated throughout from top to toe, and that any of the original green leaves on any one plant would disqualify the collection containing it. Our surprise was great to find the cup awarded for a collection in which green leaves were plentiful, the plants bearing such leaves being in the condition of the first break from the crude seedling state, and only as yet *promising what they might be*, and worthy to be commended, and *no more*. Had all the competitors brought plants with green leaves, the judges might have felt bound to decide upon their merits; but they had "ample room and verge enough" to put the first prize lot out of the competition, and give as their reason for doing so the word "Unclean." I put it to cultivators and exhibitors generally whether, in a competition in a class (of any kind of plants) in which the flowers should be double, varieties bearing equal quantities of double and single flowers would not be disqualified? Or, to come closer, how would it be in an ordinary class for variegated pelargoniums, if a first place were given to a group showing abundance of green leaves? If there were competing collections in the class wholly variegated, and in any way worthy of consideration at the same time, those with green leaves would surely have the lowest place, or be thrown out altoget-

ther. We decline—we have agreed to decline—taking into consideration the merits of Mr. Grieve's plants in respect of their variegation, for the simple reason that their unclean state condemned them, and we are prepared to submit the case, on this ground alone, to cultivators, exhibitors, and judges universally, save and except those who constituted the jury in this class at Bury, and who framed a special code of judging for this special case. Let it be distinctly understood, there is no personal feeling in this complaint. Mr. Grieve deserves and is the subject of universal respect. To him we are indebted for the first start in this glorious race, and if he had won the cup by means which none could question, we would rejoice in such an addition to his many well-won honours. It is in behalf of fair-play alone that we wish, through the GARDENER'S MAGAZINE, to say that, while we protest against the award of the cup to Mr. Grieve because his plants were not clean, we firmly believe it should have been given to Messrs. F. and A. Smith, of Dulwich, whose collection was superb in every respect, and not a green leaf visible amongst them. It is a singular circumstance, too, that Mr. Grieve should have in his possession several strong plants of at least one (if not more) of the varieties shown as seedlings of 1866 and 1867. He must have made hay while the sun shone, and when it did not shine. But let that pass; the Bury cup was given for imperfect plants, and it cannot surely be a gratifying circumstance for its possessor to win it by such a fluke. If it was predetermined that the cup should not leave Bury, a notification to that effect should have been made, and *some other* sort of thank-offering might have been given to Mr. Grieve without injury to any of his competitors. I sign this, for myself and friends,

ASTONISHED SPECTATOR.

GRAFTING VARIEGATED PELARGONIUMS.—Three years ago you suggested that the weak-growing varieties of tricolors should be grafted on vigorous seedling stocks. I at once took the hint, and worked a considerable number. I find that the weak kinds are greatly assisted by the foster roots, and I believe that many kinds that are being extinguished because of their lack of vigour might be kept if they were cultivated in this manner. But we are fast being supplied with varieties possessing vigorous constitutions, and it is at once the simplest and most satisfactory mode of procedure to have them on their own roots, so that for ordinary purposes grafting may be allowed to pass into desuetude. I observe, in the Calendar of Operations in the Magazine of July 27th, you remind us again of this process, and it has occurred to me to drop a line in praise of it for quickly producing standarda. These make grand conservatory plants to group in the rear of dwarf palms and ferns, the tricolors especially having a fine effect when thus lifted up and shown in the aspect of trees with fine round



Fig. 2.



Fig. 1.

heads rich with colour. Your original hint has been largely taken, and I have no doubt many gentlemen's gardeners and amateurs would follow it if they saw the way clear to succeed. The process is extremely simple, and the two sketches which accompany this explain it fully. Take tall stocks of any kind—seedlings are to be preferred; cut off a considerable proportion, but not the whole, of their top branches, and selecting a suitable part of the head, split it as in fig. 1. Prepare the graft to fit the cleft; let it be small, half ripe, and with three or four healthy leaves; tie it and clay it as in fig. 2, and keep it shut close and warm, and it will unite almost immediately. As the graft takes the sap, remove the wild growth—that is to say, the growth of the stock—by degrees, but be not in haste about it; and when the graft has made a fair start untie the bandage, and if the junction is good leave it uncovered, but put a stick to which the head must be tied for security. If the junction is not a good one tie again with soft bast, but do not clay it. As for the rest, every one who can grow a pelargonium at all will know what to do to make these into handsome plants.

R. B.

PROPOSED EXHIBITION OF TRICOLOR GERANIUMS AT KENSINGTON.—Having been invited to compete in the show proposed to be held in September next, I have declined for the following reasons: Exhibitors are to find the money, the plants, and the time; they are thus to contribute directly to the resources of the R. H. S., and gain less than they give, if they gain at all, and be at the mercy of any judges that a tribunal over which they have no control may appoint for them. Let the Society find the money for an exhibition that must be much more to its benefit, if benefit at all, than to any of the exhibitors. It is a capital idea of the one-sided sort to ask a man to subscribe £5 for a chance of winning £2 or £3, and with no voice at all in the appointment of the jury on whom his fate will hang. The last show of the kind was a failure; had it been otherwise, I presume our faithful Magazine would have reported it. The Bury competition has given rise to an unpleasant discussion, and there is at least one good reason for discontent. Surely the new proposal will meet with but small support, and men who value their money, their plants, their time, their reputation, will keep away from it.

ONOR. BRT.

SUBSCRIBERS TO THE GARDENER'S MAGAZINE who desire to extend its sphere of useful news, and are willing to interest themselves in promoting its still wider circulation, can materially further this object by sending to the publisher the names and addresses of persons they think are likely to become subscribers, who will forward to each a SPECIMEN COPY free. A stamp must accompany each name and address sent, to cover the postage of the specimen copy.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON 1867.				M. Imp. avrg. of Hrs. Growth	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D			
			rises.	sets.	rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain.							
1867			b. m.	h. m.	b. m.	h. m.	b. m.	h. m.	b. m.	h. m.	h. m.	h. m.	h. m.	h. m.						
18	S	9th Sunday after Trinity	4 51	7 15	8 35	p. m.	7 59	a. m.	29.94	29.88	75	36	55.5	-00	59.9	Oncidium pulchellum, M	...	Jamaica	18	
19	M	Bloomfield died, 1873.	4 52	7 13	9 1	"	9 0	"	29.91	29.76	77	54	65.5	-08	59.8	"	Batemianii, M	...	Brazil	19
20	T	Uttozeter Exhibition.	4 53	7 11	9 20	"	10 18	"	29.67	29.10	76	54	65.0	-02	63.6	"	flexuosum, M	...	"	20
21	W	Barton-on-Trent Exhibition.	4 55	7 9	9 50	"	11 19	"	29.84	29.77	74	50	64.0	-00	65.4	Promenon atropoides, M	...	"	21	
22	Th	Kempsey Horticultural Exhibition.	4 57	7 7	10 35	"	p. m.	"	29.99	29.91	74	45	59.5	-00	58.3	Cattleya grandiosa, M	...	"	22	
23	F	Sir A. Hey Cooper born, 1768	4 59	7 5	11 18	"	1 53	"	30.01	29.95	76	55	62.5	03	58.3	"	Harrisonii, M	...	"	23
24	S	Wakefield, Yorkshire, Horticultural Exhbn.	5 1	7 3	a. m.	"	2 59	"	30.03	29.97	77	48	62.5	-09	58.5	"	labiata, M	...	"	24

The Gardener's Magazine.

SATURDAY, AUGUST 17, 1867.

THE ZONAL PELARGONIUMS HAVE ACQUIRED SO HIGH A DEGREE OF POPULARITY, that we may safely affirm that as a class they take precedence of all other soft-wooded plants that are grown in collections, and that are especially encouraged at exhibitions. There are many good reasons for the favour shown them by the horticultural public, and most prominent amongst their claims to favour we may notice their variety of colouring in leaf and flower, their excessive gaiety of appearance, their general adaptation to the embellishment of the garden, and the certainty with which they may be grown and kept with only the most ordinary appliances and commonplace skill. To grow a specimen heath may be the work of ten years, during which the plant may be subjected to many accidents; to grow a specimen pelargonium is the work of three years at the most, and in two years a showy plant may be produced with but a tithe of the trouble the heath would demand to make it equally good of its kind to the pelargonium. We must grant that in every stage of the proceeding the heath is the more noble object of the two, and we would be the last to discourage the cultivation of hard-wooded plants: for we do not wish to see gardens and plant houses occupied with pelargoniums solely. Nevertheless, amongst the thousands of persons who enjoy the recreations of horticulture, those who have time and means to grow hard-wooded plants are few; those who can grow such plants as pelargoniums, and especially those of the inquinans section, are many. It is therefore quite the proper thing to countenance and encourage the increasing passion for collecting and cultivating, and we may add, too, the breeding of zonals of every class, for there is room for improvement yet, and variety in this department is as charming as in any other.

We have endeavoured in our "Geranium Papers" to set forth from time to time standards of perfection for the various classes, and have instituted comparisons amongst the varieties, with a view to assist our readers in the selection of the best. We wish now to make a few observations on the position of this class of plants at exhibitions, for that appears to be anything but satisfactory. The best displays of specimen plants we have seen this season were those shown at the concluding exhibition of the Royal Botanic Society. A few of the leading cultivators of specimens alone appear to have hit upon the mode of treating these plants, to produce compact symmetrical heads, with abundance of fresh flowers and fresh leaves, and with no display at all of sticks and ties. In most other classes of plants a certain average goodness has been attained by cultivators everywhere, above and below which the plants are found at exhibitions, but seldom far away from the average. With the zonals it is otherwise. We see in one case, as in that just cited, examples that surprise us by their splendour, and at the very next exhibition we visit we find examples that are literally unfit for show, bad in themselves perhaps as varieties, and made worse by the very worst of treatment. A plant that grows so quickly, that flowers so surely, that needs little else than sunshine to bring it to perfection, ought to be more fairly dealt with for purposes of exhibition; and we do hope that promoters of shows will give attention to the subject in the preparation of their schedules.

One of the most prevalent of mistakes is the growing of specimen plants of varieties that are adapted only for bedding. Such sorts as Tom Thumb, Stella, Christine, Madame Barre, and others that are favourites for beds, are quite unfit to be trained out to a huge size as exhibition subjects. However well done, they convey to the public a quite false impression of the capabilities of these plants, and tend to falsify the tastes of amateurs, who are too often led astray by mere colour, regardless of the higher claims of form in exhibition subjects. Yet there is no lack of varieties with flowers that approximate closely to the ideal standard of perfection, and in every conceivable variety of colour, pure blue and pure yellow alone excepted. With such varieties at command as Madame Werle, Amelina Grisau, Dr. Lindley, Prime Minister, Tintoret, Andrew Marvel, Magna Charta, Beauté de Suresnes, and others of the highest quality and the most tractable dispositions, it is lamentable to see the energies of the specimen cultivator devoted to the very worst that can be found for the purpose he intends them for. Concurrently with errors of selection by the cultivator, we must take

into account errors of schedules and errors of judges, to get at the whole reason for the generally unsatisfactory position of the Zonal pelargonium as an exhibition subject.

In the preparation of schedules, it would be well in future to consult the system of classification proposed in No. XL. of the Geranium Papers (July 27, 1867). That is at once simple, practical, and self-explanatory. Many varieties might be placed in more than one of our nine classes, and judgment will be required to apply these rules. But judgment is always needed in the application of rules, so ours are no exception. In the preparation of a schedule, sections may be appropriated for all nine classes separately, or several of the classes may be combined. We may include under one section, class 1 (green), 2 (zoned), 3 (nosegay), and 9 (double-flowered), and a dozen plants comprising examples of these four classes, might constitute an effective group. Again, we may include under another section, class 4 (variegated) 5 (golden-leaved), 6 (bronze zonals), 7 (gold zonals), and 8 (silver zonals). This division of the whole into two classes places all green and dark-zoned leaves in one, and all variegated and coloured leaves in another. Another and better arrangement would be to make three sections thus: Section 1 to comprise green, and zonal-leaved, and double-flowering varieties (classes 1, 2, and 9); section 2 to comprise variegated, golden-leaved, and silver zonales (classes 4, 5, and 8); section 3 to comprise bronze zonals and gold zonals (classes 6 and 7). There is no schedule so limited that it cannot make room for three sections of zonal pelargoniums, more especially as these plants are at their best when the provincial exhibitions usually take place. Enlarging the scheme, we may make four sections, thus: section 1 to comprise Green-leaved, Zonal, Nosegay, and Double-flowering; section 2 to comprise Variegated and Silver zonals; section 3 to comprise Gold-leaved and Bronze zonals; section 4 to comprise the Gold zonals alone. This last arrangement is undoubtedly the best, and it is promotive of harmony of colouring and character in the several groups.

The outcry made by some of our friends against the multiplication of varieties we confess we are deaf to for the present. It is recorded in history that every favourite of the florists has been prolific of varieties. The florists insist upon having plenty to choose from, and each adds to the sum-total by the pastime of raising seedlings. There are tulips beyond number, and some are very much alike. It is the same with pinks, pansies, auriculas, and the rest of the favourites. It must be the same with the zonals, for the merest tyro can raise seedling plants, and out of any batch from well-saved seed some good ones are pretty sure to occur. It must be borne in mind, too, that the practised connoisseur will see differences between varieties that to the uninitiated appear to be identical, and we are surely not required to rob the connoisseur of the refined pleasure of detecting differences where the untrained eye can discover none. We may find two tulips so nearly alike that the novice, if caring about either, would as soon have one as the other; but the amateur *par excellence* would perhaps value one of the two at twenty pounds and the other at twenty pence. It is the same in other things, and will ever be so while shades of difference give the key to relative values. But there is something more to be said on this subject. Zonal pelargoniums, in common with many other attractive subjects, do not show all their characters at first. We may take, say, a dozen tricolors (Gold Zonals) that are very nearly alike, and preserve one, and destroy all the rest. In so doing we may really preserve the worst and destroy the best; and some of them may be so far the best that, if preserved, our first selection would be found to have been quite in error. When, therefore, floral committees and judges at exhibitions take upon themselves to say, "We must put a check on this multiplication of varieties by limiting the number of our certificates," they act absurdly; for they step out of the judge's seat into that of the legislator, but bring to their new office none of the legislator's wisdom. It is not for judges to pass by good things, and treat them with contempt, because they have certain notions about the number of varieties that should be allowed. Their business is to deal with things they see according to merit, without attempting to forecast their fate, or dictating to the public what it shall accept or reject. If a cultivator were to present 50 varieties of tricolors to a tribunal existing for marking relative merit, and they were all thought deserving of honours, they ought to have them. It may then be left to cultivators to determine which of that 50 should be received with favour. We are not ad-

vocating the increase of certificates, for perhaps there are too many granted already; but we think it proper to suggest that judges should limit their energies to the task they are appointed for, and avoid, on the one hand, discouraging men who have laboured earnestly and brought forth good fruit, and, on the other hand, attempting to shape out the fashions of the future; for the law of fashions and popular tastes is something too subtle for individual influence, and even for the power of guidance that may be supposed to reside in imposing tribunals.

ST. MATTHEW'S, DENMARK HILL, COTTAGERS' FLOWER SHOW.

The exhibition held in connexion with the St. Matthew's Working Men's Institute, in the schoolroom, Camberwell New Road, on the 1st and 2nd of August, was an interesting affair of its kind, and calculated to be eminently beneficial in promoting the practice of floriculture amongst the working men of the district. The exhibition was considerably above the average of what are usually called "cottagers'" shows, and this for a district so closely connected with the great metropolis is a fact of some importance. There were some fine plants contributed by gentlemen's gardeners, a very showy series of designs for flower gardens on a large scale coloured with cut flowers, several beautiful fern-cases, and a fair collection of greenhouse and window plants, in which of course geraniums, fuchsias, and ferns were conspicuous. As an experiment, we consider it highly satisfactory, but we hope that future exhibitions in the same place will have greater help from the gardeners of the district. What the gardeners did for it was well done, and the best thanks are due to those who cheerfully lent their aid. But it is desirable that the gardeners should do more, for cottagers' productions in a London suburb are of necessity lacking in attractiveness for the general public, and the skilled cultivators are wanted to give character to the affair by means of a superior class of productions, which not only serve to gratify people who pay for admission, but assist the more humble amateurs by setting before them models for their imitation and guidance. The best group of decorative plants in the room were furnished by Mr. Smee, gardener at Redpost Hill. This group comprised grand examples of the very striking *Solanum purpureum*, *Pandanus Javanicus variegata*, *Maranta capitata*, fine; *Boehmeria argentea*, *Dracena ferrea*, and a fine *Croton*. Mr. Foreman, of Denmark Hill, was placed second with *Anthurium leuconeurum*, *Cissus discolor*, *Cyanophyllum magnificum*, *Croton pictum*, *Maranta Porteana*, *Cyperus alternifolius*, about half green and half variegated, in size and contour a very fine plant. Third, Mr. Kent, gardener at Grove Vale, East Dulwich, with *Dracena Cooperi*, *Caladium Cannertii*, *Sansiveria Javanica*, *Solanum purpureum*, *Caladium bicolor picturata*, *Ananas Pernanganensis variegata*. These noble plants made a rich bank at one end of the room.

The designs or "model gardens" were all good, but the one to which the first prize was awarded was one of the best it has ever been our lot to meet with at a show, for these things as a rule are tawdry and tasteless. Mr. Chapman, of 7, Cold Harbour Lane, was the exhibitor of this, and took the silver medal deservedly. The design comprised a terrace with steps down to a spacious oblong lawn with walk all round, and ribbon borders for boundaries. The grass turf was beautifully produced in an even surface of green flock paper, such as is used by paperhangers, and a few flower-beds very brightly and tastefully coloured. Mr. Blake, of Denmark Hill, stood next, with a good scheme for a terrace and grass ramps, with plenty of colour. As a design this was good, for it could be carried out in practice, but the getting up was rough. In the next place stood Mr. Hall, of Wellington Row, with a formal geometric garden of the carpet school of colouring. The judges commended a design from Mr. Murray; this was a good carpet pattern, with too much colour. Mr. Windsor contributed a large and gaudy scheme, which was very roughly got up, and so overloaded with colour that it was far from agreeable to look upon it even for a moment. In an amateur class for designs, Mr. Delhaye stood first with no competitor, but it was a rather tame and decidedly rough affair, made worse through the introduction of a pool containing gold fish, the animals being too large for their lake.

In the class for specimen plants there were some excellent fuchsias. The first place was awarded to Mr. Chapman, for a fine bush of *Venus de Medicis*, rich with flowers and fresh in leafage. Second, Mr. Jenkins, of College Street, who had a beautifully finished standard *Marquis of Bristol*, the large leaves and large flowers of which were eminently creditable to the cultivator. Mr. Meatham third, with a nice pyramid *Venus de Medicis*. There were also shown in this section a good *Carmine Nosegay* geranium, and a small standard *fuchsia, Venus de Medicis*.

Groups of miscellaneous plants, arranged for effect, were numerous. Mr. Chapman made an interesting group of large fuchsias, geraniums, and other useful plants. The fern-cases in the gardeners' section were attractive in both make and furnishing. The first prize was awarded to Mr. Hill, for a square tank having four sides of glass, neatly fitted with rockery and a bit of *Anacharis* and some lively gold fishes; the top contracted upwards, and was surmounted with a small glass-case containing some pretty ferns. Second in this class, Mr. Chadney, for a beautifully furnished fern-case containing several of the choicest varieties of *Scolopendrium*, *Cyrtomium falcatum*, *Asplenium fontanum*, *Adiantum formosum*, and other good things. In a class for "practical" people, Mr. Tarrant had first place, but his case was a poor one. A very nice one in the class for amateurs came from Mr. Dowsett, and took a first place. There were some pretty groups of window plants, mostly well grown, comprising the usual subjects. Messrs. F. and A. Smith, of Dulwich Nurseries, assisted by exhibiting some splendid balsams and a group of *Lilium auratum*. The judges were Messrs. G. Wollett, A. Smith, and S. Hibberd.

Wealth does not always improve us. A man as he gets to be worth more may become worth-less.

The best service that we can render to the world is to mend ourselves; if each mends one, all will be mended.

ROSES AND ROSES.—No. VI.

The last said about roses in this series prepared my friends to anticipate the death of my lot, and O. P. Q. ventured to suggest that ere the summer was half gone I should bitterly repent the deed of April 6th. You will remember that on the date named all our roses were lifted, and within a few days afterwards were planted again. There was a good reason for doing it, besides the one stated at page 146; for not only were they cut about by the winter, but there was great need for other purposes of two borders they occupied. So they were all lifted on the 6th of April, the ground was well dug and manured, and they were planted again about the 10th. During the dry east wind that followed soon after, several standards perished and made unseemly gaps; the proportion to the whole of those lost through being moved so late being full one-tenth: but those that survived have grown and flowered as well as roses were ever known to do in Stoke Newington, and as they were a month later than the average of roses in the same district, we were smothered with flowers when all the rest were gone. O. P. Q. gave me a call a fortnight ago, and the result was that he opened his eyes; upon my word, I began to speculate if he would shut them again. He has been budding a great many briars this season, and has set his heart on standards with a vengeance. Like many other very wise people, he tries hard to ignore my own-root theory, and vows that he followed "Rose Book" last autumn, put in about a thousand cuttings, and has now only three wretched plants to pay him for his trouble. One of the particular reasons for his staring was, I had planted between the standards a lot of own-root plants that were like weeds to begin with. They had been growing on one of our pieces of ground away from house, in a nursery bed, two seasons, all as thick as plums in a pudding, and had never been pruned. After the standards were planted we inserted these dwarfs between, and when they were cut back rather close, there was really nothing to look at, and to have boasted of own roots just then would have been folly. O. P. Q. thought the own roots were a myth, and that the standards would all die. But when he came the other day he found the standards in splendid condition, smothered with flowers, full of fine growth, and the leaves gigantic. He did not even notice the few gaps caused by the deaths that followed the 6th of April movement, so nearly were they obliterated by the free growth of the most proximate to them. But the little bushes at their feet making fat shoots and large leaves, and with plenty of flowers amongst them, chiefly caused the eyes of O. P. Q. to dilate beyond their usual size, and he says, if he could only succeed in striking them, he would grow nothing else, and would be sure of attaining to the highest distinction as an exhibitor. Let him follow the "Rose Book," and he may have acres of own roots if he wants them; and now is the season for all novices to try their hands at striking roses. You will always find a great difficulty as to the appliances in gardens for this sort of work; but at the same time you are sure to find old boxes, frames, spare lights, and perhaps old window sashes that could be turned into lights,—everything in fact except a little zeal and perseverance. When these things are found, a new trouble arises as to the source of bottom heat, and you have no course left then but to argue against artificial heat as unnecessary, and in favour of sun heat as all-sufficient. Any old frame will convert the soil it covers into a hotbed now if the lights are put on and shut close, and that is all we want for striking rose cuttings. The best place for the job is an old hotbed, for the sake of the elevation above the level; but any bank or mound in the full sun will do just as well to suck up the heat and retain it. No kind of stuff answers so well for striking rose cuttings as cocoa-nut fibre, sharp grit, and loam in equal quantities, well mixed up together, and spread four inches deep. The cuttings may be taken at this time of year from any part of the young wood, even fat shoots as thick as the middle finger will root if cut into lengths of three or four joints each. But I prefer before all other sorts of cuttings such as may now be obtained from the wiry twigs that have flowered. You will find your trees covered with these twigs, with it may be fruit or dead flowers on the top, and you may cut them three or four inches long, and make a nice plant of every one, and leave untouched the stout growth that comes from lower buds to make wood for late flowering, and for the improvement of the trees. Moreover, these twigs are of little use, and will have to be pruned out in the spring, and then no art of man can make plants of them. It is enough perhaps to direct attention to this business; there will be no difficulty in the performance of it by those who mean success. My system of striking from eyes is far better than from cuttings, and now is the time for that method also. But I must refer to the "Rose Book" for the *modus*, for too many other matters press upon us just now.

And one of these other matters is to say that O. P. Q. exhibited and won nothing. He trusted to his standards with big heads, and he would not disbud. All the inferior roses at exhibitions are produced in the same way in gardens where the cultivator has not the courage to remove two-thirds of all his buds, and where generally

the brier system is so stubbornly established that one might as well hope to move St. Paul's Cathedral by persuasion as affect this fashion by arguments. For the exhibitor briars are invaluable, for by budding the best varieties every year on young thin-stemmed briars, the finest flowers obtainable by any process may be had. But the system must be followed from year to year; there must always be young briars and newly-formed heads in progress if exhibition flowers are required. But for the embellishment of the garden, own-root bushes, and own roots pegged down, are to my thinking so superior in beauty to the best of brier roses that I wonder how these last keep their ground at all. Somebody must be wrong. Perhaps, after all, a lot of things like mops, with some fine flowers stuck about them, are more handsome than great beds or compartments clothed with a groundwork of green leaves, over-arched and sprinkled with roses in a kind of refined *negligée* style, a sort of billowy mass of foliage and flowers. Everybody, too, can bud a brier, but only a few can strike cuttings or eyes; and so the briars win by their almost spontaneous production, as well as by the superior beauty of the quite artificial and falsely-constructed tree, consisting of a naked rod with a round head at the top, and the disposition of the flowers such that only about one-third of all that are in perfection can be seen at the same time. Somebody must be wrong, for everywhere the briars are there, and the own roots nowhere. In ten thousand small gardens you shall find consumptive standards with heads not larger than the heads of their owners, and producing a few wretched flowers such as might be made in Berlin wool at ten a penny; but to be good imitations of the roses ought to be torn and trodden after being twisted and twirled into the mimicry of roses. Sometimes we see a bed filled with such, twenty or thirty trees perhaps, where there is proper room for only a dozen. At other times they are planted on grass turf, with no openings of any kind to minister of air and water to their roots; and perhaps the grass is well rolled and the stems are now and then grazed by the edge of the roller, and a strip of bark peeled off. This arrangement secures a good hard pavement for the roots, shuts out rain and sun from the feeding fibres, and a sickly growth and ten-a-penny trodden-on Berlin-wool apologies are the products of these concreted victims, which are usually considered to beautify a lawn considerably. At other times pin-cushion beds are made, and we see the mops rise out of hoops of bedding plants, and the case is better; but it must be a curious taste that can find delight in the flowers of a delicately tinted rose while there is a blaze of scarlet on the ground beneath it, to distract the eye and falsify the more delicate colour. A nice sweep of grass, green as emerald, with here and there a Deodar or a Lawsonian cypress, or a Picea, appears to me a much more enjoyable place, and in far better taste than a lawn dotted with standard roses of the customary rigid type, be they the best examples of such roses ever seen in this world or any other. I like to walk across a lawn like that, to see a bed of roses that I can look down upon while I talk with some good friend; and I don't mind if somewhere on the grass there be a great weeping Ayrshire or a huge Blairii, No. 1, with a head half wild, like an old thorn. But I suppose I'm wrong in all this, for the majority are against me; and in small gardens standard roses on grass-plots are such extremely proper things that for all I know I may be ruining the Magazine by the heresy of uttering a doubt about their propriety, so I shall say no more about it, but for a few moments have a look at what I've got, and what I hope for.

I shall begin this business by calling attention to a rose which has given me very much pleasure, and has not yet had its due in any paper of my writing. Good whites are scarce, and here is one that stands alone for beauty; and to make amends for all former neglect of it, I put the name in black letter. It is—

Madame Freeman,

sometimes entered in catalogues as "Madame Freesman," which perhaps is most correct; but it cannot be missed under either name, and it will never be forgotten where it has been done well, and has shown plenty of its large, round, snow-white flowers. To be sure, it is not always snow-white, but sometimes creamy all over, and sometimes creamy only in the centre; but it is always as good a rose of its colour as any in the garden, and nine times out of ten, in the largest collection, it is the best white known. Madame Alfred de Rougemont, with its beautiful centre; the floriferous Louise Darzens, always pure white, and intermediate between a noisette and a perpetual; and Baronne de Maynard, imbricated in form, and white as the old White Bath, with Madame Gustave Bonnet,—are all desirable members of a too limited class, and valuable to bring out the high-coloured sorts, as well as for their intrinsic beauty. Madame Vidot I shall hope to give up in favour of Madame Hoste and Miss Ingram; but it is early to talk of that yet. One of Madame Vidot's great faults is weakness of growth, and it is one of the most difficult to obtain on its own roots. Anna Alexieff I care little for now, though for several years it was first favourite. It is a garden rose, giving as many flowers as

those two particularly free-blooming kinds, Sir Joseph Paxton and Admiral Nelson; Baronne Prevost we must yet keep. Comte de Nanteuil is fine; John Hopper grand, though flattish; Madame Boll superbly showy on account of its richly shaded centre, but flat, and the growth too stiff and broom-like. William Griffiths has been fine this season, the form perfect. Souvenir de la Reine d'Angleterre might be dispensed with, except by such as care for size only; but La Duchesse de Morny, Princess Mary of Cambridge, Comtesse Chahillant, Madame Cambacérés, Glory de Vitry, Victor Verdier, and Josephine Beauharnais are amongst the very pink and prime of rose-coloured roses.

In the strong-coloured classes, our old friend Jules Margottin has been as good as ever, perhaps better than ever, keeping his own amid a host of rivals for his well-earned fame. I must have seen hundreds of tall standards of Jules in my travels this season, in cottage gardens in various parts of the country. Madame Damage too, so liberal of flower, with colour and form so good, must be in the select list, and, like Jules and the General, it is one of the best to strike currant-tree fashion in September and October, in frames or open ground. Beauty of Waltham, Bernard Palissy, François Lacharme, Charles Lefebvre, Baron A. de Rothschild, Xavier Olibo, Alfred Colomb, Lord Macaulay, Madame C. Craplet, Madame Julie Daran, Jean Rosenkrantz, Maréchal Vaillant, Sénateur Vaisse, Vicomte Vigier, and General Jacqueminot, are all in the front rank of reds and crimsons; and those who value roses at more than market prices,—who value them for their beauty, their fragrance, and the real amateur enthusiasm they enkindle in respect of their differences, resemblances, and several special qualities,—will be busy now in striking cuttings of all these, with a view to make chrysanthemum stakes of all their standards, except such as are truly picturesque trees, against which I have nothing to say, for we can all agree in admiration of a thing of beauty.

There are now some fine dark roses with which, till lately, we were not well supplied. I have that gaunt brute William Lobb still; it makes shoots every year about seven feet long, and these flower their full length. Mr. Prior might have been content with such a monster for a "blue rose," instead of conjuring up in his vivid imagination the chimera that so startled us. William Lobb is a blue moss-rose, worth a distinguished place in a bonfire, and I should forget it except that I have it at first-hand, and see it at second-hand in every batch of new roses. Whenever I see announced a violet or purple rose, I expect to see William Lobb again, with or without a mossy calyx. But we have some good dark roses, all more or less shy, but much to be valued for the fine relief they afford to the pink, yellow, and crimson flowers. Prince Camille de Rohan is the type of a class that needs enlarging; it is one of the grandest roses out. Alfred de Rougemont, Eugène Verdier, Souvenir de William Wood, Souvenir de Comte Cavour, Pierre Notting, Baronne Pelletan de Kinkel, and Souvenir de Dr. Jamain, are splendid, and even Louis XIV. is worth having in gardens where there is room for half-a-dozen plants that amongst them will afford only half-a-dozen flowers. If we had never seen the General till it was shown by Mr. Cranston at Birmingham this year, we should class it with the darkest, and suggest the possibility that a veritable black rose had been produced at last. But the General is good, whether bright or dark, whether in its average camellia-like form, when half disposed to show an eye, or as round as a globe, as big as the biggest pugilist fist, and nearly as black as ink, as Mr. Cranston showed it. A bad rose for the trade, though, for the merest beginner in propagating could multiply it *ad infinitum*, either by cuttings now or at the end of September. The trade don't like varieties that are easily multiplied, and no blame to them, for the best display possible at a nursery is a display of customers. S. H.

BEDDING GERANIUMS.—No. XLIII.

Name the best scarlet bedder offhand? It cannot be done; and if we had a council now of the best bedding men in the land, they would differ to an extent probably of a dozen varieties, all of these being supported by a fair show of votes. Who votes for Trentham Scarlet (*alias* Crystal Palace)? who for Cybister? how many for Stella? Hold up hands for Attraction, Firebrand, Hibberd's Pet, Lady Cowper, Confederate, Little David! It's no use; I can't count; you are all wrangling. Give it up; let every one stick to the sorts he likes best for his own particular taste and country. I think it very likely we shall perform a grand *auto da fé* in a few weeks' time in solemnly consigning a great lot to the muck-pit. It will be an "act of faith" of a twofold kind: we shall make room to winter better things than we throw away, and shall effect that purgation we have so long desired. When the deed is done, or thoroughly determined on, I think it will be proper to make a report. For the present I imagine that we shall sacrifice Compactum, Rigby's Queen, Tom Thumb, Crystal Palace, British Flag, Blackfoot, The Old Huntsman, Cedo Nulli, Judy Superb, Magnum

Bonum, and some hundred or so more, and the sweep will be sure to include some of very recent introduction. It is certain that winter must convert many of these into muck; for our own seedlings and first-class things from elsewhere multiply so fast, that, to keep the collection intact, we should soon be compelled to rent the Crystal Palace, and perhaps a few of the big houses at Kew, which would necessitate a lot of tedious negotiations. But, again, which is the best scarlet for bedding? I must plainly say that I have not yet done with Trentham as a bedder, though when it is brought to an exhibition I despise it, and ask, rather unkindly, Who would labour with such a plant for a specimen? So, too, I have not done with Attraction (*alias* Perfection, Mountfordii, &c.), nor with Little David. Those who know them and are used to them cannot be blamed if they stick to them; but my choice now for a scarlet for next year, a very reliable splendid scarlet for beds only, is *Cybister*, which every body possesses, and is too well known to need a word of description. Next to *Cybister* I place *Hibberd's Pet*, though a few years ago I felt inclined to sweep it out; but, strange to say, it has been the most striking in all our lot this year, and some dozen or more geraniums' friends have been extra loud in their praise of its distinctiveness, its abundance of brilliant bloom, and its neat habit. I lately discovered a big house full of it in a nursery, and I asked if there was any particular reason for so many, and the sufficient answer was given, "One of the best to sell; it is so distinct and good." There are certain peculiarities in all the popular scarlets that more or less place them in an inferior position to these two. *Stella* is grand, but rather heavy; *Tom Thumb*, bright but flimsy; *Reidii* is bright, but shy; *Queen* is coarse; *Compactum*, too strong, too leggy, and the flowers are microscopic and a bad colour; *Firebrand* is good, but *Cybister* beats it, except where a very dwarf grower is wanted; *Lady Cowper* is not good everywhere; *Little David* is a very seedy and flimsy thing, though in its first flowering fine. Yes, we must have *Cybister* and *Hibberd's Pet* first; next, for the sake of a change of colour, and a better quality of flower than the two foregoing, Smith's *Excellent* and Turner's *Herald of Spring*. Now we may add *Stella*, and go on fast, because there are heaps of good scarlets. *Baron Ricasoli*, *Black Dwarf*, *Garibaldi*, *Attraction*, and *Scarlet Gem* may be added, and there the wise man will stop if bedding is the only business he wants scarlets for, and he prefers selecting to collecting. I know that some very worthy men cling to the notion that the large flowering varieties, such as *Dr. Lindley*, *Roi d'Italie*, *Beauté de Massifs*, and others of the kind, are fine for bedding; but it is a mistake. We have all these kinds planted out, and the more ignoble kinds beat them so completely that there is not even ground for an argument on the subject. *Dr. Lindley* is one of the grandest possible in a pot, but in a bed becomes a cabbage. So of many others. Then, in such wintry weather as we had in June and July, 1867, the large flowers are the first to bleach and curl, and change from scarlet to slate colour, and at last go out of bloom altogether, and make timber instead for the rest of the season.

Let us now glance at the new ones. I begin with the one which I think should lead, *Lady Constance Grosvenor*, a nosegay remarkable for compactness, brightness, and true nobleness of character. A strange thing to say of a nosegay too, that it is beautiful without flowers, and is almost the neatest and prettiest zoned leaf in existence, and just the thing for raisers of tricolors to breed from! But add the flowers, and they surpass those of *Cybister*, I think. Take the plant all in all, and it is the one above all others most deserving to be called the queen of the nosegays, and it must be one of the greatest favourites for bedding for many years to come. *International* must stand next, but it is less profuse of flowers than *Lady Constance Grosvenor*, and tries to make amends by extra breadth of petal and the finest tone of crimson scarlet hitherto produced, even amongst the Continental nosegays, which are somewhat rich in this respect. *Rebecca* stands the cold, the rain, the sun well, and is to be valued for its fine distinct colour. This is scarcely new, yet very few have tried it fairly yet, perhaps because Mr. William Paul let loose such a flood that people were afraid of being swamped by them. But you may buy it and cut it up with the greatest certainty of earning salt. There is a batch of odd varieties looked out at this moment as worthy to be recommended for any purpose to which scarlets may be put. Some are old, some are new, very few of them are well known. *Omega* (F. & A. S.), a beautiful form and good colour. *Lady Rokeby*, not a brilliant scarlet, but good and making a huge truss; fine. *M. Galland*, a charming variety in form and style, and blooms profusely. *St. George*, a very curious shade of colour like newly-drawn blood; a rather spare nosegay. *General Lee* (F. A. S.), fine form, cerise-red. *Magnet* (F. A. S.), the flower will please those who like *Roi d'Italie*: it is no favourite of mine, for the petals do not overlap. *President Johnson* (F. A. S.) is a very distinct and fine variety for pots or beds, the leaves are darkly zoned, habit of growth robust, flowers finely formed, colour rich puce rose. *Walham Seedling*, rather too strong in growth, superb purplish crimson. *Rival Nosegay* is quite an old friend, unsurpassable in its way amongst the new ones; every collector and

selector should have it. Glowworm makes a good odd bed; it is not free enough to work into a geometric scheme, or at least not to be hastily trusted, but it is the best of the class of shaded flowers and puts *Magenta Nosegay* out of countenance.

Now let us have another look. In a batch from Mr. Thorpe, of Leicester, I find one which has the brightest coloured scarlet in the garden; the leaf is a dull green, scarcely zoned, and the flowers are loose. It has been conspicuous all the season for its intensity and brightness of colour. Another beauty is *Chater's No. 334*, a most beautiful white-eyed scarlet, with superbly zoned leaves. This beats *Bull's Beauty*, and probably surpasses in finish and splendour all known varieties of the white-eyed class in brightness and finish. Lastly, *Sir Fitzroy Kelly* bears comparison with any broad-petalled circular flower we have. Every lover of finely-formed flowers must have it.

In the Christine section, *Christine* is the exact parallel of *Tom Thumb*, dwarf, free, showy; full of faults. *Roseum nanum* is far before it in style, and *Christine Nosegay*, *Pink Stella*, and *Wiltshire Lass*, threaten it with extinction. *Madame Barre* is a fair-weather flower, hence it is only within the past fortnight it has made a respectable appearance. *Lady Cullum*, *Beaton's Premier*, *Helen Lindsay*, *Pink Globe*, and *Beaton's Perfection*, are now useless; the march of improvement has overtaken and displaced them. *Pink Beauty*, good; *Rose Rendaller*, grand, if allowed to get up above the dwarfier kinds, and show its pure pale pink trusses. *Minnie* and *Mrs. Whitty* will do for the present. Better than any of the rivals of Christine is *Chater's N 10*, a rather stronger flower than Christine, with very large bonnet-shaped flowers, showing a richer tone of colour than Christine; stouter in substance, and little inclined to make seeds. The best novelty of the season in this class is *Cliveden Rose*, one of Turner's lot; it puts *Amy Hogg* aside; it is glorious in colour, bears bad weather well, and gives twice as many trusses as any other variety of its own shade or colour. Put down *Countess of Sefton* and *Groom's Miss Martin* as eminently desirable, whether for beds or pots. *Miss Martin* is, in its class (a sort of salmon pink), the proper companion to *Dr. Lindley*, of the scarlets, the most perfect in form in the whole range of varieties.

There is no white in cultivation to equal *White Perfection*. It is refined in form, scarcely given to colouring, flowers abundantly, and is as good for exhibition as a bed. *Groom's Floribunda nana alba* (a bad name) is a capital dwarf grower, and will admirably take the place of *White Perfection*, where that would be too robust. We shall destroy *Hendersonii*, *Galanthiflora*, *Skeltoni*, *White Tom Thumb*, and a few others; but have no idea of sweeping out *Madame Vaucher*, *Madlle: Marie Vincent*, *Virgo Marie*, *Etoile de Venice*, or *Snowball*. Bedding people should always regard *Madame Vaucher*, and her child *Snowball*, as *Blush coloured*, and work up to them and from them accordingly, for if there is enough sun to make them flower, there is enough also to colour them deeply. *King of Whites* is first-rate for small work and edges.

We have some superb painted varieties planted out, and one of the most remarkable is *Vestal* (F. A. S.), which flowers as well in the full sun, and during bad weather out of doors, as under glass. It is exquisitely beautiful, circular, and slightly cupped, the rim of the cup pure white, the base of it brilliant carmine, laid on in a sharp circular disk: call it a white flower, with a large circular carmine eye. F. and A. Smith's *Siren* is better than *Souvenir de l'Isère*. *Madame Rougler* makes a pretty bed or line; it has a carmine centre shading to blush edge. *Eugénie Mezard* is still in the front rank, whether for delicate painting in the shade, or clear salmon flesh in the full sun. *Madame Werle* is good for all weathers, though so delicate-looking; and *Madame Brandet* (F. A. S.) deserves a distinguished place for quality and beauty, the flower being one of the best in form, the edge pure white, the centre brilliant carmine. S. H.

THE PLUNGING SYSTEM.

On the principle of *Audi alteram partem*, I was not only bound but glad to give insertion to a paper on this subject from the pen of Mr. J. E. Saunders, who came here expressly to see what was meant by the "plunging system," and went away with the conviction, fully stated on the 20th of April last, that this system is specially adapted for producing a continuous and brilliant display in every season throughout the year, but that it is extravagantly costly. So many other subjects have demanded attention since then, and my engagements away from home have been so numerous and have consumed so much time, that I have been quite unable till now to say a word on the subject. *Audi alteram partem*, then, for me as for him. I at least must know something about it, for the system as followed here is the growth of ten years, and we could no more do without it now than we could without roses and potatoes, and mint for peas, and funnel for mackerel. The front court, where the plunging system is carried on, is so overlung with large trees that to plant flowers in the borders would be to doom them

to death, or near it; the plunging system is a necessity as the case stands, else we must be content with evergreens only, with perhaps an undergrowth of woody nightshade, periwinkle, and ivy, whereas we do have a display that is at all times delightful, and sometimes rather startling in its beauty. At the present time our colouring is quiet, for we worked up our flowers to such a pitch that I was glad, being perpetually amongst flowers abroad and at home, to make a change and have a grouping of leaves only. Our climax for the season was attained when the geraniums were in the full splendour of their first bloom, and *Eriogonum Fraseri* was brought forward and placed in the back row of the border, mixing its fine yellow flowers with the geraniums, and the moment the *Eriogonum* began to decline we cleared all out and brought forward our leaves.

There are several interesting points demonstrated by our practice of this system. First and foremost, in a court, small of its kind, but I flatter myself somewhat tasteful in its design and furnishing, where big trees overshadow the scene, flowers may be employed to an extent impossible by any other means. We bring them forward when they are at their best, there is sun enough to keep them so for four or five weeks, and then we remove them and supply their places with others. There is thus a succession of displays lasting the whole year round without a break, for our borders are never unoccupied, and the stuff we use is always beautiful. Not only so, but this sort of display completely outshines in splendour the very best that can be done by ordinary bedding. There is no waiting for effect; in the month of May, when bedding has not yet commenced, our flowers are brighter and richer than they are elsewhere in July, when the bedding-plants have just got to rights; for we turn them out of the houses, pack them close together, and arrange them for effect, knowing that if they get a little dirty and leggy through close packing, we can soon restore them when they go back to the reserve ground, and there are of course plenty of others to take their places when needful. I therefore claim for my system that it will give every imaginable variety of colour to a spot where by any other means colour would be impossible, but it gives more colour, more variety of colour, and colour at a time when it would be otherwise unattainable. It is *par excellence* the system for the approach, and I beg our readers to understand I have never advocated its adoption for the parterre; it would need the purse of Cræsus to carry it out on a large scale, and if so carried out would be a foolish extravagance such as I would be no advocate for; rather I would say that in gardening, as in all other pursuits, a man should keep his hobby-horses in subjection, and never suffer them to ride over him, nor should he, if able to afford it, indulge in gratifying the lust of the eye unreasonably. For an experimental garden situated as ours is, and so limited in extent, it is the most proper thing possible, for it turns to account all the many subjects we cultivate, displays their beauties, demonstrates their uses, and makes the spot assigned to the experiment delightful at all seasons.

Secondly, and this is a matter of great interest, our system proves that judicious mixtures are far more enjoyable than self-masses of colours, in places where the display is to be seen by the same persons day by day for any length of time together. Hundreds, I might say thousands, of persons are familiar with the features of our plunging display,—and if I go wrong in a word, I can be corrected, and you know that *audi alteram partem* is a part of my religion. Talking of religion, I can't help saying that it is a bad rule that requires a congregation to keep silence while the minister preaches, or at least forbids remarks and criticisms at the close of the sermon. I should often like to get up and say, "Reverend So-and-so, you have laboured hard to expound your views on a subject which no human being can understand. Next time you preach, I want you to prove to me how necessary it is I should speak the truth, pay my debts, love my wife, abandon hatreds, pray for my enemies, and do all things, even in eating and drinking, for the glory of God." But my lips are sealed, or, at all events, if I followed the impulse that is often strong upon me, I should appear before a magistrate every Monday morning on a charge of brawling. But to resume the thread—*pardonnez-moi*—if I go wrong in a word I can be corrected. Now for several years we have not had one single display arranged according to the rules which govern the bedding system. For example, the centre circular bed has never been a mass of scarlet or yellow, or any other colour; the borders have never been furnished with distinct, hard, sharp lines of colours, such as a line of red, a line of white, a line of yellow, a line of blue, &c., &c. Our most satisfactory effects always are mixtures. It is interesting, too, that the very best mixtures we have ever had are mixtures of geraniums. Such a mixture is most beautiful. I could write for a week in praise of it, if only our copious English tongue would afford a supply of suitable adjectives. Take the centre bed, for example: we fill it with plants of all colours, arranged according to heights, so as to construct a regular pyramid, the tallest plants in the centre, and thence smaller and smaller to the outside. The result is a mixture of scarlet, purple, pink, rose, white, and the intermediate shades. To be sure, the plants we use are mostly seedlings; and in their first strong bloom, when averaging three

to five feet high, they beat all that can be grown from cuttings; yet the same effects can be wrought out from cuttings of named varieties, and our advantage in that respect is a mere accident. Amateurs must allow us to beat them in some things; we can't help it—it's our trade; but I make amends, I hope, by telling them everything. What more can I do? So, again, in respect of the borders, we repeat the same colours at regular distances, but we always fill in with mixtures, and have bits of green and gray at regular intervals amongst the most brilliant flowers. I am afraid to propose the planting of beds with mixtures of geraniums; but I am inclined to think it might be done, for we only need to select half-a-dozen sorts for a bed—say, Crystal Palace Scarlet, Christine, Madame Vaucher, H. W. Longfellow, Amy Hogg, and Countess of Sefton—and plant them alternately all through. These would keep pretty much to the same height; and I cannot but anticipate the effect would be gratifying to a cultivated eye. At all events, our mixtures—I say "our" and "we," because I don't wish to be everybody in a matter which other and able and faithful hands take part in—our mixtures, I say, are most pleasing; and this brings me to another of the lessons of the plunging system, which will make occasion to commence a new paragraph.

Another lesson we have learnt is, that everything capable of being plunged out of doors, and possessing intrinsic beauty, may be turned to account. Palms, Ferns, even Equisetums, and grasses are used here. Twice this year we have made the principal part of the display consist of ferns, with bits of colour here and there to light them up. The system, in fact, is without limit practically, for whatever you can grow in a pot may be carried to the border or bed, and be plunged in the place best fitted for it. This leads the way to the next paragraph, in which there is to be dealt a dreadful blow to our friend Saunders; may he live through it!

The fact that almost anything can be turned to account makes an end of Mr. Saunders's objection that the system is beyond reason costly. Let me give you an example. The display at this moment consists of leaves with a few quiet flowers to light it up. In the centre bed a mass of *Variiegated Epilobium*, the one sent out some years ago by Mr. Salter: it is the *Epilobium parviflorum variegatum* of the books. As a pot plant this is exquisitely beautiful; the plants average 20 to 30 inches high, almost wholly white in leafage, with a few rosy flowers at the summit. They are packed close together, with plants of *Iresene Herbstii* alternating. The *Iresene* forms a dull claret-coloured groundwork. This mass is encircled with *Coleus Verschaffeltii*. The boundary line consists of tufts of all the new *Alternantheras*, with plants of *Mrs. Pollock Geranium* at regular distances. It is a quiet affair, but chaste, rich, and novel. In the long border there is a back line, consisting of plants of the *Epilobium*, tall *Lobelia*s of the *cardinalis* and *fulgens* sections, *Lilium lancifolium*, *L. auratum*, and some other odd things. All these alternate regularly, so that at so many feet distance there is a white-leaved *Epilobium*, a lily, a scarlet or rosy *lobelia*, &c. The next row at this moment consists of geraniums; a fortnight ago it consisted of *Sedum spectabile* (*S. fabarium*), for the sake of its leaves; but it was too cold in colour, and I had geraniums brought up to warm the scheme. The front line of this border consists of *Coleus*, *Iresene*, *Alternanthera*, *Mrs. Pollock*, and a few other tricolor geraniums. The fact is, we had not enough of *Mrs. Pollock* in pots to finish with, and we put in *Yellow Belt*, *Golden Chain*, *Gold Pheasant*, *Luna*, and others. The little border under the windows has a back row of *Tiger lilies*, next in front a few plants of the *Lily of the Nile*, *Calla Ethiopica*, in flower (we flower this well in summer by keeping the pot plants always in an inch depth of water in a hot sunny place, so that if we want it, it is always fit for use), and the rest of the border is filled in with ferns. These last comprise our best specimens of the most showy Britishers, exhibition size, and some of them unique specimens. So far, it will be understood that we do not want the purse of Cræsus, or any other such beast, to pay for our plunging. What do you suppose was the cost of our willow herbs (*Epilobium parviflorum*)? One day in the past spring, I said to George, "Pot so many of that willow herb that grows on the rockery." I should give you the exact number, but at the moment of writing I don't remember it, and the wind is too high for me to carry out the lamp and count them. But suppose it to be a hundred. Well, the cost of potting may be calculated at six shillings for pots (forty-eight's), and some pence to spare. Say three shillings more for time and stuff, and that's all. One penny each is about the actual cost of those lovely plants, for, as to soil, they grow best in the stuff that has been used over and over again, taken from a heap that is kept on purpose for variegated plants. We could take five hundred plants next spring from the same bank, and indeed a lot of it will have to be destroyed, for it is spreading too fast, and is actually killing out some of my seedling conifers that happen to have been planted near it. Please take note of this, friend Saunders. Again, in the spring of this year I noticed that a plant of the lovely *Tanacetum vulgare crispum* had gone very wild, and was running about like a will-o'-the-wisp, so

I said, "Make an end of that as a border plant; it is too vagrant in habit for us, and pot a lot in sixties; we shall be glad of its green leaves." No sooner said than done. They were potted in trash; not the least occasion for fresh compost for it, the heap of old stuff from pots served the purpose, and in due time we had a beautiful lot of plants. As they stood all together in an old brick pit, they had so charming an appearance that I used to steal into the frame ground every morning and have a quiet look at them, always asking myself the question if *Todea superba* (*Leptopteris superba*) could surpass this weed in beauty. We found them very useful. Before they got leggy, as they are now, when in fact they were lusty and lovely like new-born love, still flushed with the smile of innocence, we used them for a margin to a bed of rich colours, and the effect was glorious. Those of our friends who did not know it was only a refined form of tansy were furnished with the botanical name *only*. They might have sneered at the English name; or worse, they might have got a tuft of common tansy, and then have said it was rubbish. I am too used to such things to be off my guard, and I consider it a duty to defend beautiful plants, however cheap and common, from the shadow of detraction. Pardon a moment's digression. I once had a splendid rockery covered with wildings, all of my own gathering from copse and dell. A dear old friend who knew nothing of horticulture used sometimes to join me over a cigar beside that scene. Said he to me, "What is that gigantic woolly-leaved plant with a candelabrum-like stem covered with yellow flowers?" I replied, "That is the common mullein, a British weed." Dear old friend acknowledged the information with a grunt. Presently he asked, "What is that glorious patch of azure blue, looking as if a bit of the blue sky had taken root to bless you?" I replied in the same modest manner, "That is the germander speedwell, a common British weed." Dear old friend acknowledged with another grunt; and presently added, "What a waste of ground to plant such common things!" I at once took him for a type of a certain species of the genus *Homo*, and waited for his next question. "What a splendid mass of yellow you have there!" said he. "What is it?" I replied, "*Lysimachia thyrsoiflora*," with not a word about its being *also* a British weed. "Ah," said he, "that's something like." So I learnt a lesson, and have found by much experience that it was a good lesson. No, no, no, you don't sneer at my British weeds again, any of you, if I can help it. That lovely yellow flower you saw in the spring in the park was *Leontodon taraxacum*,—I can say inwardly and inaudibly, "a British weed," without bringing contempt upon the beauty, or putting to needless question the taste of Ebenezer Elliott, who made a glorious song upon the Dandelion. Time now perhaps for another paragraph.

In the way of cheapness we have another example. In the month of September we shall have a good display, in which *Sedum spectabile*—the *Sedum fabarium* of trade catalogues—will play a conspicuous part. I don't remember how much I paid for the first bit of it; perhaps a shilling. No matter if five times as much. The plant can be propagated from cuttings in spring with the greatest ease, or it may be divided by simply cutting through the crown, and potting pieces with roots. It is as hardy as sin, which frost does not kill, and as good as virtue, which the hottest sun cannot change to vice. Any soil will do, no training wanted—not a single stick; and if you forget it for a week in hot weather, and give it no water, it does not matter—not a sign of distress. Come here, Mr. Saunders, in September, when *Sedum spectabile* is in its prime, and you shall confess that there never was a cheaper spectacle; for we will group it with some other cheap things, and the plunging system shall be vindicated by these hardy, self-propagating, beautiful members of the plunging family, that, like Newfoundland dogs, never ask about the water-rate before they plunge, and do not need a laundry to be carried after them to prevent them taking cold. As for the spring flowers, friend, that you saw, they are not costly. You may make them so if you like. It is our custom to grow every year complete collections of tulips, hyacinths, crocuses, and Nareissi; but you need not do so if you want to plunge in *medias res* into the cocoa-nut bed. We had some cheap hyacinths to help out from Messrs. Low and Co., last autumn, at about fifteen shillings per hundred, and potted them singly in 60-sized pots, and they came in well with specimen bulbs here and there to give character to the mass, and the effect was grand. If you want to know what became of them all, I could now show you a store of as fine bulbs as any that will come into the market this season, saved from the display of last spring; and another store of bulbs wholly raised here, and that have cost I know not how little, for they have been grown in just the same way as shallots, only buried instead of being stuck on the surface; and at so much per rod or rood or acre, measure it as you will,—any way but at so much a piece, for their cost individually must be reckoned in farthings, and at fifty farthings to the shilling (near enough for this guess), a thousand will cost only one pound sterling! Double it, if you like, and you need not be ruined. But if you wish to effect in one blow what it cost me ten years of steady practice to accomplish, with a pre-

ceding ten years of practice other ways to bring about, you may be disappointed. My advice to beginners in plunging has always been, to try it first with some special border near the drawing-room windows, and by degrees to extend the system as circumstances may dictate and require. Rome was not built in a day, they say; nor has our plunging system been perfected in one season, or by any one happy guess. It is the growth of years, and the fruit of many experiences, and I shall be as ready to tell of all my mistakes and failures as to record, as I now do, in a hasty manner, the sum-total of my successes. S. H.

SALADING FOR THE WINTER.

By the time these notes are in the hands of your northern readers, it will be time for them to be thinking about preparing the usual amount of salading for the winter, and I am constrained, with your permission, Mr. Editor, to give those who may require them a few hints upon the subject. But, first, I must not forget those favoured southern readers, or they will be accusing the old man-of-partiality. But, bless you, an old man like me has no partiality for either north or south—they are both the same; in fact, they are, like all other readers of these pages, on an equal footing, as I think of them all in their turn. But this salading is the question now, and how are we to preserve it? Those living northward must lose no time after they have read this article in looking up all their old spare frames, and to clear out their brick pits, and every available space that has a foot of glass for a covering must be brought into use, in which to plant a number of young endive and lettuce plants. All these structures must have some amount of drainage beneath the soil. A quantity of long dry litter trod firmly together will serve the purpose, in the absence of anything better. From eight to ten inches of soil is sufficient, and this must neither be too rich nor too poor. If too rich, it will cause them to grow too quick and succulent, and consequently they will be very tender. If the soil is poor, they will be stunted in growth, and instead of being crisp and tender, they will be leathery and hard. The pits or frames should be filled up with soil to within fifteen inches of the top, and pretty firmly trod before planting.

The plants should be selected from those sown in the early part of the present month, and planted out a foot apart each way in the pits or frames. For a good winter lettuce the *Hardy Hammersmith* or the *Victoria Cabbage* is the best, and the *Mossy Green Curled Endive* is not to be beaten. After planting they should be watered, and, if very bright clear weather sets in, shaded for a few days. No attempt to put on the lights should be made until there are actual signs of frost, or there is likely to be a continuation of wet weather. In the latter case the lights should be used only to carry off the water, to be tilted both back and front to admit a current of air, taking care that the blocks used to give air at the back be considerably larger than those in the front. This will give a sharper angle to the lights, consequently the water will pass off quicker, and then there will be less danger of drip. The lights used for this purpose are generally the most rickety of any on the place; and we should remember that drip is the abomination of winter salading. Providing there are no pits or frames at this time to spare, the plants may be planted on a dry sheltered border, to be hereafter lifted and placed in the frames. When this plan is adopted, great care is required in planting in the pits when the plants are large. In the first place, the plants themselves should be as dry as the season of the year will admit of their being when they are brought in, the soil in which they are planted should be moderately dry, and the plants carefully watered at the roots without wetting the leaves. By adopting and carrying out these precautions, the last plan answers nearly as well as the first, with a little more labour.

The above remarks are also applicable to the case of the southern reader, except that he need not commence operations so soon by a fortnight. He may select his endive plants from the sowing made early this month, but lettuce sown a fortnight later will be forward enough for the south of England. He may also plant out a good number under the foot of a south wall, and in mild winters this often carries the supply on to Christmas. This is an advantage in favour of a southern gardener, as he need not provide such a large number under glass; and this should influence him in not planting too early in the pits, nor using plants very large, or they will get too crowded before they are wanted for use. When the plants begin to touch each other, they prevent a free circulation of air; consequently there is a greater accumulation of damp, which is a dreadful enemy to these succulent subjects. In every case an abundance of air must be given both night and day in mild open weather; the lights to be taken off when it is not actually raining or freezing at night. In open weather the lights should be tilted at the back; frost should be excluded as much as possible, but at the same time they must not be shut up in the dark for more than one or two days at a time. In the above remarks there may appear to some a good many minor details upon a common subject,

but I am convinced, from a long course of years of experience, that they are all essential to the successful keeping of salading through the winter. With this remark the old man will close this short article, and sign himself as usual.

THE MAN WITH THE BLUE APRON.

MESSRS. F. AND A. SMITH'S NURSERY, DULWICH.

The fame of Messrs. Smith's tricolor geraniums having spread far and wide, I felt a strong desire to see them at home, for the threefold purpose of enjoying the sight, making selections for myself, and selections for our readers. I found the nursery as interesting as ever, and regretted time did not permit me to have a good hunt through the pits and houses; but as seeing the tricolors was the principal object of my visit, I hurried past a thousand things that else would have detained me: a few furlongs of hard-wooded plants, the heaths especially glittering with the bright verdure of vigorous health. The balsams I did look at, only to wonder how seed could be got from stock so highly bred; the plants were tremendous in size, and sumptuous in their abundance of large rosette-like flowers of all colours, not the least beautiful being the pure white and striped varieties. We very soon got amongst the tricolors, and I rather wonder now that I got away from them; for a lover of such things might be pardoned for taking up his abode in their midst, and refusing to move on. We began the inspection in the parterre which adjoins the dwelling-house, where the bedding varieties are planted out, and have to bear the brunt of rain and sunshine, cold and heat, and prove themselves by the severest of tests. At the head of the garden is a bed consisting of the variegated *Polemonium ceruleum*, edged with blue Lobelia—a most chaste and quiet bit of colouring. As compared with variegated geraniums, it is less showy; it is one of those pretty things that you may look upon again and again with pleasure, its elegant fern-like leaves being at once peculiar and characteristic. Comparing it with its original green-leaved form, the old "Jacob's ladder" of the cottage garden, one might be justified in suspecting the reality of the relationship, so much is its aspect altered by the bare fact of its variegation. Here is one more good poor man's bedder, a hardy plant of most refined character, which will require pit protection at the utmost, and in dry sheltered places will endure the winter with the same impunity as its thoroughly hardy parent. In other beds are groups of Mrs. Pollock, Italia Unità, Mrs. Barry, Aureum, and other bright-leaved geraniums, in the most perfect health, and beautiful beyond description. The beds are all raised above the level slightly, and are connected with scrolls, in which are planted specimens of all Messrs. Smith's new and splendid varieties. I made notes of a great many, and shall now enumerate and briefly describe such as most particularly attracted my attention.

Aureum, just referred to, is a golden-leaved variety, of the brightest tone of yellow, with trace of a zone. The flowers are clear delicate cerise, produced in abundance. As a bedder it is unique; the leaf bright enough to allow of the removal of the flowers, yet the peculiar tint of the flowers renders this less necessary than in the case of strong scarlets.

Golden Globe, a golden-leaved variety, of compact habit, with beautiful cerise flowers. This is as good for pot culture as for bedding, and first-rate either way.

Crystal Palace Gem, a golden-leaved variety, with the flowers of Lady Middleton. The leaf is superb, being slightly blotched with bright green—that is to say, the disk is irregular and small; the remaining part of the leaf rich sulphur-yellow.

Mrs. Charles Barry is a bronze zonal, superior to Luna; the flowers scarlet, the zone bright and ruddy; habit rather robust, and in a bed most effective.

Pet of the Parterre, a golden-leaved variety; the leaves yellowish green, flowers rich scarlet; one of the best bedders on the ground.

Vandyke, lighter in the zone than Mrs. Barry; pretty, distinct; the flowers rosy salmon. I cannot give this so high a place as the others in the series; it is good for a collection, but not wanted where a few are grown.

Aurora is a gold zonal, with large bold leaf, and most brilliant tones of yellow and red; a most grand and telling kind, whether in a bed or a pot.

Criterion, a bronze zonal; the disk and margin sulphur, the zone rust-red; the leaf round and flat, a "criterion" for judging, and a most brilliantly-coloured variety. The term "rust-red" may suggest an undesirable colour, but it is the only term I can think of as descriptive of the colour, which might perhaps be described as cinnamon washed with red.

Standard is a bronze zonal; the leaf round and flat, a "standard" of form for judging; the leaf has more green in it than that of *Criterion*, and the zone inclines more to chocolate; rich, decided, beautiful.

The Moor is a bronze zonal; sulphur disk and margin, zone rich reddish chocolate; first-rate.

Brunette, a bronze zonal; the disk and edge greenish sulphur, the zone bright russet-red; habit compact, and the leaf a model of form.

Model, a bronze zonal; flat round leaf, disk and edge canary yellow with a tinge of green; the zone a clear red; peculiar and first-rate.

Plutus, a bronze zonal of most remarkable character; the leaf round and flat, or but slightly convex; the disk and edge canary colour, the zone bright rufous-red. This is one of the most brilliant and distinct of the family, worth any money; a bedder, too, and for exhibition capable of the greatest things.

Gladiator, a bronze zonal, and the most brilliant possibly of all known varieties of this section; neat medium habit of growth; the leaf round and nearly flat, the disk and margin sulphur, the zone clear chestnut, just the colour of a chestnut newly removed from the green husk, which is the most beautiful tone of brown known in natural colouring.

Combatant, a bronze zonal; the disk and margin greenish yellow, the zone approximating closely to a carrot-red.

Morning Star, a bronze zonal; disk and margin a lemon-yellow, zone a remarkable shade of cinnamon passing into red.

Coronet, a bronze zonal, remarkably neat in habit; leaf round and flat, a bright green disk, the zone rayed black and red; splendid.

Miss Burdett Coutts, a silver zonal; the disk green, broad whitish edge, zone rayed dark and brilliant carmine. A fine variety of a class at present too limited, and capable, so far as we can at present imagine, of unlimited expansion.

Peri, a silver zonal, in the style of Italia Unità, but brighter; the margin is pure white, the zone brilliant rosy lake. As seen by me on the 1st of August, I give this the first place in its class. In a better season than the present it will no doubt be still more brilliant and pure.

L'Empereur, a gold zonal; the margin broad and bright yellow, the zone brilliant black and vermilion-red; one of the most splendid of its class, and in form of leaf and habit of growth first-rate.

Charles Dickens, a golden zonal; the leaf very flat, a good grower, very constant in colours, margin clear lemon yellow, zone rayed dark and red; sometimes a self zone of the brightest vermilion; a splendid variety.

Alhambra, a gold zonal, in the way of Mrs. Pollock, but surpassing it in habit and colour; the best bedder at present of this group; colouring brilliant.

Sunray, a gold zonal, margin bright yellow, zone rich magenta with shades of black, one of the best of bedders, superb also for pots.

Defiance, a gold zonal, the margin bright yellow, the zone rich carmine, red, and black; the growth admirable; a superb variety.

Eclipse, a gold zonal, the leaves too deeply lobed, the yellow margin bright yellow, the zone brilliant vermilion-red. In colour this has no parallel, but having given a code for judging, I am bound to stick to it, and find fault with the deeply indented leaves.

Impératrice Eugénie, a silver zonal, margin creamy white, zone bright pink and black, the habit neat and compact, in growth almost a miniature; a charming variety for small beds and vases.

Jetty Lacy, a gold zonal of the finest character, the leaf narrowly margined gold yellow, zone intense chestnut, red, and black; habit all that can be desired; a grand exhibition variety. In the open ground this grows well, and is most striking.

Louisa Smith, a gold zonal, leaf margined with clear yellow, which, as in the case of Mrs. Pollock, fades to whitish; zone bright red and black. This is of vigorous habit, and at first sight an inexperienced judge would proclaim it the same as Mrs. Pollock, but when out of doors it is quite distinct, and a better grower; one of the best, in fact, in this glorious class.

Queen of the Fairies, a silver zonal, margin white changing to cream, with a soft tinge of blush; zone deep rosy lake and black; most beautiful, chaste, delicate, unique.

Souvenir de Sir Joseph Paxton, a gold zonal, the margin very narrow, but very bright gold yellow, the zone deep crimson, red, and black; as the leaves acquire age they change to a soft rosy zone and paler yellow; a good plant, shows a variety of colours, all good.

These are but a few selected from the many splendid varieties in Messrs. Smith's magnificent collection. Instead of advising people to go and see them, I think I ought to advise them to keep away, unless they have perfect control of themselves; for they might otherwise be seized with an impulse to make a bid for the whole lot, as I did, and it was only by the reflection that the sum-total might interfere with domestic finance that I escaped, still the possessor of those thousands that it would require to make a clean sweep. Those of our readers who can command themselves under the fiercest of temptations may go, but no others.

S. H.

TRANSPLANTING IN HOT WEATHER.

For many years past we have always been quite successful in setting out strawberry and other plants in hot weather, and during seasons of drought, by dipping the roots in a small vessel of soft mud as soon as they were lifted from the ground, and then pouring water into the hole so as to form a puddle, when the roots were slightly covered, and then filling the hole with pulverized earth, so as to leave a dry mellow surface. Covering the earth with an inch of fine manure added to success and a stronger growth.

We observe in a late number of the *Horticulturist* a communication from C. J. May, of Warsaw, Ill., describing his success with a modification or improvement of this mode of planting. He lifts his plants from the soil, shakes the earth from the roots, and immediately places them in a vessel of water. In this way they are carried to the place of planting, the roots spread out in the hole, and immediately enough water poured in to float the roots out at full length. Fine mellow earth is immediately drawn or sprinkled into the hole, taking care that no water comes to the surface to form a crust by baking. This is the whole operation, the earth not being packed, but allowed to settle by its weight only. The most valuable and essential part is the perfect encasing of every root and fibre with fine earth, effected by the agency of the water. It is essential that the ground previously be deeply and finely mellowed. The following results from the use of this mode of transplanting are given in the communication above referred to:—"I have been experimenting with strawberry plants, and find that they can be transplanted during the hot months of June, July, and August, equally as safely and as well as in spring or fall. From July 1st to August 31st we have had unusually hot and dry weather, even for the valley of the Mississippi, yet every week I have planted strawberry plants, from twenty to thirty each time. Some of the plants—in fact, nearly all—were planted when the soil was as dry as it possibly could be; not a particle of moisture in the surface soil; and after some of these plantings not a drop of rain fell for four or five weeks; yet they withstood the burning sun without protection, without watering, or checking their growth in the least. I have not lost a single plant up to this time, and those planted first have thrown out runners, covering nearly as large a space as the runners of plants set in the spring in the usual way." He also tried the following experiment with evergreens:—"Out of thirty-four large evergreens, I planted thirty in this way and four without water. The thirty are all alive, and have made a good growth; two out of the four are dead, the remaining two made no growth, not even starting to grow. Several persons who had trees out of the same lot have lost nearly all, so have they their fruit trees, while none of mine have failed to make a large growth."

The same article contains the following extract from another writer:—"In July last, during the hottest weather of the season, I set out two thousand strawberry plants in the same way as mentioned in your letter, with this difference, that in place of drawing dirt into the water, I dropped it gradually around the plant until sufficiently thickened up to hold it firm; then cover with an inch of dry dirt. A drought prevailed at the time of setting, and continued five or five or six weeks, yet they withstood the scorching sun without protection or watering, or in the least checking their growth. I have set out many hundred plants, but none looked so well. I take up a plant, shake the dirt from its roots, and set it out on a hot scorching day, in the full glare of the sun, without wilting or in the least checking its growth. Few are prepared to believe this, but nevertheless it can be done, with the leaves remaining as erect as when standing in their original bed. This plan, to those largely engaged in transplanting, will prove very valuable; no other will compare with it."—*The Cultivator (America)*.

Calendar.

WORK FOR WEEK COMMENCING AUGUST 17.

Kitchen Garden and Frame Ground.

BROCCOLI planted now need not be more than 15 inches apart. They will be rather crowded when spring comes, but they will pass through the winter much more safely than if planted farther apart.

CABBAGE.—If the ground is not already overstocked, sow a few pieces of *Rosette Colewort*, *Enfield Market*, *Red Dutch*, and *Champion*.

CAULIFLOWERS to be sown on raised beds of fine rich earth; when they have their first rough leaves, to be taken up and potted in thumb-pots, in good fuchsia compost, and the pots plunged in a bed of coal-ashes. As soon as the pots are full of roots to be shifted to 60's, and in these to be wintered in frames, the pots plunged to the rim to prevent frost touching their roots. This may seem a dandified way of treating cauliflowers; we can only say that experience has taught us that it pays better in the end than any other method for a crop to plant out early in the spring.

CELERY is growing freely, in consequence of the abundant rains. Where the plants are forming stools instead of distinct hearts, it is advisable to remove with a knife the outside suckers, so as to reduce the growth, if possible, to one set of stems. This stooling is the result of free growth after the plant has received a check. It is so far objectionable that stooled roots are only fit for the cook; they are unfit for the table.

ENDIVE.—A last sowing may be made to stand the winter. All the sorts are good, but *Green Curled*, *Imperial Batavian*, and *Moss Curled* are the best.

LETTUCE may still be sown, and plantations may be made from seed-beds sown last month.

ONIONS ought now to be ripening off; and if the weather continues dry, no doubt they will ripen well. Where they appear gross, and not inclined to ripen, sweep them over with a long stick or rake-handle, so as to lay down the tops. Generally speaking they fall over of themselves, and the bulbs ripen without assistance. Sow for winter and spring supplies. The most hardy kinds are *Brown Globe*, *Deptford*, *White Lisbon*, *Globe Tripol* and *Strasbourg*.

POTATOES to be taken up as soon as ripe. Let them be well dried in the sun, and stored away at once. Never pit them damp, but on the other hand never keep them lying about on the ground exposed to daylight beyond a reasonable time.

SPINACH for winter may still be sown, and the best sort is the *Prickly*. In some places spinach sown in the middle of September goes through the winter well; but on cold soils, and in all eastern and northern districts, the winter spinach should be sown before the 20th of August.

TOMATOES.—Let these ripen on the vines if possible, and if any fruits are shaded by leaves, remove the leaves to admit the sun to them. In case of bad weather, and no chance of the fruit ripening out of doors, cut off the branches with the fruit attached, and lay them on a top shelf in a sunny greenhouse, and the fruit will ripen perfectly. If no sunny greenhouse, a window in a warm kitchen will do.

WINTER GREENS lately planted are now doing well. Breadths that were planted early and close now require every other plant to be removed, and there will be room for this now that summer crops are being cleared off. For every kind of green to be used between this time and Christmas manure liberally, but for those to stand till spring do not manure at all.

CUCUMBERS for winter fruiting must be reared at once, and cuttings are preferable to seed, as the plants have a shorter habit, and are more fruitful. Take very small cuttings from the ends of newly-made shoots, pot them singly in small 60's, and shut up over a gentle bottom-heat. As we are not now using dung-beat, we shall put a small frame over a heap of grass-mowings mixed with dry litter, which will afford enough heat to start them, and keep them going till new beds are made up. But beware of grass-mowings alone, unless cooking, and not growing, is the object. One-half dry litter, and the other half mowings shaken over, will produce a steady lasting heat, of great value at this time of year, when it is not generally convenient or desirable to have dung wheeled in.

MUCK-PIT.—There will for several weeks be vast accumulations of rubbish by removal of pea, bean, and potato haulm, and other materials for manure. By this time the muck-pits are generally full of grass-mowings and other summer sweepings; but the economical gardener will never waste a scrap of anything that can be rotted into compost, and room must be made now for the extra supplies. It is a common thing to see rubbish thrust into holes full of water, in order that it may rot the quicker, the parties forgetting that water washes out all the goodness of the material. It would be better to accumulate vegetable refuse in one large heap, to undergo fermentation and decay without the help of adventitious moisture; and if any offensive smell results, throw a layer of earth over the heap. Common mould is the best of all deodorizers.

Flower Garden

AUCULAS.—It is usual to repot and revise the whole stock before winter, though many growers prefer to repot in spring. As the Emmerton quackery has long been exploded, we need not do more than advise the use of a *sound and sweet compost*—garbage and goose-grease no one will now use. Sandy loam, containing a goodly proportion of decayed grass-fibre, with a third part added of rotten cow-manure, will grow them to perfection. Turn them out carefully; detach the offsets without making bad wounds on the old root-stocks; cut away any decayed parts of the roots; and in potting keep the collar well up, and press the soil in round the roots quite firmly. It is of the utmost importance to place them where worms are not likely to get into the pots.

CARNATIONS AND PICOTEES not yet layered must be attended to, or it is impossible for them to be well rooted before winter. A little bit of quackery lingers in this department, which we must hope to get rid of. We allude to the barbarous practice of removing leaves beyond such few as must be taken off to allow of fixing the layer. It is impossible to cut the tongue and lay down the shoot nicely without removing a few leaves, but let a few suffice, and do not indulge in removing any not immediately in the way, or in cutting the ends of such as are allowed to remain.

ARCADES.—At this time of the year most gardeners find themselves in arrears in regard to some departments of their work; but as little watering is now required, and there is a momentary lull in the activities necessary to keep gardens in order, all hands may be piped to clean out pits and houses, improve shrubbery borders by introducing plants to give effect

during winter, and various odd jobs in propagating, &c. Read over the notices of the past few weeks, and see what has escaped attention, as, with the fine weather now before us, lost time may be made amends for by those who are diligent and vigilant.

HOLLYHOCKS to be propagated from cuttings as soon as they can be got from the stool. Cuttings from the stems are of no use to amateurs, and should never be used by anybody except to increase kinds in great demand.

BEDDERS can only be kept in good trim by constant attention. Remove seed-trusses, yellow leaves, and rank growths. Put in cuttings of whatever is required, and pot off those already rooted. Shut them up for a week, and then expose them to all weathers till the time to house them. A few cuttings of *Perilla* and *Coleus Verschaffelti* put in now, and carefully treated, will make nice plants to group with *Chrysanthemums* in the conservatory by-and-by. These two easily managed foliaged plants should be grown in every stove during winter.

EVERGREEN SHRUBS may now be moved with the best chance of success, whether they be large or small. As to evergreens, such as hollies, aucubas, laurels, Portugal laurels, laurustinus, arbor-vitæ, &c., they have all done growing, their wood is hard, and if lifted now will make fresh root while the surface soil is in the best condition of warmth and moisture of any period of the year. Where new gardens are being laid out, the gain of three months upon the ordinary planting season is no small matter, as it enables the planter to get the chief operations finished at a time when the men enjoy the work, and the proprietor is enabled also to enjoy the result, and all to the advantage of the plants. Layers and cuttings of hardy shrubs put down now, and left till April or May, may then be removed, and planted in nursery rows with good roots.

PROPAGATION OF HERBACEOUS BORDER FLOWERS is an important matter just now, as there is still time to obtain a good growth of many subjects before winter, but no time to spare. Seed sown immediately of any and every kind of hardy perennial that can be grown from seed will have a fair chance, though for many subjects an earlier date of sowing is to be preferred, but as regards the safety of seedling plants during winter, the *late-sown* plants, generally speaking, are the most hardy; those that are fat and strong are the first to perish during very severe weather. Subjects that may be increased by cuttings may also be dealt with now, and frames may be filled with but little labour, and the certainty of a good return. Such things as the perennial species of *Iberis*, *Arabis*, *Centranthus*, *Dianthus*, &c., &c., may be multiplied without frames by selecting a shady spot, and there making a bed of sandy soil for them; and having put in the cuttings, shade them with mats or evergreen boughs for a few weeks, after which they will take care of themselves, and may be forgotten till next spring. No, not forgotten; it is bad policy to use that word, for if really forgotten the stock may be lost through the overpowering growth of weeds, which always start up in myriads in newly-made beds of sandy soil. Keep down the weeds therefore, and look at your stock occasionally, and never forget them.

LAYERING ROSES.—The old method of propagating by layers is a certain but a somewhat slovenly method, which rarely produces plants equal to those from cuttings or eyes; but it is capable of some improvement as generally practised, the object being not merely of obtaining roots, but well-shaped plants from the first. The usual plan is to make a tongue on the under side of a shoot, remove an inch depth of earth, corresponding with the position of the tongue, and then fix the shoot with a peg, and leave it to take its chance. Generally the layers root at the tongue in the course of three weeks, and if soon after removed there is a fair chance that the majority are living and doing well; but the plants are generally one-sided things that need a deal of care and patient culture to render them fit for the rosery. Let us endeavour to explain the best method of layering. Select the shoot which can be most easily brought down, and, before cutting the tongue, remove the soil, and fix it by a peg, so that there will be no fitting to do when the tongue is cut. When all is ready, cut the under-side of the branch across about one-third of its thickness, then cut a tongue each way, about an inch long, so that when the shoot is bent upwards the top strip of uncut bark will suffice to hold the two parts together. Bend it gently, and bring it to an upright position, and then drive down a peg; a small forked branch of a tree is the best for the purpose. But generally an upright stake to maintain the shoot in its proper position will render a peg unnecessary, or a strip of bast passed over the bent branch, and fixed in the ground by the means of a stone pressed upon its ends, will suffice to keep it from springing up, or breaking the top strip of bark above the tongue. It is much easier to root roses in this way than to keep them afterwards. Our advice to all painstaking rosarians is to pot every plant as soon as rooted; they will then have more attention than they would get in the open ground; they will have a lighter soil to promote the formation of a mass of roots; they will feel the check of being lifted less because they can be shaded and aprinkled; and when winter comes they will be ripe in the wood and safe from harm. Perhaps you can remember having many a time propagated roses from layers, and then lost the greater part during the winter. In future deal with them from their first roots as here set down, and if they have but one fibre each they will make good plants.

PRESERVATIVE WALLS FOR TENDER PLANTS.—When the mists of autumn warn us of the approach of winter, we begin to consider if our glass is sufficient in extent for sheltering all the tender plants we possess. To insure an exotic to the rigours and changes of our seasons requires some considerable time and preparation; it is not reasonable to suppose a plant can in one or two years so change its constitutional habit as to withstand uninjured either the one or the other, for it may be that the periods of excitement and rest natural to it are directly opposed to our seasons; so that to effect this, the first and most material alteration in the character of the plant, time is the principal agent. In most cases it may be forwarded a good deal by employing a medium position for the first exposure; that is, such a situation in which only part of the severities may be felt; and it is this which creates the value of conservatory walls: standing out in this manner, with properly constructed screens and other means of protection, the plant enjoys through the growing season an abundant supply of food; and if managed so as to be allowed the necessary time to elaborate and mature its required secretions, there will be but little danger of its receiving any material damage through the winter season. The construction of these walls must be determined in a great measure by the description of plants intended to place against them. For many of the finer sorts of greenhouse plants it is necessary that flues be added, and, indeed, a glazed front; but as this is an expensive erection, and we are not now writing for those who can employ an architect, we will reduce the scale

of our ideas, and suppose a wall to be standing, rather an unsightly object perhaps, and which it is desirable to cover; we will suppose also that camellias form a principal part of the subjects intended to plant against it (if deciduous shrubs are used, it will be much easier); the situation should be one facing to the south-east or the south-west, either of which is preferable to due south. The first proceeding will be to prepare the border; the natural earth, unless very good, should be removed to the depth of about two feet and a half, a third of the excavation should be filled up with stones and brick rubbish, to drain off superfluous moisture; this is the most important part of the whole, for if the bed is not thoroughly cleared of any excess of moisture, all other endeavours will fail. On these stones a thin turf may be laid all over, to prevent the earth falling between them. A mixture of loam and peat, with all the turf-sticks, &c., contained in it, should be well chopped with the spade and mixed with some rich garden-mould; this will form a compost to fill up the remaining space, and in which almost any plant will thrive. Immediately after planting, the whole bed should be well watered; but it is preferable to defer the nailing and training until the plants have taken a little hold, after which they should be extended as far as possible, and pruned rather thin, that the new branches may have the full influence of sun and air. The means of protection to be used through the winter should be of the simplest construction possible. A light wooden rail, fastened to the top of the wall, from which slanting pieces depend, to the ground, at a distance of about four feet from each other, and the lower end projecting about the same from the foot of the wall, will be all the framework necessary, on which a piece or pieces of flexible canvas may run by means of lines and pulleys, so as to allow of its being rolled up or down easily. The use of continuing the covering so far from the base of the wall is to retain about the plants the radiated heat given off from the surface of the earth beneath the canvas. With this simple contrivance, which may be removed entirely in summer, very many fine plants may be grown to a greater luxuriance than is often seen when completely under glass. In the management of these walls it must be particularly observed to avoid anything like an early excitement; in the early spring months we frequently have a few hours of hot sunshine succeeded by cutting winds or frost. These changes are more injurious to the plants than the severest continued weather, from the action of the sun causing a reaction in the system of the plant, which, ever ready to recommence its seasonal activity, pushes its sap in a very short time to the extremities of the shoots, and there, on the succession of cold to this brief impulse, it becomes coagulated or frozen, and so distends the whole tissue of the plants as frequently to cause it to split; this must be carefully avoided, by refraining from exposing them to any weather likely to make them start until a prospect is opened of its lasting. There need be no fear if the plants do not even push till April or May, but that they will then do so with much greater vigour. On the other hand, the autumnal exposure should be maintained as long as possible, suffering them to receive all the influence of the sun, that the wood may be thoroughly ripened. With attention to these particulars success is made certain. The advantages derivable from this manner of growing plants are important, and easily made apparent, for beside the satisfaction of being able to grow handsome plants, where before only coarse climbers would succeed, or having valuable in the place of common plants, we must consider the ultimate effect produced on the constitution of the plant, and the increased probability of its being by these means induced to withstand all attacks, even without shelter; the received opinion being that all vegetation will endeavour to form its tissue in accordance with the situation and circumstances under which it is produced.

Fruit Garden and Orchard House.

STRAWBERRIES.—Now is the best time in the whole year to make new beds, to ensure good bearing next year. If rooted runners are plentiful, take the best only, and destroy all the weak ones; but with any varieties it is thought desirable to propagate to the utmost, sort the runners as to sizes, planting the forwardest and strongest in beds to bear, and the late weaker ones in separate beds for stocks; these latter will not probably bear till the year after next, and then will be strong plants. Strawberries to fruit in pots next year ought by this time to be strong, and in need of a shift. The soil should be strong loam, well chopped over with rotten dung, and the plants to be potted firm.

Greenhouse and Conservatory.

PELAGONIUMS that have been cut down and made new shoots an inch long must be repotted. Don't shake the earth off so as to destroy the ball entirely, but remove the outside, and trim in the roots slightly, so as to get them into small pots. Those potted a month ago now want a shift. Take care to have a sound compost; the use of light sandy composts has much to do with the long joints and weak flower-stems we notice at the shows.

REFRESH all specimen plants in pots that are not to be shifted, by removing the top soil, and adding a dressing of new material—sheep's dung for those that can stand it, rotten dung from a cucumber pit for Camellias, Allemandas, Stephanotis, Dipladenia, &c.

PLANT-HOUSES of all kinds should now undergo a thorough purification, and all necessary repairs should be completed, that all may be dry and sweet before fires are lighted, and shelves are crowded with plants. The neglect of these matters until the drenching autumn rains occur is common enough and had enough. At the present time any kind of plants may be set out of doors if needful, or room may be found for them in other houses while repairs proceed. But in a few weeks hence it will not be so safe to turn things out, nor will there be so much room to spare in houses only partially occupied.

AMARYLLIDS FOR WINDOWS.—The gorgeous amaryllids are not near so generally cultivated as they ought to be, considering how easily they are managed; there are numbers of them that would succeed to admiration with careful window treatment. *Vallota purpurea*, *V. p. major*, *Amaryllis aulica* and its varieties, *A. vittata* and its varieties, *A. psittacina* and its varieties, *Hæmanthus coccinea* and *viridiflora*, *Nerine undulata*, one or two of the *Sprekelias*, and the lovely *Cyrtanthus obliquus*, would all succeed well with the careful treatment bestowed on their plants by many window gardeners. The chief item in their culture being, as soon as they manifest signs of growth after a season of rest, shake all the old soil from the roots, and repot in equal parts loam and very well-rotted manure or leaf-mould; Wanstead loam is the best for them. For cultivators near London this is easily procurable, but any rich friable loam will answer perfectly; eschew peat, excepting for *vallotas*, but it is by no means indispensable for them; neither is sand necessary in the cultivation of amaryllids. They make without exception thick, strong, fleshy roots, and

imbibe through their hungry spongioles all the nutriment that can be supplied to them. They should in fact be treated just as we treat onions in the kitchen garden, of which, if we desire a good strong crop, we trench deeply, and manure heavily for them. In potting amaryllids complete drainage is of the first importance; two crocks laid over the hole in the pot, one half way over the hole, and the other resting upon that, with a quantity of small chips of broken pot or oyster-shell to cover the rest of the bottom part of the pot, and a layer of the fibre of loam or peat over that, will be perfect; if in addition cracked pots are used, the very acme of perfection will be attained as regards drainage, and the results will be proportionally favourable. Having repotted, water moderately until vigorous growth has commenced, when water may be more frequently supplied; place the plants in a warm window, in the fullest light, and let the foliage have every chance of developing itself according to character. When the tips of the leaves begin to turn yellow, let water be gradually withheld till they are quite dead, and then place the bulbs, pots and all, in a dry warm cupboard, or some such place, until they show flower or begin again to grow, when the routine of shaking out, &c., must be again gone through. Those that have persistent foliage, as *Amaryllis aulica* and *Cyrtanthus obliquus*, must be attended to with water all the year round, although but very occasionally in the dormant season. The possessor of a greenhouse may of course cultivate successfully many varieties and species of the genera we have been treating of. *Amaryllis aulica* is so accommodating a subject that it will grow in a common greenhouse, year after year, and break the pot by the expansion of its roots, just in the same way as the familiar *Agapanthus umbellatus* does, and certainly a large pot of it suffered to go on year after year without division becomes when flowering a truly magnificent spectacle. It is somewhat capricious, flowering indifferently at almost any season.

Stove and Orchid House.

ORCHIDS require peculiar care now to secure a perfect ripening of the growth of the season, and to prepare them for their winter rest. A general reduction must be made in the supply of moisture, and a general increase must be allowed of solar light. The cultivator will, of course, guard against any extreme in drying up or exposing to sunshine; a certain amount of moisture will be required even when the plants are perfectly at rest, and some more than others. It is certain that at this time of year shading should be used quite sparingly, and a condition of repose should be encouraged by a reduction of the temperature and the amount of moisture.

WALL TREES.—The principal duty of the cultivator now is to assist the trees in any way that may be possible in the ripening of the wood. Where the walls are covered with glass, the lights should be wholly removed; where the walls are overloaded with wood, some of it should be thinned out; where nailing has been neglected it should be completed at once.

GESNERA ZEBRINA to flower in winter will require a shift this week. The compost to be equal parts hazelly loam, fibry peat, and leaf-mould. Keep shaded and warm after shifting, and syringe frequently.

Forcing Pit.

PEACH-TREES that were forced early should now be fully exposed to the atmosphere, and this can only be done by taking off the lights. This not only tends to a complete maturation of the wood, but prevents the trees becoming infested with red-spider, the attacks of which pest causes an artificial and premature ripening of the wood, which is not to be desired. Now is a good time to whitewash back walls, and when the lights are off to repair and paint them.

VINES.—The leaves of vines that have been forced early too often become brown and shrivelled at this time of year through increase of red-spider. Some cultivators comfort themselves with the idea that the wood will be better ripened in consequence, but that is a great mistake. Insect pests do no good, direct or indirect, and the careful cultivator will do his best to get rid of them by means of sulphur and such other remedies as are constantly recommended. It is always a proof of bad management when the leaves of vines become prematurely withered.

PINES swelling their fruit to have frequent supplies of liquid manure, and abundance of atmospheric moisture. Young plants to stand the winter, for fruiting early next year, had best be removed from those swelling fruit, so as to keep them drier and more freely ventilated.

THE LORD OF THE HARVEST.

"They that sow in tears shall reap in joy. He that goeth forth weeping, bearing precious seed, shall doubtless come again with rejoicing, bringing his sheaves with him."
—PSALM cxxvi. 5, 6.

The time for toil has passed, and night has come,
The last and saddest of the harvest eves;
Worn out with labour long and wearisome,
Drooping and faint, the reapers hasten home,
Each laden with his sheaves.

Last of the labourers, thy feet I gain,
Lord of the harvest, and my spirit grieves
That I am burdened not so much with grain
As with heaviness of heart and brain;
Master, behold my sheaves.

Few, light, and worthless—yet their trifling weight
Through all my frame a weary aching leaves,
For long I struggled with my hapless fate,
And stayed and toiled till it was dark and late,
Yet these are all my sheaves.

Full well I know I have more tares than wheat,
Brambles and flowers, dry stalks, and withered leaves,
Wherefore I blush and weep, as at thy feet
I kneel down reverently and repeat,
"Master, behold my sheaves!"

I know these blossoms, clustering heavily
With evening dew upon their folded leaves,
Can claim no value or utility;
Therefore shall fragrance and beauty be
The glory of my sheaves!

So do I gather strength and hope anew;
For well I know thy patient love perceives
Not what I did, but what I strove to do—
And though the full ripe ears be sadly few,
Thou wilt accept my sheaves.

Replies to Queries.

X. Y. Z.—We really cannot give an opinion until our samples are further advanced.

Box Edging.—T. H.—As you have a great deal to do, begin at once. Plant a good length at a time during moist weather, taking care not to have the plant lying about more than can be helped.

Fuchsias.—Barnard Castle.—Madame Cornelissen may be shown in any collection or class, if there is no special requirement as to colours; but if fuchsias are classed as Light and Dark, then it belongs to the Light class.

Club in Cabbages.—H. A. C.—Whatever enriches, refreshes, and renews the soil will tend to abelish club. We grow brassicas of all kinds on an old plot where club formerly prevailed, but is now scarcely known, having been got rid of by good cultivation, one feature of which has been abundant manuring. Deep digging and plenty of manure will do more to eradicate club than all the nostrums ever heard of—in fact, nostrums are not of much avail, because clubbing begins in the seed-bed. We advise you to sprinkle lime over the young plants as soon as they appear in the seed-bed, to practise deep digging, and when planting out dip the roots in a puddle of clay, lime, and soot.

O. P. May.—Your plant is *Crinum capense*.

Johnson.—If the tub is cleaned in a rough sort of way, and then coated with pitch inside, it will last a long time. Its greasy condition will not prevent its receiving the pitch. The outside may be painted, but not the inside. If you have a box made, it should be pitched inside.

J. B. Bowdon.—Your plant is right enough. You can scarcely give it too much water. Do not give it a larger pot till it requires more room; over-potting is dangerous.

Right of Government Surveyor to enter Private Grounds.—R. B. S.—The person who has applied to enter your grounds and make a plan of them is no doubt properly authorized, and might be allowed, without any risk of damage to your property, to carry into effect what he proposes to do. You have incurred no penalty in refusing him admission, but you will in due time receive a notice from the Ordnance Board demanding admission for its representative, and refusal will involve you in a liability to a fine of ten pounds.

Grafting Vines.—Subscriber.—The proper time for grafting vines must be determined by the condition of the stocks to be operated upon—as, for instance, if your vines have their roots in an inside border, and the house is kept moderately warm for a various collection of plants, they will, in all probability, be in a fit condition by the end of February. But if their roots are in an outside border, the second week in March is generally a good time. Specific rules cannot be given without seeing the subjects to be operated upon, but experienced hands graft much later than above stated when it is necessary. The branches from which the scions are to be cut should be preserved in a damp soil away from the frost. The annexed sketch will show how the scion must be cut, and the shape of the stock. This is what is generally called whip or tongue grafting, and is to be preferred by inexperienced hands to other methods, as it is not only more sure, but very simple in working out. We see no reason why a good clay graft should not answer with you; in fact, we should recommend it in preference to wax. In making up the clay, mix about a third of fresh cow-dung with it; this prevents the clay cracking when exposed to the air. When the clay has been firmly pressed round the



graft, bind round it a good handful of wet moss, and keep this continually moist until the clay is removed. With this little attention in the way of moisture, clay will be safer in the hands of amateurs than wax. Inarching is always to be preferred when practicable in such cases as yours, as not only the surest means, but the simplest.

Correspondence.

GROUND VINERIES.—I wish for information respecting Wells's portable vineries; indeed, your strong advocacy of them has almost tempted me to give them a trial. I have a vinery in two divisions, 34 feet by 13 feet, planted with twenty vines, and, in justice to my gardener, I must admit, never fails to produce me a good crop of large, well-coloured, and well-flavoured bunches. I have now a thought of turning the vinery into a greenhouse, and taking out the vines, which are planted outside, and lay them on the border, and place over each vine one of Wells's vineries—the vines are each about 16 feet long; but I am rather undecided whether to buy the twenty Wellsian vineries, or allow the vines to remain, and build a greenhouse. My vinery cost me £60, and I find I can have a greenhouse for the same money, stage included. Can I really hope to get as good a crop with the Wellsian arrangement as I now do with my vinery? I find the Wells vineries will be the most costly. My gardener, I must inform you, is prejudiced against them, and says that the grapes from the ground vineries exhibited at the Guildhall exhibitions were no better than could, with little care, be grown against a good wall in a good aspect without glass.

VITÆ.

[If you are in a perplexity about deciding between a house and so many ground vineries, we cannot undertake to fix your mind upon one or the other. We have really said so much on the subject of ground vineries that it would be waste of space to say anything more in their praise. It would be well for you, before deciding, to make acquaintance with the ground vineries made by Mr. Rivett, of Statford, Essex. As to the grapes shown by Mr. Wells at Guildhall, they were fair samples of Black Hamburgs, well ripened, and some forty or fifty bunches cut from about 30 feet run in a single rod vinery. If you refer back to our report, you will learn the exact particulars. When your gardener can get forty or more bunches from a 60 feet rod on a wall, the bunches averaging 1lb. each, and as well ripened as those of Mr. Wells's, we shall respect his prejudices. At present we hold to the opinion that ground vineries afford a certain and simple means of producing good table grapes; but you must decide for yourself whether to buy vineries or build a house. Perhaps it would be well to read the papers on the subject in "The Floral World" of April and June, 1866.]

We should like to hear from some of our grape-growing readers on the subject.]

VIOLA CORNUTA.—I have perused with much interest and edification your valuable papers on "Bedders" in your recent issues, and I can endorse, almost without exception, all your remarks upon special subjects; and in these remarks, according to my humble opinion, you have dealt with the Viola and its varieties as it deserves. But there is one circumstance connected with the plant to which you made no reference. Perhaps it may be the plant is not affected in the same way in other parts of the country as it is here in Battersea Park. In several of the beds here the variety Purple Queen keeps continually dying off, and I have examined the dying plants very minutely, but I am not at all sure what may be the real cause of such speedy decay. However, the stems of the plants are completely hollowed out by some insect, and in several of the hollowed stems I found some very small white soft worms, and also numbers of a very small roundish oval-shaped insect, appearing to the naked eye like grains of sand. If these are the depredators, there must be numbers of them invisible to the naked eye. I enclose part of a plant in its dying state, and would be thankful for information on the subject, if it is convenient, through your columns.

J. W.

Battersea Park.

BRISBANE BOTANIC GARDENS.

The following extracts from Mr. Hill's report, lately made public, will no doubt prove interesting to many of our readers:—

The tea-beds are planted to test the climatic effect on the plant in different situations; and, as recent intelligence informs us that the several attempts made to rear the tea-plant, both in Victoria and South Australia, have signally failed, it will, I imagine, be especially gratifying to all those who take an interest in the material prosperity of Queensland, to learn that the groups of tea-plants, both in easterly and westerly aspects, never exhibited a more vigorous, healthy, or exuberant growth than now. Some of the other beds comprise plants of allspice, tamarind, chocolate, crotons, &c., and all are giving evidence which encourage the hope that they can defy the severity of the Queensland winter. The ground which was set apart last year chiefly for the culture of oranges, vines, pine-apples, and any other choice fruits which it may be found necessary to produce in a secluded and sheltered situation, has been considerably enlarged.

During the year, the botanical treasures have been largely enriched by copious and very valuable contributions of seeds and plants from various parts of the globe, especially from Java. In the collection from J. E. Teijsman, Esq., director of the Botanic Garden, Buitenzorg, Java, was a Wardian case of cinchona plants, comprising three of the most valuable species, viz., *succirubra*, *Calisaya*, *lanifolia*, and accompanied by a sample of seed of the *C. Calisaya*. The next contribution which I have to acknowledge is a quantity of cinchona seed and a large variety of Peruvian maize, from C. Ledger, Esq.; also a very valuable case of bulbs from Messrs. J. Veitch and Sons, of the Royal Exotic Nursery, London.

I am glad to say that the desire which I have so long cherished, of successfully cultivating in the gardens the most valuable species of the cinchona, has at length been realized. Some of those received in the Wardian case from Java have been planted out in a sheltered and otherwise favourable situation; although not more than six weeks in the ground, they have made very considerable progress, and give every indication of adaptability to the soil and climate of Queensland. The seed sown, comprising three species (*succirubra*, *Calisaya*, and *officinalis*), has also germinated successfully, and hundreds of the plants will be quite ready for planting out in the ensuing spring. The Durio (*Durio zibethinus*), the bitter wood (*Quassia amara*), the chocolate (*Theobroma cacao*), and Croton oil plant (*Croton tiglium*), have likewise been transferred to their permanent positions, and give evidence of a most healthy and vigorous growth. Whilst on this branch of the subject, I think it right to observe that there are three or four of the new and most precious plants, such, for example, as the mangosteen, the vanilla, nutmeg, and clove, which I am inclined to believe, owing to the severity of a portion of our winter, would thrive much better a few degrees farther north; and with that view, and in order to insure safe provision for such very delicate tropical plants as the colony might receive from time to time, I would respectfully suggest that a piece of ground should be set apart—say at Rockingham Bay, or at some place in that latitude—as a nursery plantation under the special direction of the Government. A considerable number of these plants are now (March 28th) ready for removal, and if a plantation such as I suggest were ready to the north, the ensuing spring would afford a most opportune time for transporting them thither, together with collections of the cinchonas and other rare and valuable plants.

The donations of maize, numbering in all 130 varieties, forwarded specially for experiment, have been carefully tested, and in no instance have they equalled, much less exceeded, the maize commonly cultivated in the colony. The large Peruvian, the only variety from which great things were expected, and which, from the size it attained in the first stages of growth, induced a belief in its superiority, proved to be a failure in the gardens; although I hear from one person to whom I distributed some of the seed, that it produced remarkably well in the neighbourhood of Ipswich. Those in the gardens grew to a great height, some of them upwards of fourteen feet, but, singular to say, very few of them yielded more than one cob, and that was so diminutive in bulk and thinly grained as to render it scarcely worth the trouble of gathering.

Of the useful trees already growing in the gardens, I may mention the following as having fruited and seeded for the first time during the year—a fact which may be regarded as the best proof of their effectual acclimatization, viz., allspice (*Eugenia pimento*), Avocado pear (*Persea gratissima*), tallow tree (*Stillingia sebifera*), cherimoly (*Anona cherimolia*), and Mango (*Mangifera indica*). The trees and shrubs which I noticed in previous reports as having fruited and seeded continue to produce excellent crops, the size and quality of the fruit increasing as the trees advance in maturity. The coffee shrubs have yielded this season an unusually large and fine crop, and continue to be a general subject of admiration among visitors. The Indigo, cinnamon, cotton, sugar, tobacco, ginger, cassava, &c., are in a flourishing condition.—WALTER HILL, Colonial Botanist, and Director of Botanical Gardens.

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M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun risen.	Sun sets.	Moon rises.	Moon sets.	WEATHER NEAR LONDON, 1866.				M. temp. avrg. of 43 yrs. Gravh.	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D		
							Barometer.	Thermometer.	Rain.						
1867															
25	S	10th Sunday after Trinity (Rhodeswell Rd. E. London, Treaty St., - R. Tower Hamlets,	5 2	7 1	0 11 a.m.	3 59 p.m.	30.91	80.40	73	49	61.0	.00	58.9	Odontoglossum grande, M .. Guatemala	25
26	M	Manchester Grand Exhibition, Aug. 27 to 31.	5 3	6 09	1 12	4 63	29.99	29.88	79	56	67.5	.01	58.5	phallopops, M S. America	26
27	T	Prince Consort bor'n, Aug. 7, 1819.	5 5	6 57	2 21	5 37	29.63	29.74	76	49	6.5	.09	58.4	Saccobolium Illumei, I ... Java	27
28	W	Bristol and Clifton - Henckley-Ealing.	5 7	6 53	3 37	6 15	29.59	29.41	70	47	58.5	.06	58.2	farcatum, I ... India	28
29	Th	Bishop Auckland Exhibition.	5 8	6 51	4 53	6 47	29.31	29.23	58	50	51.9	.00	58.0	Sobralia Illiastrom, M ... Guiana	29
30	F	John Bunyan died, 1688.	5 10	6 51	6 11	7 17	29.77	29.58	69	49	61.9	.02	57.8	Stanbopea Martiana, M ... Mexico	30
31	S		5 12	6 49	7 25	7 45	29.65	29.71	77	44	60.0	.00	57.7	insignis, M ... Trinidad	31

The Gardener's Magazine.

SATURDAY, AUGUST 24, 1867.

THE CULTURE OF THE AILANTHUS has been regarded as offering a new industry for this country, and many experiments have been made with a view to the development of the plant, and the celebrated Japanese silk-worm-moth, *Bombyx cynthia*. In some parts of Britain the tree grows vigorously; indeed, in the southern counties, and in the neighbourhood of the metropolis, it is one of the healthiest and handsomest of trees we possess. As to the moth, we are not prepared to say that the question of its cultivation in this country is settled, but we cannot any longer hesitate to express our belief that the idea of acclimatizing it with a view to the derivation of a profit from its cultivation is a delusion. We have been watching for some time past a series of experiments in "Ailanti-culture," and it appears to be full time to warn those who are bitten with the silk-growing-in-England frenzy to limit their operations to the means at their disposal, with the certainty that in a commercial point of view this business is a failure. We have lately inspected an Ailanthus farm of considerable extent. Our readers may not be prepared to hear of a seed-bed of trees and silkworms 400 acres in extent, but, as a matter of fact, we write this from an Ailanthus farm of larger dimensions than that, and we speak of 400 acres specifically, because that was the breadth of land planted in the first instance. The farm comprises 700 acres in all; but Ailanthus is now an accidental weed of the place; wheat, barley, oats, peas, and green crops have usurped the places of the silkworms, and the land is at last put to a nobler use than the growth of silk.

Yet there was at first a glorious promise of success. In 1864 and 1865 the results were so far satisfactory that preparations were made for enlarging the operations of the farm, but in 1866 and 1867, both cold seasons, the scheme received its death-blow, and where Ailanthus grew sheep-feed now occupies its place. It was anticipated that about two pounds per acre clear profit might be derived; and, though this has never been attained, the results of the cultivation in 1864-65 were such as to warrant the belief that poor land, unfit for farming, and producing perhaps less than six-pence per acre, might be made profitable by means of *Ailanthus glandulosa* and the now famous moth *Bombyx cynthia*. But so bright a prospect is now overshadowed. The 700 acres that were intended to supply the market with English-grown silk have changed their aspect: the ailants have been ploughed out, the worms discarded, and farming of the old sort—the growth of beef and mutton—will quickly supersede the growth of silk.

The case may be understood by means of a few particulars. As to the growth of the Ailanthus, it is necessary, for the welfare of the worm, that the trees should be kept dwarf, for on tall trees the worms are apt to be blown down by a gale, and to be eaten by thrushes and blackbirds. The annual cutting down of the trees reduces their vigour, and in the event of a severe winter a large proportion of them perish. So also, in respect of the moths, a cold season not only keeps them back, but actually destroys them. The result of a combination of adverse influences is that *Bombyx cynthia* takes the place of the mulberry silkworm; it becomes a toy, and as a toy it must henceforth be cultivated in this country; and those who are bitten with the Ailanthus frenzy must be content with a toy. There is no prospect, so far as we understand the case, of it ever becoming a commercial success. We commend these few remarks to the consideration of our excellent friend, Dr. Wallace, of Colchester.

THE DRACÆNA.

Whatever good the sub-tropical movement may have done in other respects, it has certainly not advanced this beautiful plant one item in the estimation of the general public, for it is with some difficulty that any one can recognise the lovely *D. terminalis*, which is the sort most popular amongst sub-tropical disciples, in the dirty red or brick coloured objects whose leaves rustle in the passing breeze. They look as though every particle of life and vitality were blown out of them, which, I apprehend, is very nearly the case by the end of the season. There is nothing to encourage us in bedding them out in the appearance of those which we meet with wherever the system is carried out to any extent. It will hardly

be worth while to enter at any length into the matter, but I cannot refrain from saying that, so far as my own opinion is concerned, I would a thousand times sooner see a good bed of geraniums, verbenas, or other bedding plants—or if these things are not exactly suited, a bed of variegated hollies, or other ornamental shrubs—than a lot of stove plants stuck out in the open ground to die a lingering death, or, at all events, to present such a miserable appearance as would lead one to desire a speedy death for them. Therefore I shall confine my observations upon the culture of the plant in question to those points connected with its requirements in the stove, and its use in the decoration of the conservatory. Very few plants can be grown so easily as this, provided a reasonable command of heat is obtainable, and also a supply of proper soil. It is very little use to think of growing the stove species into handsome specimens without these essential requisites, for if the plant makes a little growth through the summer, and it has to be wintered in cold quarters, it will certainly lose all the leaves with the exception of a little tuft on the top. I have often seen plants in that condition—yes, I may safely say dozens of times—and very often people are at a loss what to do with them, and as they are generally considered to be rather valuable in a pecuniary point of view, they are afraid to cut them about, whereas few plants stand the knife so well. Now if I wanted to get up a stock of plants, *D. terminalis* is exactly the subject I should like to get hold of, no matter if it were as tall as the Nelson monument in Trafalgar Square, provided it had life throughout its length. Supposing any one has a plant of this description, the best thing to be done will be to cut it down to within a couple of inches from the level of the soil, and cut the stem into lengths of three inches each, and pot them firmly in large sixties, in peat and sand (the top piece with the leaves should not be too long, or it is a long time in taking root), and the pots plunged in a strong bottom heat, if obtainable, and I will guarantee every piece to grow and make a plant. If more plants are required than the number of pieces of the stem, the young shoots, which will break out of the top eye of each piece, should be taken off with a heel of old wood attached, and inserted in a pot with soil as recommended, with the addition of a layer of silver sand on the top, and be at once covered with a bell-glass and plunged in bottom heat. As fast as the buds push, the young shoots can be taken off and treated as before. Every eye will break if the shoots are taken off as fast as they attain a sufficient size to handle: a dozen or more can be obtained in this way from the old stock, if necessary. The thick, fleshy, tuberous-like root, which strikes direct downwards to the bottom of the pot in old plants, will make a plant, if carefully cut from the parent, and the part which was downwards in the old plant potted upwards and covered with half an inch of soil. This piece should be cut about an inch and a half long. I have often turned established specimens out of their pots, and taken the root off without the plant appearing to suffer the slightest check.

I have gone into the subject of propagation in this paper more fully than may appear necessary, considering its simplicity and the ease and certainty which attends the operation. I might have summed it up by saying that the plant is increased by cuttings, and nine-tenths of the readers of this, whose knowledge of the *Dracænads* is limited (exactly the people for whose edification this is contributed), would most assuredly be in difficulties as to what source the cuttings are to be obtained from. I do not attach the slightest importance to any particular season of the year for taking cuttings, for I have found them to strike with unvarying certainty all the year round, provided sufficient heat is obtainable. The routine of culture is as simple as anything can be after the plants are struck. As fast as the plants grow and fill the pots with roots they should be repotted, using equal parts of peat and loam as lumpy as can be conveniently obtained, and a good sprinkling of silver sand. But it is best not to overpot them at any stage of their growth. The temperature of an ordinary stove will suit them, and water must be given with discretion, and they are quite as well syringed overhead, although they luxuriate in a moist atmosphere through the spring. After June my plants have to take their chance in the conservatory up to the end of September, when they return to their winter quarters. During the time the plants are in the conservatory they should be carefully watered, for if they get too much the bottom leaves will soon fall. In the winter they should undergo as little excitement as possible, for the growth made during that dull period is too

delicate to stand, and soon gets spotted and spoiled. As soon as any flowers make their appearance the spike should be nipped out. Although the flowers push from the top of the stem, and would perhaps lead one to suppose that the plant would have to make a side shoot, it does not interfere the least with the symmetrical proportions if it is removed at once, and no one would be able to see that it had bloomed at all. It is quite a matter of taste as to how many plants are grown in a pot, whether one or a dozen. Red-spider, thrip, and green-fly will attack the *Dracæna* if grown in an atmosphere too hot and dry. The two latter pests can be destroyed by fumigating with tobacco paper, and the former by sponging the leaves with Gishurst compound. Take a lump of the compound and wet a sponge and rub it on the compound, wash the leaves over with it, and, finally, wash the plant over afterwards with clean water. The thrip can be destroyed in the same manner if the house does not require smoking for the other plants. The different species of the richly-coloured kinds are certainly very similar, and these remarks are exclusively intended for them. *D. Cooperii*, *D. ferrea*, and *D. terminalis* are splendid kinds, and worth room in the best stoves in the country.

GEORGE GORDON.

A CHAPTER ON MANURES AND MANURING.

The manures employed to fertilize the land are divisible into two kinds. The first are the mineral; the second are the vegetable and animal.

To place the argument relative to this important part of agriculture on a solid foundation, a few specimens of those soils that have been always esteemed by persons in their neighbourhood the best and most fertile are laid before the reader, and comments will afterwards be made upon them.

First. Out of nineteen parts of an excellent wheat soil:

14	parts of silica, or large, small, and fine sand.
2	" lime, or carbonate of lime.
2	" alumina, or clay.
1	" vegetable and animal matter.

Second. Out of twenty-five parts of a turnip soil:

20	parts of silica.
2	" lime.
1	" clay.
2	" vegetable and animal matter.

Third. Out of ten parts of a fertile soil from Scotland:

3	parts of silica.
1	" lime.
5	" clay.
1	" vegetable and animal matter.

Fourth. Out of eight parts of a soil proper for wheat:

2	parts of silica.
3	" lime.
3	" clay.

These four specimens are sufficient to answer the purpose intended; for although there is no doubt as to the correctness of their analyses, since they have passed through the hands of Sir H. Davy, yet they will by no means serve to constitute a general scale of productive proportions; because a variety in the subsoil, as well as a difference in the situation and climate, must ever defy the establishment of one scale only. However, the above will answer every reasonable purpose; but first an opinion should be given as to a standard of fertile proportions which can be safely relied upon, and capable of practical adoption. It is this: to select the proportions from the best soils in the very neighbourhood of the field to be improved, where the subsoil and situation are similarly circumstanced, and the climate the same.

On viewing the proportions of silica, lime, clay, and vegetable and animal matter in the specimens selected, we are not a little surprised at the smallness of the quantity of the vegetable proportion, which on an average is only as 1 to 15; therefore, one directly decides that the permanent fertility of soils is by no means dependent alone on the vegetable share of matter they contain. This, however, must be proved; and to do so it will be necessary to estimate the produce of fertile lands, say for the space of four years; and it will soon be found that the vegetable proportion alone is far too small in quantity to insure such abundant crops as the following:—

First year. Turnips that will fat ten sheep an acre.

Second year. Barley seven quarters, or oats eight to ten quarters to the acre.

Third year. Beans four to six quarters to the acre, or two good mowings of clover.

Fourth year. Wheat four to five quarters to the acre.

All this from one coat of manure of the vegetable kind, and applied at the fallow.

Now, the usual coat of vegetable manure on the best regulated farms never exceeds in general, and indeed seldom equals, all the straw even they produce; because, when an agriculturist can manure a quarter of his land each year—that is to say, return all the straw grown on each field every four years—it is as much as he is able to accomplish; and this quantity is found, from experience, amply sufficient, when conjoined with the fallow, to raise healthy and productive crops. This being the case and the fact, the more weighty and valuable part, the corn, which is sold off from the land as food for man and beast, except what may be consumed at home, does not more than compensate for the loss of straw by thatching, by tithe taken in kind, and by waste, which will ever unavoidably occur on every farm under even the best management.

Whence, then, does the growing corn acquire the extra and necessary supply, since, as above shown, it cannot be from the vegetable manure alone which is carted on, because that would be obtaining a greater quantity from a less. Is it from the materials of the soil? Yet, how can that be? for, if we were to allow it to be the case, the fertile soil must, in the course of a few centuries, be reduced in quantity, and thus deprive future generations of the means of support, being contrary not only to present facts, but to the usual providence of the Supreme Being. And, as regards present facts, the best soils in former times are now, under proper management, equally as productive, if not more so, than then. The necessary

supply of food must, however, come from somewhere; consequently we must look and examine around for the source or sources; and if we do look, it must be for that which is known to be necessary to plants, is within their reach, and of a nature inexhaustible.

They are then, as has been before shown, and here again confirmed, the rain, the dews, and the air, all of which falling upon, and entering into a pulverized and fermenting soil during the process of the fallow, and thus expelling, as has been also before stated, the stale air and stale water which has been breathed by preceding plants. Just in the same way as gathered flowers in a glass of water on a mantel require the water to be changed every day or two, or they would droop, so a store of fresh air and fresh water, with renewed powers of fermentation, is acquired by the soil. This takes place with fertile soils, and those in good heart, at the time a crop is growing. The fresh water, in proportion as it is absorbed by the plants, gives place immediately to fresh air, or a vacuum must ensue: therefore these two great advantages arise, whenever a shower falls, or the night's dew enters the fertile earth; and thus the rapid growth and improvement of vegetation in the growing period of the year, after every kindly shower, is accounted for. These, conjoined with the influence of the sun, the seasons, and the innate powers of growing vegetables, aided no doubt in some degree by the principles of electricity, effect the formation of corn and fruit.

Relative to the expulsion of the stale air, &c., which is so important, it is in proportion to the quantity and the general diffusion of the rain throughout the soil; and this is, of course, in proportion to the state of pulverization, or adhesiveness of the particles of the soil, and its nearness to the last ploughing. The strong analogy between the soil and the stomach of animals may not improperly be adduced as an illustration of the above argument. The soil does not of itself afford the means of support to the plant, but receives the food from the vegetable manure carted on, and from the rain, dews, and air; so the stomach, by the animal's industry in gathering or catching its food, merely prepares it by a decomposing process, which so far weakens the several affinities of the matter contained, as to be capable of being afterwards selected and taken up by the appropriate organization of the plant and the animal: and this is effected in proportion to the proper constitution and health of the soil and the animal.

This constitution of the soil, then, is of the first importance, for upon it depends the power of decomposing vegetable materials within itself, and of abstracting from the elements that come within its sphere the other requisites for the support of plants, all of which the soil retains with that gentle degree of combination which the selecting energies of vegetation are able to overcome.

Two sources, then, of food for plants are available by man: the one, manure, carted upon the soil; the other the surrounding elements. Both these are had recourse to by the practical husbandman, sometimes alone, as in carting on the manure, or making a fallow; and sometimes conjoined, as when manuring the fallow.

Of the subject of this chapter—the manures.

Of the mineral kinds, are lime, sand, burnt earth, clay, marl, hedge-mould (which contains much vegetable matter), or any other of the earthy or mineral substances, which upon inspection are all easily resolvable into the three principal ingredients of the soils namely, lime, sand, and clay.

As respects the use of these mineral and earthy materials to improve soils, they can only act, in the first place, to strengthen the constitution and permanent digestive powers of the soil, by increasing the deficient proportions of either lime, sand, or clay; and it is in this way that they add to the permanent fertility. If there be no deficiency, they then can only prove of use to hasten the decay of vegetable matter, which is preserved in a strong balance of affinity by acids, and which lime has the power of neutralizing; or from the freshness occasioned to the soil by the application of those substances that have not been under the influence of growing vegetables before, at least not of corn. This fertilizing effect is, however, but transient, and the application of the materials oftentimes expensive. In fact, this practice is precisely similar, only less effectual, to the benefit gardeners experience with their plants when repotting them into fresh mould; and the agriculturist's cheapest and only practicable substitute, where the soil is properly constituted, is in a one year's well cultivated and vegetable manured fallow.

Animal and vegetable manures next claim attention. These are, dead animal matter from the inhabitants of the land and sea, including bones &c., and the vegetable materials, of every denomination, found growing on the earth, some of which are ploughed in green; others are partly decomposed before they are applied. But the description most generally employed is the straw of all corn and grass, trampled down in the farm-yard by stock, and impregnated, more or less, with their excrement, which improves the strength of this kind of manure in proportion to the nature and quantity of the food given.

Soot is a manure partaking of both the animal and vegetable, being composed of ammoniacal salts and empyreumatic oil, with a great basis of charcoal, substances which are readily decomposed by the action of oxygen and water. This manure is generally applied as a top dressing; but the animal and vegetable manures are always ploughed well into the soil of all arable lands, and laid on the surface of pastures in autumn and spring.

Since the animal and vegetable manures are composed of the materials needed by growing plants, even to the very earths and salts, of which soils are said to be robbed, they must consequently afford the most valuable share of food to growing plants in the readiest state for their selection; but as the food, from its capability of being consumed by living vegetables, is continually diminishing, the consumption requires making up by periodical fresh applications.

Animal and vegetable manures being most generally used for the enrichment of soils, it is useful to inquire what changes and consequences arise when they are thus employed.

The usual method of application of farm-yard manure is, by carting and spreading the materials on the surface of a field, in an incipient state of decay, and then burying them in with the plough.

Experience proves that the decomposition of vegetable and animal manure is in proportion to the state of culture of the land to which it is given. If the field be in an exhausted state, and only one ploughing follows just to bury the manure, its decomposition and chemical and mechanical union with the soil will be very slow, in consequence of the undisturbed strong balance of affinities of the impoverished soil.

If the previous reasoning holds good, manure so employed is in part wasted, instead of being made the most of, as it is when put early on a fallow: because the manure when buried lies in contact for a whole year

with precisely the same surfaces of the soil, and, being in lumps, its sphere of contact must be proportionally small. The consequence is, that less fermentation takes place than there ought to be, and a proportion of the manure will actually escape in gas from its own fermentation after the saturation of the contiguous particles of the soil has been completed, and the absence of more fresh particles to arrest it. If plants are growing above it, they are injured from the "apoplexy" and lodging of the corn that follows, by receiving this food too readily, and that not sufficiently diluted, if I may be allowed this expression. This is the reason why fish manure, or yard manure, is so soon gone when put on a field to be immediately cropped, and is not cultivated previously.

Stubbles ploughed in will remain with very little decay for a whole year in poor and half cultivated lands, from the existence of the strong balance of affinities, resulting from the exposed particles being saturated, and no new ones being brought up to the sun, air, &c., therefore no fresh combinations or fermentation can take place. Whereas, if stubbles are ploughed in preparatory to a fallow, so as to have the benefit of several successive ploughings and harrowings, nearly or quite the whole of the stubble will be decomposed and blended with the soil, and be rendered a valuable manure, by the reciprocal fermentation of the land and the stubble, the former being set into activity by the cultivation, the latter from its easy decompositions soon feeling the effect of the former, when they act conjointly in their general fermentative and fertilizing process.

When a crop is to be principally benefited by the manure laid on a field with one ploughing only, the manure should be rich, and in a forward state of decay, because its decay, when in a "long" state, will be unassisted by cultivation, and the affinities of the particles of the soil will be too strong in their balance to expedite the process. The manure, in this case, will require to be brought into that state of decay before it is applied, which will ensure its own fermentation afterwards without aid from cultivation. And then, like shavings or small wood to a nearly extinguished fire, a partial overthrow of the strong balance of affinities of the soil will be produced, and thus far restore its fertility. But when you manure in this way, it is at the expense of the manure itself, by the loss that necessarily ensues whilst the heap lies fermenting in the mixen, with the view of its being reduced to the requisite state of decay: which decay, or rather calcination, causes a portion of its best elements and quantity to be evolved to the winds. Again, when the manure is laid on only before the last ploughing, even if it be a fallow, and a crop then sown, the manure is found distributed in the soil more or less in lumps. The young and perhaps delicate plants must be some time before they reach the manure with their fibres, and during the interval many perish. Such is the case with young turnips, if, when their roots reach the manure, they find it in lumps or masses, instead of being blended with or diffused throughout the soil; and the plants are of course injured.

The above circumstances lead to the conclusion that, both in the garden and in the field, the best time and manner of applying vegetable and animal manures—indeed, manures of every description—is on a fallow; and to cart and spread them on the land in the autumn, winter, or spring, according to their nature and circumstances; when there will be sufficient time to mechanically mix them well with the soil, by the successive ploughings and harrowings.

The only exception that can be adduced is on stiff clayey land, which might have the coat of manure applied twice to keep it the more open; as, once at the fallow, being half the quantity; and once between, as for beans, peas, and wheat.

By the manure, or manures, being so early applied, the particles of the soil are more quickly and generally divided, therefore the sooner and better able to admit the fresh air, rain, and dews; thus favouring their decomposition and union with the soil; and co-operate with the plough most powerfully in the general increase of fermentation and pulverization. The thermometer will always denote an increase of temperature when inserted into the soil about three inches, after recent cultivation, and also after recent manuring; and when these are both combined, the rise in the instrument will be found proportionally the higher. Under these favourable circumstances, it is not to be wondered at that the long strawy manure becomes soon reduced to a short fine state, and very generally distributed by the after cultivation.

Now, when any delicate seeds are sown on a field treated as proposed, they are assisted in their infant vegetation by the increased native powers of fermentation in the early manured and well pulverized soil. Their first roots have the great advantage of the necessary food being immediately contiguous to them, and in that state of delicate suspension that the least vegetative effort of the plants is sufficient to overthrow, and in consequence such a tilth is most favourable to their unfolding, their future vigour, and their arriving perfect at maturity.

If the reasoning employed be correct, this favourable conclusion may be drawn, that the early application of vegetable, animal, and other manures to the fallow contributes in a multiplied degree to fertilizing the same, by the mechanical as well as chemical assistance they impart to the power which the soil has of combining with, and decomposing, air and water, with, at the same time, their pulverizing effects: these objects could not be gained if the manures were added only before the last ploughing. By this practice, then, the four following points are gained. First, there is considerably less loss in the manure or manures, by their fermenting in the soil, instead of in the mixen. Secondly, the soil derives more fertility by the early application of the manures than when put on late, and at no expense. Thirdly, the manures being carted on the land early, less loss ensues from evaporation, the sun then having less power. And fourthly, if any kneading should take place during the carting, there is time afterwards to get the better of the evil, by having the manure, or manures, to assist the husbandman's efforts.

The application of the same kind of manure to plants or trees that are occupiers of the soil for more than one year, as hops, the artificial and natural grasses, fruit, &c., is not always advantageous, nor do the fields prove so productive as might be expected from the pains bestowed.

The advantage of variety is, that there is greater fermentation, and therefore greater benefit from the air and rains. For the same manure acts on the soil, particularly if not aided by cultivation, like the same medicine, or the same air, upon the human system, both of which are found to lose their best effect after too long repetition. In fact, the soil as well as the body becomes saturated or neutralized. This is not the case with arable land, because of the variety of the crops, to say nothing of the cultivation, particularly of the fallow, which is the most powerful of all; and thus admits of the same kind of manure being applied with success; but a change of manures has proved advantageous.

Before the subject relating to manures is brought to a conclusion, it will be proper to observe that an excess in manuring, particularly when put on raw for the coming crop, is as injurious as when land is poor from the want of manure. For of fertility there may be named three descriptions:—Extravagant fertility, productive fertility, "apoplectic" fertility. The first is, when so early and rapid a decomposition takes place that the plants thrive too fast in their youth, and then towards harvest, when they have nearly or quite done growing, they fail to perfect their seeds. This is commonly known by the name of crops being winter or spring proud and summer poor.

On examining the stalks and ribbons, they will be found to be covered with a species of fungus, which is owing to a sudden cessation of the supply of the sap; the healthy secretions are in consequence at an end, and fermentation of the juices succeeds; a gas is then formed, which bursts the vessels, and the fungi grow.

The cause of this extravagant fertility is this: the corn was sown upon fresh or recently manured land, the land being in itself poor from previous exhaustion: the result being, that the corn receives its food directly from the manure, in the first instance, and of course in an unselected, undiluted state, instead of disengaging it from the soil, with which the particles of the manure had been lightly combined by previous good cultivation, for the fresh manure decays faster, and thus yields and indeed rather forces itself upon the plants beyond what they naturally and immediately require. And being aided in its decomposition by the vegetative powers of the corn, a too rapid growth is at first brought on. Then, as the plants had been induced to commence their structure upon a large scale, by the abundance of the materials afforded them, they require a proportioned greater quantity of the same materials to maintain and complete what they had begun; but from the twofold cause, of an early extravagance, and large structure, they find those materials deficient at the very time when wanted the most, at the forming and completing of the seed. The soil, all the time, from its poverty, or strong balance of affinities, effects but little towards the growth of the plants; therefore, out of the two sources of fertility, namely, manure and good cultivation, the one most important, meaning the latter, having been neglected, fails of its necessary supply, and disease of the plant takes place accordingly.

The cause of productive fertility is owing to a regular decomposition going forward within the reach of the roots of the growing plants, when food is yielded sufficiently fast to meet all their necessary demands, and continues thus to be yielded from the beginning to the end, so that a well matured crop is formed yielding bright straw, and a handsome plump sample, in quantity proportioned to the native fertility of the land. This favourable result is to be attributed to the crop being able to disengage its food from the particles of the soil, with which it has been combined by a previous good cultivation and exposure, or fallow process. The beneficial consequence of which is, that the plants have to exert their own decomposing and selecting energies to obtain the food they require, and therefore take up no more than what their healthy vegetation demands; instead, as in the former case, of having their vegetation impelled on, as it were, by the too rapid and overwhelming self-decomposition of the manure.

The cause of the "apoplectic" fertility is owing to a too rapid decomposition taking place throughout the growth of the plants, as is the case if a few grains of corn happen to fall upon and take root in a dung mixen. The plants are seen to flourish away with uncommon vigour, as if in a state of intoxication, producing ribbon by wholesale; if standing in masses, they are soon heated down by the winds and rain, when, the straw becoming bent, the sap is then more or less impeded in its flow through the vessels, which are already overcharged with half concocted food, forced into circulation by the too rapid decay of the manure beneath; the consequence is the bursting of some of the vessels, when a nidus is formed for the fungi species, in the form of red rust, &c.; and if this corn ever ripen, a lean half-formed grain is the only produce.—*Bland's Principles of Agriculture*. Second edition, Longman and Co.

THE EMBELLISHMENT OF GARDEN WALLS.

This is a thing that is rarely or never well done, even by the best gardeners. It is quite a neglected subject, and the general aspect of garden walls is deplorable. Now, if we cannot, among the enormous number of plants upon which we may draw, find enough handsome and really effective climbers wherewith to cover every particle of wall with beauty and interest, we certainly have very little to boast of. Walls afford the best positions for many things that do but little good in the open air without their aid; walls, if well covered and carefully attended to, are among the most useful aids to a garden. Well covered in every part with good climbers, the stiffest and most awkwardly placed of wall surfaces becomes a thing of beauty, and may afford interest and flowers at all seasons, from that of the wintry bloom of the clear yellow *Jasminum nudiflorum* to the heat of early autumn, when the fine Clematises become masses of bloom. The climate of the British isles is so much varied that plants which grow as standards in the south may require a wall in the north; in the south we may have walls covered with sweet Verhena, and even with *Pittosporum*. In the south we grow the Fig as a standard; in the north it can hardly exist with a wall. But in all parts we may make good use of every particle of flower-garden wall, no matter what its texture, aspect, or height.

The first and most important consideration in the covering of garden walls is the selection of the plants. But even where these are well selected, there is frequently a mistake made in the training, by paying no proper attention to train the tree over the wall in a spreading manner, but, on the contrary, allowing it to run "up to a head," so to speak, each plant being top-heavy, and narrow and naked at the bottom. Instead of taking one good specimen and making it cover a full portion of the wall, people plant them rather thickly, and then keep continually clipping away the luxuriant shoots that ought to widely furnish the wall. The best shoots should be taken out in a fan-like manner, so as to cover the wall to the very ground. In training them out, in fact, the strongest shoots should be taken to the right and left, perhaps to send up straight shoots themselves. The object should be to keep every part of the wall covered, the centre of the tree as much so as the top of the wall, and in fact all parts equally. When once the trainer is impressed with the desirability of covering the wall equally in all its parts, he will have no difficulty in doing so. A great point is to make the strong-growing kinds cover a great deal of surface. Confine them to a small space, and you must cut them away fortnightly, or allow them to run disgracefully wild.

Now for the selection. A great many things are named in lists of wall

plants, &c., which while doing very well in such positions, rarely flower or exhibit any beauty. We must name a few more of these than we desire, in case some people should be disappointed at their omission; and, besides, they may now and then be found to have their special uses. But to make the selection more useful we will place an asterisk before the names of all such as are A I for ordinary purposes, and worthy of general recommendation. We must place the *Irish ivy at the head of all evergreen climbers. The rich sheets of verdure it produces are not to be equalled by those of any other plant that grows with us. The varieties of the common ivy are so numerous and beautiful, that little space can be afforded for the old forms in the garden proper; but few can resist the charms of the variegated varieties, and *Hedera Regneriana. *Cotoneaster Simmondsii will prove a rapid-growing fine thing for high walls and large rockworks. Bignonia capreolata and Tecoma radicans are both good for walls with good aspects in the warmer parts of the country. *Passiflora cærulea will not do much in the colder parts, but generally will be found to thrive on a warm wall. A house sprinkled over with its showy fruit in autumn looks very striking. *Chimonanthus fragrans. *Virginian creeper—things of this kind, that grow freely upon bowers and over old trees, &c., should be, generally speaking, reserved for such places, as the wall space will be little enough for the plants that really require its beat and assistance. *Wisteria sinensis and alba. The Weigelias are of course fit for low walls, and very pretty; *Magnolia grandiflora and its varieties, particularly the Exmouth one; *Jasminum officinale and *nudiflorum. The Escallonias—these do very well in Ireland in mild parts. *Cratægus pyracantha, Clematis atrovioleacea, C. azurea grandiflora, *C. flammula, C. florida, C. florida pleno, C. Sieboldii (bicolor), C. Fortunii, C. Guaecoi, C. Hendersonii, *C. Jackmanni, *C. lanuginosa, C. lanuginosa pallida, C. montana, C. regina, C. rubra-violeacea, C. Standishii, C. tuberosa, C. viticella, C. viticella venosa. The new large-flowered Clematises, in the way of C. Jackmanni, are noble in size and beautiful in colour. They may be well grown upon a wall, are fond of a light, deep, and sandy soil, and like to have the surface mulched. *Cænothus azureus thyrsofolius, C. azureus grandiflorus, C. dentatus, C. floribundus, C. Lobbianus, *C. papillosus, and C. velutinus. The Cænothuses do very well in the warmer parts, and in the west, though they are liable to be cut off occasionally by hard frosts. The Tea Roses. These are the most beautiful of all things for covering dwarf walls with good aspects, such as frequently occur in terraced and other gardens; and occasionally other kinds, such as Banksian, will be found highly suitable for walls. Strong climbing kinds should not be placed on the select walls, but on rough banks, &c. Periploca græca. Lycium europæum, good for high and rough walls; fruit bright red. *Lonicera japonica. *Abutilon pitifolium—this is a good plant, not at all sufficiently known for this purpose, but fine; may prove a little too tender for some parts, but a capital thing for the milder localities; will require a good stretch of wall. As for fugacious annual things for walls, it is better to avoid them. All such stuff is better trained on low trellises, as by so doing we avoid the trouble of nailing them; they turn round the wires and take care of themselves. The great *Rubus biflorus, with the apparently white-washed stems, grows freely in the open air with us; in many parts the shelter of a wall has proved acceptable. The Camellia may be grown as a wall plant in warm and genial parts of Britain, and even the Tea plant lives with a good aspect and light warm soil. The sweet Verbena, so grateful to many, is best grown against a wall, even in those parts where it does not survive the winter. Finally, we lately came upon one of the most beautiful greenhouse plants in existence—the sweet-scented Rhyncospermum jasminoides—flowering beautifully against a low wall. It had resisted the late severe frosts, and was planted in a nice little bed of sandy peat—the same stuff it enjoys when under pot-cultivation.—*The Field.*

NEW HARDY SHRUBS.

The following recently introduced shrubs, which have been proved capable of withstanding the winters in most parts of Great Britain, are all highly interesting acquisitions to our stock of hardy evergreens, and deserving of general cultivation:—

Euonymus radicans variegatus.—This pretty dwarf and compact growing plant has stood the past four winters with us without sustaining the least injury, although in the protracted storm of last January the minimum temperature was one night as low as 11° Fahr., and on several occasions under 15°. The constancy and beauty of its silvery white variegation, which is occasionally tinged with pink, makes it highly suitable for ribbon lines and edgings; and the free rooting property from which it derives its name renders it of the easiest propagation, as its branches even put forth an abundance of roots above ground, where the plants are grown in a close, warm, moist atmosphere. Our four-year-out plant is not yet more than nine inches high, although house-grown specimens of the same age are about twice that height; and for foliage effect it stands in favourable comparison with the silver-edged geraniums, hence it will be found especially useful for amateurs and others who may have no means for wintering these universal favourites. We observe that the successors of the late Dr. Von Siebold are sending out from their celebrated Leyden nursery the original or green form of this plant, which is expected to be still more hardy, and if of the same compact habit of growth it will also be an excellent plant for edgings, &c.

Aralia Sieboldii has stood out the last three winters alongside of the lays, and although its leaves, or rather leaf-stems, were bent down and slightly injured by the snow and frost of last January, the plant is now putting forth a full complement of new shoots and enlarged foliage. Mr. Fortune states that in northern Japan this species is a handsome evergreen bushy shrub, from twelve to fifteen feet in height; and its fine glossy foliage, which, when viewed at a short distance, may be compared in size and appearance to that of the horse-chestnut, will form quite a novel feature among that of other hardy evergreens.

Grisebina littoralis.—This beautiful, glossy, broad-leaved evergreen, which sometimes grows in New Zealand to the height of sixty feet, was not in the least affected by the 11° of minimum temperature last January, which cut down the common *Laurustinus* and injured the shoots of the common bay laurel, as well as those of the sweet bay, that were growing in its vicinity, so that it may be considered one of the showiest of hardy evergreens.—R. M. S. in "The Farmer."

■ *Grisebina littoralis* always suffers severely near London in hard winters, and has been frequently destroyed at Stoke Newington, notably so in the winter of 1860-61. In the nursery of Mr. Drummond, Bath, it is not hurt in winter, and it flowers freely, and bears abundance of berries.—Ed. G. M.]

THE ELDER TREE.

The common elder (*Sambucus nigra*) is so decidedly a household plant that any attempt to describe it would be useless. Its name *Sambucus* is said to be derived from *Sambuca*, a musical instrument made of it. I can well believe this; for, in my boyhood days, its hollow stems were the unconverted timber out of which our whistles and pop-guns were made, and so like that of the box that foot-rules are made of it. In Scotland it is called the bower tree, pronounced "boor tree," as in the old ballad—

"What care I for howlet's cry,
For boor-tree bank or warlock craigie?"

But in the Scottish ballad of the courtship of that doughty wight the "Laird of Cockpen," we find the name of elder—

"Lady Jane she was making the elder-flower wine."

I have tasted the elder-flower wine, but can say very little in its favour; but elder-berry wine is certainly a very agreeable beverage when warmed and spiced. The elder is a rapid grower at first, and survives for a long time as a stunted bush or low tree, with a thick shady top; and, being a free flowering plant, it is generally covered with blossom in summer, and heavily laden with berries in autumn. It is a coarse feeder, and thrives best where there is plenty of moisture: indeed, such a plant must have a good supply of raw materials at hand, as it will rush into such a rapidity of growth as is scarcely known among woody plants, frequently producing a crop of strong shoots six feet long in a season, when once it gets established; and it does not take a long time to get that: only let it be planted in season time—November, December, or January, not later—and no failure need be apprehended. When the elder begins to grow, if one did not know its character and history, it would easily be taken for an herbaceous plant; and its stinking foliage and blackish green colour would father it upon the worst form of umbelliferae, and, if not poisonous, at least so ill-favoured and uninviting that no one could think of eating any part of such a plant, unless he had got sound information beforehand on the subject. But although the elder has the lurid poisonous look and the hollow stem of the hemlock brood, it is not an umbelliferous plant, but belongs to the honeysuckle tribe (caprifoliacea); and although its stem be hollow, it is, after all, both woody and perennial, forming one of those marvellous links which we frequently find in botany, uniting opposite characters. Had the elder been blessed with foliage as sweet as that of the walnut-tree, it would not have been half so valuable to the farmer; for it is very rarely indeed that you see the elder tree touched by hares or rabbits. During long and severe frosts, with snow, I have seen sticks of all kinds bitten, and branches that had been cut off where trees had been felled would be barked as clean as if the woodman had stripped them for the tanner. But, as a rule, hares and rabbits do not bark the elder; and as for the leaves, the smell is quite sufficient to warn either cattle or coney from laying a tooth upon them.

This style of plant is called by planters a "nurse," and they put in such by millions to shelter better trees.

Since the system of bedding out greenhouse plants for the flower garden in summer became a common practice, everybody has become aware that such plants as the geranium and verberna are increased by cuttings of the green wood, with more or less of the leaves attached. Now, although the elder is to be increased by cuttings, it being a deciduous tree, it is not to be treated in this manner, and it is not to be propagated in summer, or when growing, as is the case with geraniums, &c. The elder, the willow, the gooseberry, and the vine are mostly propagated by truncheons of the stem of the wood of the current year, taken off the parent plant when the sap is down, or when the leaves have fallen, and the plant is in a dormant state. The truncheons of the elder may be one or two feet long, and ought to have one joint in the earth when planted, and one or more out; the truncheons should be cut below a joint with a clean cross cut, not slanting; the truncheons to be planted at once where they are to remain, and should be not less than four and a half inches deep in the ground, firmly planted in finely pulverized soil. It may not be desirable for many reasons to purchase costly trees, and plant them at one's own expense upon other people's land, and yet the use and shelter of trees must be had; for stone walls, even if these could be had, are not to compare with trees in breaking the force of the wind, for the walls produce eddies and often whirl the wind with great violence against particular points, but trees sift the wind and never gather it. A farm standing unsheltered by trees ought to be a terror to an incoming tenant, as it ever will be to those who have to do battle with the storm in such a place thus miserably left to its mercy. When our ports and harbours were swept by wind and tide, the breakers seriously interfered with our shipping interests, and we had to erect costly breakwaters, behind which the stately craft could ride at anchor unmolested by the storm. This was sterling wisdom and forethought, well founded upon dearly bought experience; therefore, let no one think lightly of masses of cheaply got trees to adorn the landscape and shelter man and beast. But I have another object in view with branches of trees on the farm; for faggot wood is calculated to do a species of work that no other material can do so well. In the kindling of fires, the heating of bread ovens, and in various other ways, the faggot stack is essential to the work; but on a clay farm the faggot wood, in immense bulk, is particularly wanted to huru the clay with; for there is no other process at all to compare with burning to bring the clay into good working order, for it is chemically changed as well as mechanically when it has passed through the fire; and for want of fuel of the right kind it never could be done. It is only such materials as Pharaoh used in his brick croft that the farmer can use in burning clay—such as stubble and straw of all kinds, and particularly bean straw and wood faggots; for coal, however cheap, is no fuel for farmers to burn ridges of wet clay with. There are only two ways in which elder trees appear to me to be in character, and these are circles and lines. No figure equals the circle, for it has the same front on all sides, and the general appearance is that of one vast bush. It is no waste of land to sacrifice so much for the sake of shelter. Planted in lines as hedgerows, the elder will be quite established in two years, and form a fence; planted against a low stone wall, hurdles, pales, &c., it forms an excellent fence by adding one story to make up for the deficiency of the wall; and, as it never grows large, it does not rob the land like timber trees. I remember a hedge made of elder shoots to screen a garden; it was about 100 feet long, and one man cut the shoots from the bushes, carried them on his back half a mile, cut them into lengths, and planted them, without any further cost than his own labour, and that was for half a day! Cottagers and tenants-at-will should take a lesson from this experiment; for it was a tall strong hedge in two years, and such a wind-guard would be no small benefit to those who rear calves and poultry, and, if they made no use of the elder berries, the fowls would eat them greedily.—ALEX. FORSYTH, in "Mark Lane Express."

BEDDING GERANIUMS.—No. XLIV.

I intended to reserve for No. L., as a sort of "golden number," and in imitation of the German custom of celebrating a "golden wedding," the bright story it is now my hap to tell. I am on the top of a mountain in one of the extremest corners of Britain, where geraniums are *non est*, and heather in bloom makes a very bearable substitute. In such a case, I cannot well discuss the merits of varieties, for I have not got them all so completely in my head as to be sure I should make no mistake in comparisons and values. Moreover, as I look around the landscape, and feel convinced that I am but an atom of insignificant dust in the midst of the vast hills that roll around me, and that tower up higher and higher towards the horizon in misty indigo outlines, I could more reasonably speak of the splendour of a wild poppy that has made itself a home in this wild place, than attempt the characterization of things that, from my present point of view, appear so trifling that I almost wonder I ever gave them an hour's thought at all. For the atom of dust sitting here upon the top of the world, where the clouds come down and kiss the ground, it is enough to know that heaven and earth are not parted far asunder, and the beginnings of things are not wholly hidden. Here I see the birth of many a sparkling burn that leaps innocently from rock to rock, gaining strength as it begins to swell to a river, to expand into a sea, to bathe and bless the world with the great watery girdle, wherein are sown the seeds "of continents to be." From this spot, where I am more deeply impressed with the majesty and oneness of nature than with any of her minor beauties, I can speculate on the beginnings and ends of things; and I ask, what would be the result in ten years of turning loose in the land they came from all our thousands of named varieties? The result would be, no doubt, that a few of the most robust varieties, and those especially that are powerful in pollen, would overcome and extinguish all the rest; and if the mixed race did not actually revert to the wild type out of which it sprang, it is pretty certain that the nice shades and distinctions that occasion us so much discussion would be quickly extirpated, and that a few amongst thousands of characters would take the lead. It is the question of questions for large and small, and in respect of large and small; the mammoth had a beginning *and* an end! The bright runnels that tumble down the chasms from this top of the world begin in the cloud-mist that settles on the mountain broom and ling, and they end in the "great immensity" of the billowy sea. This atom, certainly its most dusty, had a beginning, and will have an end. The universe is like a clock, with every beat of which a new world is born as another dies. The study of races, and the arts that spring out of that study, or derive light from it, must be earnestly pursued by any who are truly curious about the origins of organic forms; and if we can trace the progress of the metamorphosis by which any one form is transmitted to another, we shall obtain one more clue to the explanation of the mystery of life. I am not ashamed, therefore, of the subject before me in the presence of the brown herbage, and the crimson slopes, and the indigo undulations far away; for every herb that labours to convert a stone into a cushion, and a grim dyke into a rosy dimple on the face of the earth—every such wilding has a history that goes far back into the unrecorded ages; and what we call, perhaps, a *Lychnis* or a *Silene* now were other than *Lychnis* or *Silene* in the birth of time. In the case of pelargoniums, we may reasonably believe that some of the types that have become established by man's interference, would continue if the whole of them were consigned to the wilderness. What we have done nature probably would do, for we must suppose that *all possible* variations will be brought about in time; for nature has choice of all necessary materials, and is in no fever of haste; and all we can hope from experiment is, first, the gratification of curiosity, and, second, the obtaining of a key to the order of procedure that prevails throughout the world.

I happen to find, amongst the few papers that I brought with me to the hills, a careful record of a system of experiments followed out by my excellent friend and neighbour, Dr. Denny, of Stoke Newington. The doctor agreed with me long ago, and we have scarcely altered our opinion to this day, that published pedigrees of geraniums were, as a rule, valueless. In some cases the writers were sincere, but deluded. In other cases the writers had made "shrewd guesses" in the first instance, relying on family likenesses, and the guesses were elaborated into theories, and the theories were pronounced in persuasive language, and the world was thereby taught what no living man actually knew; it was fed with fiction under the name of fact. Having agreed that there were many delusions abroad, and that published pedigrees were, as a rule, valueless, the question arose, how and by whom shall the matter be put to the test of experiment? The doctor resolved to practise cross-breeding in a systematic manner, and to keep a record of everything done, and secure—what perhaps was never done before—the complete history of every individual seed. The experiment has proceeded far enough to render reticence no longer

needed, and I shall now gather together all the points that appear capable of furnishing interest and instruction.

During the summer of 1866 Dr. Denny practised artificial fertilization with a selection of varieties of zonals. A note was made of every flower operated on, and every seed-pod was marked; and from first to last the utmost care was taken to preserve the links of relation between the seeds and the plants resulting from them, with their several parents. The seeds ripened in 1866 were sown on the 28th of April, 1867. They represented all known breeds and strains, and as the most noted typical varieties were chosen to seed from, the growth of the seedlings afforded an entertainment that well repaid the labour involved in their production. All the seedling plants that remain (very many died in the first stage of existence) are in a fair condition for judging them as to the significance in this connexion of the word "blood." We have nothing at present to do with their merits *as varieties*, all that really interests us is their likeness or unlikeness to their parents, their relative degrees of colour, size, form, strength as compared with their progenitors, their degrees of departure from the types to which, by genesis, they are directly related. We want to know what is the power of blood; what is the meaning of "race"; and how to select parents when a special kind of progeny is our desire. Shakspeare would have entered into this question as heartily as any. The question of race and the influence of blood must often have occupied his thoughts, for sentiments on the subject are many times the life of his noblest passages. Ask the Bastard, or call to mind that early song—

"From fairest creatures we desire increase,
That thereby Beauty's rose might never die."

In the list now compiled from Dr. Denny's stud-book, I shall employ such terms as are required by the classification proposed in No. XL. In this classification "gold zonal" is the equivalent of "golden tricolor," and "silver zonal" is the equivalent of "silver tricolor," &c., &c., &c., &c., &c. In case the reader is not now familiar with the scheme, it would be well to read No. XL before proceeding any further with this.

1.—*Seed parent*, Mrs. Pollock; *Pollen parent*, United Italy. A few only of the seeds germinated, the cotyledons were quite white, and they all quickly perished.

2.—*S.*, Madame Vaucher; *P.*, United Italy. Four plants were raised, all of which are now alive. They comprise, 1 robust zonal with dark zone, now breaking into a variegated form, having one complete and well developed pure white leaf: 1 medium strong zonal with a few white breaks: 1 neat but small zonal: 1 small sickly plant, the leaves quite white, with delicate pink zones.

3.—*S.*, Stella; *P.*, United Italy. One plant was raised, which is now alive; it is a very neat compact zonal.

4.—*S.*, Monsieur Barré; *P.*, United Italy. Four plants were raised, all are now alive; they are all neat zonals, and there is not on any one of their leaves a single break visible.

5.—*S.*, Wonderful; *P.*, United Italy. Seventeen plants were raised, sixteen of which are now alive; they comprise 12 zonals, all neat, and varying in depth of zone and size of leaf: 2 silver zonals, diminutive and sickly: 1 deeply zoned, and freely breaking into white variegation: 1 intermediate between a zonal and a bronze zonal, and promising to become soon fixed in the bronze class.

6.—*S.*, United Italy; *P.*, Mrs. Pollock. The seed saved appeared to be good, and several plants were raised. They all came up with white cotyledons, and all quickly perished.

7.—*S.*, Cloth-of-Gold; *P.*, Mrs. Pollock. Out of many seeds only one germinated, and that is a zonal, with leaves zoned in precisely the same degree as Reidii.

8.—*S.*, Stella; *P.*, Mrs. Pollock. Six plants, comprising 2 neat and complete zonals: 2 zonals, breaking and promising well; one of these shows a pink zone on a white ground, in another there is a pure white leaf, the other leaves being in the style of Commander: 2 diminutive and decidedly variegated.

9.—*S.*, Burning Bush; *P.*, Mrs. Pollock. Several plants were got up, but all had white cotyledons, and all died early.

10.—*S.*, Countess of Warwick; *P.*, Mrs. Pollock. All came up white, and all died.

11.—*S.*, Beaton's Lady Callum (nosegay); *P.*, Mrs. Pollock. Out of several seeds only one germinated. The plant is a mite, with leaves mixed yellow and green.

12.—*S.*, Madame Vaucher; *P.*, Mrs. Pollock. Thirteen plants in all, one of which died; a very interesting lot. 4 neat zonals, one of them breaking into deep red zone and a few radial bars of cream colour: 3 finely broken into gold zonals, the margins canary-yellow, the zones bright red: 1 breaking into a pale gold zonal: 3 breaking variously and diminutive in size: 1 pretty bronze zonal.

13.—*S.*, Wonderful; *P.*, Mrs. Pollock. A large amount of seed of this cross was obtained. There are forty-six plants alive, three have died, many of the seeds refused to germinate. 18 neat zonals: 5 decided gold zonals, one of which is very promising: 8 breaking into gold zonals: 7 breaking into silver zonals: 8 so undecided that they may be said to show traces of the characters of all the classes.

14.—*S.*, Rose Rendater; *P.*, Mrs. Pollock. Fifteen plants in all; 7 decided and beautiful zonals: 2 curiously marbled, and showing radial bars of white, yellow, and red: 2 robust zonals breaking into gold zonals: 2 weak zonals breaking into gold zonals: 2 fine plants in the first stage of breaking, showing a few patches and bars of yellow.

15.—*S.*, Mrs. Pollock; *P.*, Burning Bush. A dozen plants were obtained, some with white, others with cream-coloured cotyledons; all died.

16.—*S.*, Stella; *P.*, Burning Bush. Only one plant was obtained; this is small but healthy, the leaves about half dark zoned and half silver zonal.

17.—S., Beaton's Lady Cullum (nosegay); P., Burning Bush. Two plants obtained; 1 a nice zonal: 1 very small, freely breaking into a silver zonal.

18.—S., Madame Vaucher; P., Burning Bush. Four plants; 3 robust zonals: 1 with leaves wholly white, leaves half zoned and half white, and white with pink zones.

19.—S., Countess of Warwick; P., Burning Bush. Two plants; 1 a neat strong plant, the leaves exactly divided by the line of the mid-rib into one half zonal, the other half white with carmine zone: 1 diminutive and slightly breaking into silver zonal.

20.—S., Monsieur Barré; P., Burning Bush. Seven plants; 4 strong zonals: 1 small zonal: 1 small half break silver zonal: 1 mite almost wholly white.

21.—S., Monsieur Barré; P., Mrs. Pollock. Twenty-one plants; 9 neat and healthy zonals: 3 diminutive zonals: 1 fine break into gold zonal: 1 with one fine leaf of gold zonal, the rest zonal; 5 with traces of yellow breaks.

22.—S., Beaton's Lady Cullum; P., Countess of Warwick. Only one plant raised, and that a neat dark zonal.

23.—S., Madame Vaucher; P., Countess of Warwick. Three plants; 1 a very strong and handsome zonal: 1 a small neat half zonal and half gold zonal: 1 variegated and very pretty.

24.—S., Monsieur Barré; P., Countess of Warwick. Four plants; 1 zonal, and the best of the whole batch, the leaf flat and round, zone broad: this had variegated cotyledons: 3 neat healthy zonals.

25.—S., Wonderful; P., Countess of Warwick. Nine plants, six of which are living; 3 made leaves wholly white, and died: 3 are neat healthy zonals: 3 diminutive silver zonals.

26.—S., Wonderful; P., Burning Bush. Only one plant, and that a mean little zonal with dark zone, showing a slight silvery break.

27.—S., Countess of Warwick; P., Stella. One coarse zonal.

28.—S., Mrs. Pollock; P., Wonderful. The plants produced yellow cotyledons, and all died.

29.—S., Countess of Warwick; P., Cloth-of-Gold. Several came up, but only one lived, and that is a good bronze zonal; the disk and margin combined orange and sulphur, with trace of green, zone obscure cinnamon. A fine seedling.

30.—S., Mrs. Pollock; P., Monsieur Barré. Seed did not germinate.

31.—S., United Italy; P., Wonderful. Two seeds germinated; the plants grew till they had six leaves each, wholly white with pink zone; at that stage they perished.

32.—S., Monsieur Barré; P., Alma. Seed did not germinate.

33.—S., Madame Vaucher; P., Alma. Two plants; both commonplace zonals, of no interest at present.

34.—S., Mrs. Pollock; P., Rose Rendatler. Six plants; 4 pretty zonals: 2 breaking finely into gold zonals, the colours brilliant, plants healthy and vigorous. The result of this cross nearly the same as No. 14, in which the parents are the same, but the sexes are reversed.

35.—S., Monsieur Barré; P., Mrs. Pollock or United Italy. Twelve plants; 8 pretty zonals: 1 a remarkable plant with some leaves healthy dark green zonal, others wholly white with no trace of a zone: 1 breaking into a gold zonal: 1 a diminutive gold zonal: 1 a silver zonal. The doubt about the male parent in this cross is a matter of regret, seeing how various in character are the progeny.

36.—S., Wonderful; P., Mrs. Pollock. Four plants; 2 common zonal: 2 breaking finely into gold zonals and showing much rich orange colour in the margins.

37.—S., Madame Vaucher; P., Mrs. Pollock. A few seeds germinated, producing white cotyledons, and quickly perished.

38.—S., Madame Vaucher; P., Mrs. Pollock. Fourteen plants; 8 good zonals: 3 pretty breaks into gold zonals: 1 bright and good silver zonal: 2 extremely poor silver zonals.

It will be observed that the results, so far, are of a definite kind. We shall have to watch the plants through further phases of their growth, and especially to take note of the colours of their flowers. But for the present we see that the characters of the parents are in a great part immediately transmitted, but not wholly or invariably so, for in many instances there is a tendency to revert back to the common zonal form. Another evident result is that it is of little use to breed from two highly variegated kinds; one of the parents should be a zonal of good constitution. In the case before us Monsieur Parré, Rose Rendatler, and Madame Vaucher, all of them zonals of vigorous habit, prove to be good parents, and the pollen of variegated kinds communicates to the progeny more or less of colour. On the other hand, Wonderful, which is a zonal in the way of Commander-in-chief and Beaton's Lady Cullum, gave poor results under several crossings with the pollen of variegated kinds. It will be observed too, as in Nos. 1, 6, 7, 9, 10, 15, 19, 31, 37, that breeding from two variegated kinds affords a very poor prospect of obtaining plants, yet would appear to afford the hope that if well selected a valuable seedling may be occasionally produced, as in this particular cross the resultant plant is beautiful, and possesses apparently a good constitution. Another lesson to be learnt from this experiment is that it is of no consequence whether the male or the female be zonal or variegated. A comparison of 13, 14, and 34 will show that it is not essential the zoned parent should be either the male or the female; that if the parents be well selected, and one of them is a vigorous-habited zonal, they may be crossed both ways, that is to say, both may be made to supply pollen and both to supply seeds. In a paltry, stupid, little book by one Thomas Dixon, gardener to W. Blinkhorn, Esq., of St. Helen's, which any of our readers who like to waste their money can obtain from Mr. Lees, stationer, of St. Helen's, the law is laid down that "the zonal variety must be used for the male parent, and will in most cases make the best male parent. As regards the female parent, it may be a variegated sport, or selected from the Tricolor hybrids already in existence, according to the object in view." If there is anything at all in Dr. Denny's

work to make us incline one way or the other, we should be compelled to favour the selection of the zonal for the female, and the tricolor for the male, and this would be in exact accordance with the long-established and founded-on-experience rule of the florists, to select for the mother a plant characterized by *good form*, and for the father one characterized chiefly by *good colour*. You will find this in the books, and so far the books are right. This Thomas Dixon has probably never raised a tricolor in his life, but if he had possessed enough sagacity to frame an imaginary scheme of breeding worth a moment's attention, he would have gone to the books and have obtained at least *this* hint towards his project. If this book had not been recommended in one of the horticultural journals lately, I should let it pass unnoticed; but there are so many amateurs engaged in breeding tricolors, that it becomes a duty to sweep from their path all obstacles, and chimeras, and ignorant guides. Let Thomas Dixon learn what is meant by the term "hybrid" ere he again ventures to play at philosopher in respect of them. It is a point of some interest in the case before us that none of the thirty-eight crosses, yielding a progeny two hundred-and-four in number, have produced a single example of plain green leaves, such as would be classed with Tom Thumb in the first section of my system. *Pelargonium inquinans* and *Pelargonium zonale* will breed together, but they are not commutable forms, and neither will of itself produce the other.

More deaths occurred than are recorded in the foregoing report, but Dr. Denny took note of the deaths as to their manner, though rather careless as to their number. When the cotyledons were quite white, death occurred invariably. When the cotyledons were partially variegated, there was a better prospect; and though some deaths occurred amongst these, a large proportion became ultimately vigorous plants. In nearly every case where one of the parents was a plant with variegated leaves, whether white, creamy, or golden, the cotyledons were more or less coloured. But a large proportion of these became definite zonals; some made a few yellowish or whitish leaves, and then started away and became definite zonals; and some were variegated in every stage of their growth from the cotyledons forward. In several instances Dr. Denny compelled the plant to a green growth when the leaves were wholly white, by carefully cutting away one side of it—a delicate operation with a plant less than an inch high, and with leaves the size of a threepenny-piece. Those operated on in this way put out shoots from the side left, and amongst these there usually occurred one with some amount of green, which took the lead and made a plant. Of course it is expected that all the zonals that had variegated cotyledons, and especially those that presented a few variegated leaves in their first stage, will ultimately break, for this is the common experience of the breeders of tricolors. Let us hope that Dr. Denny may be rewarded for his labour by finding amongst his plants some worth a name and a place in history. But whether this occur or not, he will assuredly find some reward in the conviction that he has been enabled to throw much light upon an obscure problem in vegetable physiology, and it is for other practitioners in plant-breeding to take advantage of the facts now communicated.

S. H.

PROFESSOR BALFOUR ON WINDOW FLOWER EXHIBITIONS.

The third annual exhibition of flowers and plants grown by the working-classes of Edinburgh, in windows, back-greens, areas, and city garden plots, was held in the Grassmarket Corn Exchange, Edinburgh, on Saturday, the 3rd inst., when the products sent in for competition presented such a marked improvement and increase in numbers over those of the two preceding years as should induce not only the promoters of this philanthropic movement to go on perseveringly in extending a taste for flowers and flower culture among the artisans of the Scottish capital and their children, but to show an example well worthy of imitation in other towns by those who have the means of fostering a love for the instructive, humanizing, and elevating pastime of flower-growing among their less opulent neighbours.

Before distributing the numerous awards, the chairman, Dr. Balfour, professor of botany, said he had to congratulate the meeting on this most successful show. The committee had examined the articles sent in for competition, and they had unanimously declared it to be one of the best shows they had seen. This year they had about 100 more competitors than last. The improvement in the keeping of window gardens and areas was quite remarkable. He was delighted to see the working-classes taking so much interest in plants. It was natural to man to do so. His existence as a worker began in the garden; whether in health or sickness, flowers and plants afforded him a solace and delight. He believed the culture of flowers had a most humanizing influence, and even in the most crowded parts of the city they would spring up; and where they were carefully tended they could not fail to have an excellent effect on the temper, conduct, and life of those who bestowed on them their care. He hailed this as a most auspicious occasion, and he was delighted to see that the whole collection was remarkably good. Some of the plants here, even those cultivated by juveniles, were equal to what they would find in the Botanic Garden. The collection of John Hestline, embracing 200 plants, well grown, delicate in form, and rich in colour, was really wonderful. The window frames were admirable, great taste being shown in the contrast of colour and in the training of the plants. The committee appointed to visit the areas reported that they were this year greatly improved all owing to this movement.

JONES'S TERMINAL BOILER.

In consequence of a remark on the peculiarities and advantages of this boiler in one of Mr. Prosper's papers, inquiries have come to hand for further information. It has several peculiarities. In general plan it is a saddle; but, instead of the fire passing through the furnace at the end opposite the furnace door, and thence direct into the flue, that end is blocked up, and the products of combustion are turned aside right and left under the two wings of the boiler, which, when the boiler is properly set, form the tops of the side-flues. They next pass over the front part of the boiler to the top, where they escape into an upright shaft. The boiler in its most simple form is represented in fig. 1, where it will be observed that the wings form an integral part of it, and that the furnace

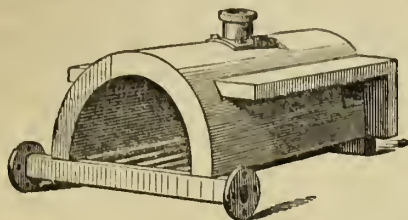


Fig. 1.

bars, which are hollow, are connected with the return of the water to the boiler. The object of these peculiar arrangements is to economise to the utmost possible the heat arising from the combustion of the fuel. As much heat must escape to the flue as suffices to cause a proper draught in every kind of furnace, or there can be no combustion; but whatever heat in excess of that requirement goes away to the flue is the product of wasted fuel. In the majority of furnaces, of every description and for every purpose, there is immense waste of this kind. In the case before us, one of the most decisive improvements for the saving of fuel is the closing of the arch. Instead of the flame rushing out and wasting its heat upon the brickwork, as in the common form of arch-boiler, it first beats upon the terminal plate which closes the arch at the end, and which

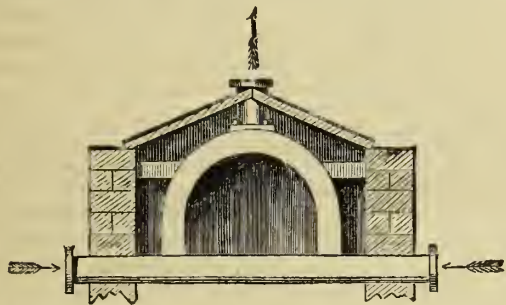


Fig. 2.

forms the end of the boiler, and its energies are therefore expended on the circulating water, to the immediate advantage of the person who has to pay for the fuel. Another advantage is gained by the play of the flame on the wings; and, after this twofold service in excess of what is derived from the fuel in ordinary furnaces, the flame and smoke are allowed to escape. The fire-bars are hollow, and form part of the return system, which may be some advantage. We confess, however, that we do not attach much importance to hollow bars, and would almost as soon be without them as with them, as ordinarily constructed. But the terminal arch and the side-wings are valuable extensions of the heating surface, and give this boiler a pre-eminence for economy and power, which fully entitles it to the distinctions it has obtained of late amongst jurors at exhibitions, and practical plant cultivators everywhere.

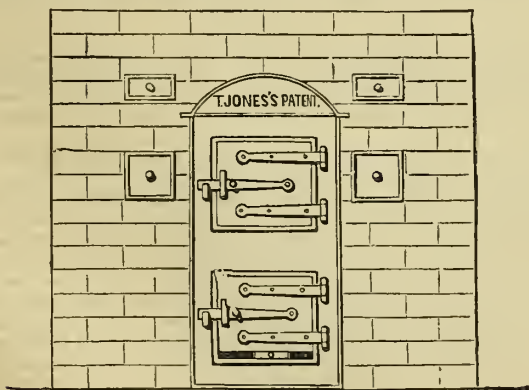


Fig. 3.

At Mr. B. S. Williams's new nursery, at Holloway, there are several of these boilers at work. One of them heats the great conservatory, the palm-stove, and the intermediate house that connects these two, in the most satisfactory manner. This is a three-feet boiler, and the extent of pipes it serves amounts to near upon a thousand feet in all. The mode of setting is shown in figs. 2 and 3. Cleaning can be accomplished by means of the soot-doors with great facility, and the fire can be checked if needful by an ingenious but simple arrangement, by which the draught is regulated. The course of the circulation is shown by arrows in fig. 2.

THE EXTENSION SYSTEM OF CULTIVATING THE VINE.

In an article published in this work on the 22nd of December, 1866, we broached the subject, which has been so warmly discussed, of the respective merits of the restrictive and extension systems of Grape-vine cultivation. In the fifth edition of Mr. William Thomson's admirable treatise "On the Cultivation of the Grape-Vine," just published, he thus expresses himself on the subject:—

While I am preparing the fifth edition of this work for the press, a keen controversy is being carried on in the horticultural journals as to the merits of what is designated the "extension system" of vine-culture, as compared with the "restrictive system," one section of writers maintaining that the proper mode of cultivation, where long-continued vigour and fruitfulness are desired, is to allow one vine to develop and extend till it has filled the house with bearing-wood. Another section as confidently maintain that vines can be kept in perfect health and vigour sufficiently long for all practical purposes on the "restrictive system" of culture—meaning by that a system which only supposes one or two bearing-ropes to be trained from each vine, and where the method of pruning is what is called the close-cutting system, where the new wood is all cut back to one eye at the base of each lateral. Thus a question of such importance is raised that I do not feel justified in passing it by, apart from which I have been asked my opinion of the merits of the two systems by numerous correspondents. These circumstances combined have determined me to devote a chapter to discussing the subject, believing, as I do, that there is much truth in what is said by the advocates of both sides of the question, as there generally is when sensible men discuss questions of this character. I may here remark that the question is by no means a new one to me; more than twenty years ago I frequently discussed it with the late Mr. Peter Kay, of Finchley. Theoretically, it must at once be admitted that the one-vine or "extension" system stands on vantage-ground. No one can deny that a tree which is largely developed, with its roots ranging over what I may term an extensive pasture field, is likely to maintain its health and vigour for a much greater length of time than one that is by the force of circumstances restricted in its growth. But there are practical difficulties in the way of the general adoption of the former mode of culture. In the first place, all experience goes to prove that the vine is what may be termed a rambling roofer. If the border is not carefully made, and of such materials as to induce the formation of a numerous progeny of fine branching fibry roots, the width of any ordinary vine-border will soon be traversed by them. This takes place even when the "restrictive system" is adopted, and it will take place with infinitely greater rapidity under the other. To meet this difficulty the roots have been walled in; but this only aggravates the evil, for the moment the roots touch the wall, they descend to the bottom of the border, where they are far from the genial influences of heat and air.

Another objection brought against this system is, that one vine takes much longer to furnish a house with fruit than a number do; but this can be met by planting supernumeraries, to be removed as the permanent one advances.

A third objection is, that variety of grapes is desirable in a vinery, and that this cannot be had where only one vine is grown. Grafting or inarching will meet this objection; and it is well known that many delicate sorts of vines grow better on other than their own roots.

Thus it appears that the only serious objection to the one-vine system is the difficulty of getting a border of sufficient scope for the roots of a vine of such proportions as will fill a good-sized vinery with fruit-bearing wood; but where such can be had, I fully approve of the "extension system," and will now proceed to give a detailed account of one of the best and most successful examples of it known to me, and with the origin of which I had some connexion.

In the year 1838 I became acquainted with the late Mr. Peter Kay, of Finchley, near London, and up to the date of his melancholy death I continued to discuss with him, verbally and by letter, every question that bore on the culture of the vine. He always maintained the great importance of what he called "carrying a large amount of foliage in the vine" as the only sure way of keeping up its stamina, and acted on this himself. I used to reply, that practically it was not expedient to allow more than two leaves to grow beyond the bunch. This, with the sub-laterals stopped at one leaf, I considered sufficient, and pointed to the example of the houses at Oakhill, near Barnet, then and for twenty years so ably managed by Mr. Davis, who produced splendid crops of grapes, ripe in March and April, for many years in succession from the same vines, and which he pruned to one eye, and left only one leaf beyond the bunch. I thought the system I adopted, of leaving two leaves, sufficient; Mr. Kay thought otherwise, and left from four to five. Carrying his ideas still farther, he said he believed that better still would be the plan of planting only one vine in a large house. This I urged him to do, and in 1855 he built a span-roofed house 89 feet long, 16 feet wide, and 9 feet 6 inches in height to the apex. In this house he planted a single Black Hamburg Vine in March 1856, the roots all outside, and the border prepared 89 feet in length by 15 broad. Beyond this border are the borders of other houses, giving it scope for its roots little if at all under a quarter of an acre. The vine is trained with a leading stem from the centre of the north side wall up to the apex, and down to the south wall, for the house runs east and west. From this main stem five laterals are trained towards each end of the house—one at the apex, the others equidistant between the apex and the walls. The last time I saw it in company with Mr. Kay was in 1862. I saw it again in 1864, when it had a full crop of excellent grapes, weighing, as I have since learned, 476lbs. In 1865 it bore 400lbs. of grapes; in 1866, three hundred bunches, some of them weighing 5 lbs. It took seven years to furnish the house with bearing-wood. The girth of the stem where it enters the house is at this date, May 1867, 14 inches. Mr. Osborne, an old pupil of Mr. Kay's, has ably carried out his preceptor's mode of managing this noble vine; and I trust it may long remain in robust health, a fitting monument to the memory of one who had few equals as an enthusiastic cultivator of the vine, and one who stands alone as having built a large house and planted it with a single vine to test a theory which some writers of the present day are starting as a new one.

Having thus placed the "extension" or one-vine system before my readers in the light in which I have long viewed it, I will, as briefly as the subject will admit of, take a review of what is said against the "restrictive" or many-vine system. The opponents of this latter system of vine culture take their key-note from Mr. Cannell, nurseryman, Woolwich, who when gardener at Portnall Park was so unsuccessful as a vine cultivator that he has chronicled the death of all the vines he then had charge of, after passing through nine stages of decadence, which Mr. Tillery, of Welbeck, has com-

pared to Shakespeare's seven ages of man, and described in very good verse in the *Nottingham Guardian* of March 15th, 1867. Mr Cannell's vines, we are bound to believe, did; but I am quite certain he is in error when he attributes their death to the "restrictive" or one-rod system. I know many very old vines that have been cultivated on the "restrictive system," and that have continued in perfect health for many years. At Oakhill, near London, Mr. Dowding planted a number of vineries forty years ago; I became acquainted with them in 1837, and for twenty subsequent years Mr. Davis, who succeeded Mr. Dowding, produced the most regular and finest crops of grapes in the kingdom from these same vines; yet they maintained their health, vigour, and fruitfulness. They were planted one vine to each rafter, and the system of pruning was the "close-cutting" one, by which only one eye was left at the base of each lateral.

There is an old vine referred to in this work, at Wrotham Park, which is eighty years old, and has all along been cultivated on the "restrictive system," for it only clothes two rafters; yet I learn from Mr. Edlington, who now has charge of it, that it is in as full health and vigour as any of the younger vines, and bears equally fine fruit, and has a stem 1 foot 7 inches in girth. True, the border it grows in has been once renewed in the time. In regard to this old vine, I make the following extract from a letter from Mr. Edlington, just to hand. He writes, "The old Hamburg produce fruit equal to the other and younger vines in the same house. Last year they were truly magnificent, surpassing all other grapes on the place."

I might go on multiplying instances to prove that vines neither become unfruitful nor die off in nine years, as Mr. Cannell's did, because they are not allowed to extend the area of their foliage annually, but I think such unnecessary. The fact is, that the vine is a very docile plant; and if its foliage is kept free from the attacks of insects, if over-cropping is avoided, and the wood well ripened—if the border is made of moderately good materials, and the drainage sufficient, the vine will continue in health and vigour for fifty years under any of those systems of pruning and training that are practised by gardeners of intelligence, whether that be the "restrictive" and close-pruning system, or the "extension" and long-spur system.

I therefore close this chapter as I began it, by saying, that there is much truth on both sides of this question.

Where it is necessary to have circumscribed borders, as is generally the case, I would plant a vine to every 6 feet run of a vinery, and grow two rods from each plant. This would give such vigour to the root as would rest on the branches in such a way as to yield both good bunches and berries, while, at the same time, a border 20 or 30 feet wide would afford them sustenance for many years.

Where there is ample scope for the roots to run unchecked and uninjured for 150 or 200 feet, then by all means adopt the one-vine or "extension" system, inarching or grafting on to this patriarch all the varieties required.

Calendar.

WORK FOR WEEK COMMENCING AUGUST 24.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—The winter stock sown last month will now be coming forward for planting out. Where onions have been cleared off is generally the best place for cabbages for spring use, because the ground, having been well manured for the onions, is in good heart, and yet so far relieved of manure by the onions, there will be no fear of a rank growth, such as will cause the plants to suffer from frost. Plant out as spaces become vacant, first digging deep, and leaving the surface rough. The planting, however, must be firm, and damp weather should be chosen for it. It is too late now to sow any more winter greens or onions; and if the stock is short, it will be better to get a supply of plants than waste time and patience in sowing. Thin winter spinach to six inches from plant to plant; thin the rows of lettuce that are to stand the winter, but not severely, because in the event of severe frosts the plants protect each other if somewhat close together. On the same principle, broccoli and cauliflowers left to risk it in the open ground should be not more than fifteen inches apart each, and the ground for them should not at this season be very rich, or they may suffer in severe weather. Earth-up celery in dry weather, but if not well grown give plenty of liquid manure, and postpone the earthing-up till the plants have made good substance. This is the best time to form new beds of horseradish, the crowns to be planted fifteen inches deep and six inches apart, in very rich and well-trenched soil. Continue to sow saladings, and gather seeds as fast as they ripen. Potatoes to be taken up as the tops wither; carrots and beetroot may remain till the frost cuts off the foliage, and no longer, but parsnips may be left in the ground, trenched out as wanted for use, unless the ground is required, in which case store them in sand.

CELERY to be earthed-up only when it has grown to its full size. It requires five weeks to blanch it, and it grows but little after the earthing.

CUCUMBERS are mostly beginning to fail now, or will shortly, so those who want a succession of fruit must be on the alert. Sow or strike cuttings, the latter to be preferred, and get ready to make up new beds. Old plants still in vigour must have the help of linings, and be covered with mats at night. Beware of mildew; if it once appears remove the affected leaves, and give the plants a sprinkling of sulphur.

TOMATOES will ripen well while this weather lasts, but in case of a change to chilly weather, it should be borne in mind that when the fruit is fully grown it may be ripened on a shelf in the greenhouse, if out with some portion of stem attached.

Flower Garden

FLOWER GARDEN.—Remove decayed flower-stems, and keep the borders clear of weeds, so as to prolong the season as much as possible. Plant out pinks and carnations, and rooted cuttings of herbaceous plants. The beds of seedlings must be looked over and thinned, and the thinnings planted in fresh pots of newly-dug and firmly-trodden ground. This month commences the season for planting bulbs. The first lot of hyacinths and tulips should at once be got into pots, and plunged in rotten tan or coarse sand, so as to quite bury them, and keep them only moderately moist, and as much as possible free from the action of the atmosphere, so as to induce a root action before the foliage is produced.

Hyacinths may also be planted in beds and borders, but tulips should not be put into the open ground till next month. A very effective way of using hyacinths is to plant them in patches of seven— one in the middle and six round it—every separate patch to be of a different colour. Cuttings of bedding plants may still be taken freely, but there should be no delay, or they may not be well rooted before cold weather sets in. This and next month are the best times for striking calceolarias. Take off the young shoots from near the bottom of the stool, and put them pretty close together in five-inch pots, well drained, and filed up to near the rim with a mixture of peat, loam, and sand, equal parts, and half an inch of pure sand on the surface. China roses may also be struck now in pots in the greenhouse, and they do best under hand-glasses. A second bloom, to last till Christmas, may be obtained from fuchsias by cutting in the young wood, and giving the plants a little heat to start them afresh. Geraniums struck early in the summer will now be coming into bloom to keep the greenhouse gay all the winter.

ANNUALS, to bloom early next season, should be sown at once on hard ground, in a dry position; if elevated above the general level, all the better. The following are the best leading sorts to sow now, to be transplanted in March, to bloom in clumps or masses, when the bloom will be much finer as well as earlier than from spring-sown seeds: Calliopsis, Clarkia, Collinsia, Convolvulus minor, Godetia, Escobolzia, Hibiaca, Iberis Kermesina, Jacobea, Larkspur, Lupinus, Nemophila, Nolana, Poppy (dwarf French), Schizanthus (dwarf), Silene rubella and armeria, Viscaria oculata, Venus's Looking-glass.

BULBS to be procured at once, and potted or planted as required. Bulbs to be planted in borders now occupied with flowers may be started in reserve beds, on moss or leaf-mould, or in clumps in rich sandy compost. When the borders are cleared they can be transplanted without injury to the roots, and the bloom will be finer than by delaying the planting till the end of October or November. Crocuses that have got mixed may be treated in the same way. Remove them at once to a reserve bed of rich sandy soil; there let them bloom, and then separate them, and plant while in flower in the places they are to occupy permanently.

CHRYSANTHEMUMS.—Cuttings of pompones put in now, and rooted quickly on a gentle dung-heat, will make nice little plants to bloom at Christmas in the house. They must not be stopped at all, and have rich soil to grow in. Short cuttings should be taken, so that there will be no necessity to use sticks to support them. Look over all large specimens, whether in pots or borders, and tie out securely to make them safe against storms.

INTERMEDIATE STOCKS to be potted in thumbs singly, and kept shaded till they make fresh roots. Sow Queens, Intermediates, and Bromptons; the soil to be a sound turfy loam, without dung; manure will make them too sappy to stand the winter well, but a poor soil will be likely to cause a large proportion of single flowers.

PANSIES to be propagated now in quantity for planting out in October, and to pot for early blooming in pits in spring. Those lately struck to be planted out in beds of turfy loam, with a liberal admixture of sand and charred rubbish, but very little animal manure.

ROSES layered now, and left undisturbed till April next, will then be found well rooted, and may be taken up and potted for bloom the following autumn. Roses lately huddled to have the ties loosened. Where buds have failed, others may be inserted either on the stems of young stocks or on suitable shoots lower down than those previously worked. Prune pillar roses, so as to remove a moderate amount of both old and young wood; that left to be its full length, and at such regular distances that there will be good symmetrical heads next season. Short cuttings of Chinas and Perpetuals will root now in the open ground under glasses.

AURICULAS may be increased now from offsets; if rooted, all the better; if not rooted, put them round the sides of pots, and they will soon strike. Auriculas not yet repotted must be attended to without delay, to ensure new roots before the temperature declines.

BORDER PLANTS of questionable hardiness to be taken up at the end of the month and potted, or at least one or two of a kind to propagate from, and prevent entire loss. Choice Pentstemons, Rudbeckias, &c., are sometimes cleared off during winter. The potting of one of each will at least ensure the saving of the variety.

CARNATIONS AND PICOTEES, from layers, to be potted off as soon as well rooted, and cuttings taken at once of all good seedling Dianthus in the borders. Where the propagation of carnations has been delayed, they may be increased by cuttings under bell-glasses, but when raised so late they must not be expected to bloom next season.

HOLLYHOCKS to be propagated at once. The shoots that rise at the base of the flower-stem are to be put in as cuttings round the sides of pots.

VIOLETS may be taken up from the borders, and potted in a mixture of rotten turf, rotten dung, charred rubbish, and road-sand, equal parts, for early bloom. In taking them up, do not break the root more than can be helped, and have good balls to each patch. Shallow pans of seven inches wide suit them better than pots. Put them in a frame, sprinkle and shade, and give very little air for a fortnight; then let them be exposed to all weathers till the end of October; after which give them frame culture.

IMPROVEMENTS AND SEASONAL WORK.—Now that the season is nearly over, it is well to make a review of plans, stock, and appliances, with a view to improvements and economy. While the foliage remains on the trees, errors in planting may be noted down for remedy, and the best places chosen for all shrubs and trees it is intended to plant this fall or next spring. The autumn hues, which increase and deepen as the flowers depart, give quite a peculiar interest and beauty to plantations and shrubberies; and in all arrangements in regard to planting the autumnal effects of contrasted tints of foliage should be considered, and for the next two months we have every opportunity of observing how much variety and how many charming effects may be obtained by a judicious assortment and grouping of trees and shrubs. In regard to bedding plants, the most accurate estimates may be formed as to the suitability of the kinds which have been used this season for soil and climate and local circumstances, as well also as to blendings and contrastings of colour, and the methods adopted in planting the beds. Where stock is wholly or partially raised at home, the gardener should now have a tolerably accurate idea of the varieties and quantities required for next season, that sufficient of each may be secured, and no more; for to be burdened with twice or thrice as many geraniums, verbenas, &c., as are likely to be wanted is as bad, or perhaps worse, than having too few. Whatever alterations are to be made in garden plans, too, should be definitely determined at once, so that the ground may be trenched up, and deciduous trees got into their quarters before the earth begins to cool, and walks, excavations, &c., made before

unfavourable weather begins to interfere with such operations. Delay is a more frequent cause of failure in every department of gardening than all others put together. Trees planted in spring never do so well the next season as those got in in autumn; rotation crops of all kinds do better on ground that has been ridged up betimes, and exposed to the autumn rains and winter frosts; for the deluging rains with which our winter usually commences are as fertilizing as manure, and no time should be lost in trenching over all unoccupied plots, and getting the ground everywhere into order.

Fruit Garden and Orchard House.

STRAWBERRIES to be forced should now be strong in pots; shift them to pots two sizes larger, using a rich firm soil well rammed in, and after potting keep them close in frames for a week; then set them out on coal-ashes, and keep well watered.

Greenhouse and Conservatory.

GREENHOUSE.—It is most important to have the growth of all hard-wooded plants well ripened while there is plenty of sun-heat. If any subjects requiring to be repotted have been neglected, there must be no time lost to give them a shift to enable them to make new roots before winter sets in. A border under a south wall is a good place for plants that require to be well roasted before being housed. Bedding plants should be got into small pots as fast as they make good roots in the borders, or can be spared from the decorative grounds, if worth keeping. Petunias, verbenas, and tropeolums come so readily from spring cuttings, and make as good plants as from autumn cuttings, that it is waste of glass to keep any large stock of cuttings through the winter. Keep the houses gay with balsams, cockscombs, fuchsias, lilliums, gladioli, coleus, amarantins bicolor, heliotropes, and plants with fine foliage. Wherever worm-casts are seen in pots, turn out the hells, and the worms can then be picked out with a stick. Sometimes a dose of manure-water will cause the worms to struggle up to the surface. Plants in conservatory borders which are now past their best to be taken up, and if worth keeping pot them, and place on bottom-heat for eight or ten days, as they will winter better if the pots are full of roots. Winter-flowering begonias to have a good shift in a compost of turfy loam and leaf-mould. Pot off a lot of bulbs at once for early bloom, and plunge them in coal-ashes, and give very little water. Keep all houses open as much as will be safe; house tender subjects that are likely to suffer from wind and rain. Pot a few bulbs for early bloom. Ornithogalum, Ixia, and Sparaxis force well, and Narcissus bulbocodium will be useful if kept in ordinary greenhouse temperature for early bloom.

AZALEAS AND CAMELLIAS to be syringed frequently, but not so much watered at the root as during previous months.

CINERARIAS ought now to be strong from rooted offsets, and some will want a shift. Use good compost, moderately sandy, and plenty of drainage.

CALCEOLARIAS should now be propagated in quantities. A bed in a frame is preferable to pans and pots, as they can be lifted out for planting with good balls, and are not so likely to die off as those wintered in pots.

PELARGONIUMS.—If the weather is cold or wet, house the plants a little earlier than usual, but with air left on night and day for the first week.

MILDEW will show itself in all close damp places now, and do incalculable mischief if not checked. Sulphur dustings are the best remedy, but fresh air and cleanliness will do much to prevent it.

Stove and Orchard House.

STOVE.—Plants in free growth must be moderately well ventilated, so as to induce a stocky habit, and prevent the formation of soft sappy wood, which will probably not ripen well. Remove shadings as much as will be safe, and place subjects that are going to rest in the coolest part of the house. See that all the winter-flowering plants are sufficiently potted, and any that are potbound, and must not be checked by a shift, mulch with sheep's dung, or assist by means of liquid manure. Plants with ornamental foliage will be useful now that flowers are scarce. In giving water, take care to avoid a chill, and in every case see that the drainage is perfect, as there is time now to repair any small mischief before winter. As the month advances, let the heat of the house decline, and generally use as little fire-heat as possible, especially where the stock consists chiefly of plants that will be at rest all winter. Great care, however, must be taken that soft-leaved plants do not get affected with mildew. A few tropeolums struck now will be useful in the stove for winter blooms, and many ordinary garden subjects may be turned to account for decoration by getting young plants forward, and giving them a liberal shift before taking them into the house. Amaryllises should be looked over, and a few potted and put into a tan-bed.

Forcing Pit.

MELONS must have aid from bottom heat, or the fruit will drop, and that now ripening will have no flavour. Keep the vines regular and thin, and shut up early. If any difficulty in getting the fruit to ripen, the following plan may be adopted: Cut the fruit with as much stalk attached as possible; place them on shallow cups or any convenient vessels, with about a glass of wine in the vessel, and the stalk of the fruit dipping into it. The hottest part of a lean-to house will be the proper place to ripen them off; the wine will be absorbed, and the flavour of the flesh improved; and a few days' sunshine will ripen them perfectly.

PEACHES to have as much air as possible, therefore remove any subjects that require to be kept closer, in order to admit a thorough draught among the trees, and if the lights can be taken off all the better. If the wood is not well ripened now, it never will be, and advantage must be taken of fine weather to make sure of it.

VINES forced early will now be disposed to break. Let them have a temperature of 55° to 60°, not higher, till the leaves are developed. Shade the fruit that is to hang any length of time, and keep a sharp look-out for vermin.

ABSENCE OF MIND.—A gentleman, after noting the state of the weather previous to going to bed, hung his thermometer, as he supposed, outside of his dormitory window. About four o'clock in the morning he was awakened by a policeman, who informed him that a gold watch was hanging outside of the window, and advising him to take it in. He had placed the thermometer under his pillow, and hung his watch out of doors. It is related of a Scotch Professor that he was one day crossing the road, and accidentally stumbled against a cow. In his confusion he lifted his hat and said, "I beg your pardon, madam. A few days after he unfortunately bounced up against a lady, and remembering his former adventure, said "Is that you again, you brute?"

Literature.

La Canna, son Histoire, sa Culture, par E. CHATE FILS. Paris: 9, Rue Cassette.—This little brochure on the history and cultivation of the Canna will be found interesting and valuable, and in every sense a handy book on the subject. Every branch of cultivation is treated of, and there is a copious list of species and varieties. The historical notes on the introduction of species and the sources of varieties (pp. 32 to 35) during the period 1848 to 1866, are particularly worthy the attention of hybridizers and cultivators generally.

Dicks's Shakspeare. Complete Edition. Dicks, 313, Strand.—This is the "Shilling Shakspeare," a small octavo volume, an inch and a half thick, weighing 2½ oz., and comprising over 1,000 pages of letterpress, of far better quality than we should have supposed possible for the money. It is a curiosity for such as already possess good editions of Shakspeare, but to the poor but ambitious artizan, to the youth hungering and thirsting to make acquaintance with the works of the great poet, this edition is a boon of far greater value than it may at first sight appear, for in truth it has a national value and importance. Nor is it to be despised as a cheap portmanteau edition for folks who cannot comfortably travel without Shakspeare for a companion; and a few shillings might be worse spent than in binding a copy of this edition for rough uses and carrying about. It happened strangely that, on first opening the volume, we lighted purely by accident on the following passage in *Romeo and Juliet* (act ii. sc. 2), which we transcribe, in the hope it may delight many readers as it has delighted us, with a delight mixed with surprise, and confirming the opinion now generally prevailing, that Shakspeare is a perpetual astonishment, for his best-known passages never lose their freshness, and with use and wont augment rather than diminish in beauty and power. For such of our readers who do not enter into this view of the subject, we present the following as a sample of the author's style, and as proving that William Shakspeare was really a clever man:—

Enter Friar Laurence, with a basket.

Fri. The grey-eyed morn smiles on the frowning night,
Checking the eastern clouds with streaks of light;
And flecked darkness, like a drunkard reels
From forth day's pathway, made by Titan's wheels:
Now, ere the sun advance his burning eye,
The day to cheer and night's dank dew to dry,
I must up-fill this osier cage of ours,
With baleful weeds, and precious-juiced flowers,
The earth that nature's mother, is her tomb;
What is her burying grave, that is her womb;
And from her womb children of divers kind
We sucking on her natural bosom find;
Many for many virtues excellent,
None but for some, and yet all different.
O, mickle is the powerful grace that lies
In herbs, plants, stones, and their true qualities:
For nought so vile, that on the earth doth live,
But to the earth some special good doth give;
Nor aught so good but, strained from that fair use,
Revolts from true birth, stumbling on abuse;
Virtue itself turns vice, being misapplied;
And vice sometime's by action dignified.
Within the infant rind of this small flower
Poison hath residence, and medicine power;
For this, being smelt, with that part cheers each part;
Being tasted, slays all senses with the heart.
Two such opposed foes encamp them still
In man as well as herbs, grace, and rude will;
And, where the worse is predominant,
Full soon the canker death-feats up that plant.

UNFERTILE BLOSSOMS ON DWARF PEAR TREES.

By DR. J. S. HOUGHTON.

About one year ago I called attention to the unfertile character of the blossoms on certain pear-trees, which annually exhibit a great profusion of flowers, and yet produce but little, if any, fruit. I inquired what was the cause of the barrenness of the blossoms, and suggested that the botanical structure of the flowers ought to be examined by competent persons, in order to ascertain wherein they are defective. The particular variety of the pear to which attention was called as unfruitful, even after being covered with blossoms, was the Duchesse d'Angoulême on the Quince stock.

I am happy to say that the proposed investigation into the botanical condition of the blossoms was made about the 1st of May last, by several skilful botanists on my grounds, and part of the report will now be presented to the public.

At the time of the examination there were several thousand Duchesse trees, eight, ten, and twelve years old, in full bloom, in close proximity to other varieties which are not so unfertile. The Duchesse trees were what gardeners call "one sheet of bloom." The opinion of all present seemed to be, that so much "bloom" must be very exhaustive.

Mr. Thomas P. James, botanist of the Pennsylvania Horticultural Society, examined the flowers very carefully with strong lenses, and said they were (as compared with flowers of other varieties) very weak in their organization, although apparently perfectly hermaphrodite; that the stigmas were evidently feeble, the pollen limited in quantity, and the entire flowers in a low state of vitality.

The season was very unfavourable—cold and wet—but the flowers examined had not, at that time, been seriously injured.

A large quantity of the Duchesse blossoms were examined very minutely by Professor Horatio C. Wood, Lecturer on Botany in the University of Pennsylvania, under the microscope, and I have much pleasure in appending his very acute observations upon this deeply interesting subject. I trust that pomologists will not let the matter stop here, but that they will discuss the best method of avoiding an excess of weak flowers on fruit-trees—or, rather, the best means of producing a proper quantity of strong, well-organized, and well-developed fruitful blossoms.

PROFESSOR WOOD'S REPORT.

I have examined the blossoms of the Duchesse d'Angoulême pear. They are certainly sexually perfect, with both the male and female organs apparently normal to the naked eye; but with the microscope I find both the gynoecium and androecium (to use a medical phrase) suffering from general debility. Thus, the anther-cells externally appear to be well developed, large, and finely formed, but they contain scarcely one-third as much pollen as similar organs of more fruitful varieties. It seems to me, further, that the pollen grains themselves are not so well developed, nor so crowded

with granules or fovilla. In the same way the female organs are defectively organised. For instance, the stigmas are not so large, and the little papilla, which secrete the so-called stigmatic fluid, are not nearly so numerous nor pronounced as in the flowers of neighbouring trees.

In my own mind there is not much doubt but that these evident marks of the want of vigorous sexual development have a deeper meaning than appears at first glance. What if there are comparatively few pollen grains? Providence has so provided that the great mass of the pollen is superfluous, and ordinarily is wasted. Surely the mere absence of a part of this superfluity would not produce the barrenness you complain of. It seems to me highly probable that the appreciable want of strength is associated with a similar, but less apparent, degradation as regards quality; and there is a consequent want of power in the germinal matter both of the pollen and ovary, which is the real cause of the sterility. If this explanation be not the correct one, I know of no other.

Having thus made a diagnosis in the case, the next step is, if possible, to discover the cause of the condition, so as to remedy it if practicable. Is it not probable that the source of the trouble is to be found in the excessive production of blossoms, which this variety of pear is notoriously addicted to? Of all the various life functions of the plant, the process of seed-producing is, *par excellence*, the exhaustive one. It is well known how it often cripples, or even kills, a previously vigorous tree. Further, the period during the reproductive process, the worst for the plant, in which it eats up its life-capital fastest, is that in which the blossoms are perfected, the pollen shed, and the ovule impregnated.

The reasons for this are obviously twofold. In the first place, the production of very highly-vitalized matter rapidly exhausts both the plant and the animal. Now it is at the period alluded to that we have the greatest elaboration of costly products in the flower. Not only are the ovaries, with their contained ovules, and the anthers with their myriad pollen grains, rapidly developing, but the sepals and petals, with their numerous oil glands, are aiding in the prodigal waste of the strength the plant, mayhap, has been years in obtaining. It is readily seen that after impregnation, during the slow gradual production of the fruit and seed, we have no such sudden burst of life activity.

Again, at this period there is, probably, the greatest loss of nitrogenized principles that occurs during the life of the plant. When the leaves are about to die their nitrogenized contents return to the stem and roots, showing the great value to the plant of these principles. The seeds, to be sure, contain much nitrogenized material; but then there are comparatively few of them perfected. Not so with the pollen. You can often see it almost making little clouds in the air, or dusting thickly the surface of ditches with its countless granules, and each of these is literally gorged with the most highly vitalized nitrogenous material the plant can produce. Surely, then, there is evident cause for the exhaustion of flowering, especially when we take into consideration the rapidity of the process as compared with the length of time through which the seed is perfecting. That the blossoming is very exhaustive, that in it are expended most rapidly the life forces of the plant, we have numerous proofs. Thus the effects of profuse flowering on very young trees is well known.

Further, in the flower we have a rapid oxydization of carbon, or, in other words, a destruction of the bone and sinew of the plant; which is proven not merely by the evolution of carbonic-acid gas, and the taking-in of oxygen by the blossoms, but by the heat given off from the flowers—an indisputable proof that there is a more or less rapid burning up of carbon in the flowers themselves, strengthened as it is by the interesting results of the experiments of Garreau, Vrolik, and De Vriese. Thus, the latter savans found that the increase of temperature was much more marked when the plant-blossom was placed in oxygen than when it was in the air, and that all evolution of heat ceased when it was placed in nitrogen or carbonic acid—or, in other words, when it was deprived of oxygen; while M. Garreau showed that the well-known periodical increase and decrease of temperature in the blossom was accompanied by a similar increase and decrease in the amount of carbonic acid evolved.

The rapid absorption of cold water by the root from the soil, the constant evaporation from the foliage, the facility of radiation and conduction from the wide-spread open blossoms, with various co-acting circumstances, cause so rapid a loss of heat from ordinary flowers that the increase of temperature is only sensible to very delicate instruments, such as the thermo-electric pile; but when there is a mass of flowers on a dense spike or spadix, shut up as it were in a spathe, the heat developed is more marked. Thus in some tropical Arums, a difference of 10° or 12° has been noted between the outer air and the immediate vicinity of the flowers.

To sum up, in conclusion, it seems most probable that weakness of the sexual organs is the cause of the sterility of the Duchesse, and that this weakness is dependent upon excessive blossoming. If this be so, the indication is evidently to check this excessive flowering.—*American Gardener's Monthly*.

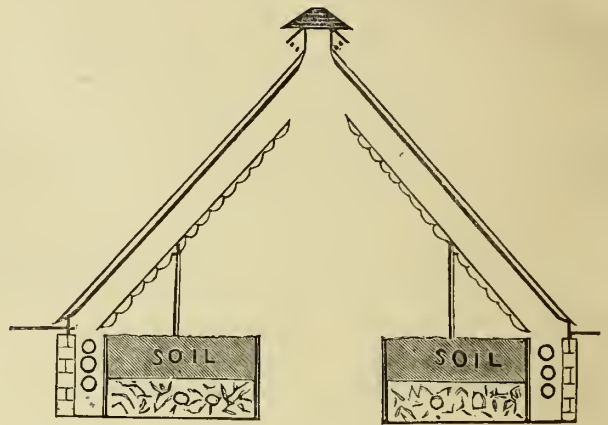
[Readers of the Magazine have been frequently advised to thin the blossom buds of free-flowering pears. Many other fruits besides pears would be benefited by the process.—ED. G. M.]

Correspondence.

HOUSE FOR WINTER CUCUMBERS.—I have been a gentleman's gardener, and am now a market gardener in a small town of about 5000 inhabitants; and, with the view of increasing my income, think of erecting a cucumber house, as economically as is consistent with utility, heated by hot water, to grow cucumbers in winter, having no doubt that I should find sale for them at Covent Garden. I have had great experience in growing cucumbers in frames, but not by hot water; but I apprehend I should have no difficulty. I think a house about 30 feet long with span roof, and about 16 feet wide, would grow a nice quantity, if properly constructed and managed. I have no wall for a lean-to. Will you kindly give me an idea of the size and quantity of pipe I should require, and size and description of boiler; and the best way of having the pits in the cucumber house; and advise generally as to the sort of house most likely to pay? ARTHUR.

[A span-roofed house is undoubtedly the best for the growing of winter cucumbers, as it furnishes more light than a lean-to; but a house 16 feet wide, as suggested by our correspondent, is by no means the most useful or the most economical. As economy consistent with utility is the object, we should reduce the width to 12 feet clear. To obtain an angle

of 45 degrees (50 would be better) to a span-roofed house 16 feet wide would require a much higher roof than is desirable for cucumbers, besides being more expensive. Moreover, a width of 16 feet is more than is required for the pathway and pits to hold the soil. In a width of 12 feet we have first a walk through the centre of the house 3 feet wide, with a 4-inch wall on each side; then on each side a pit 3 feet in width, with another 4-inch wall. We have then left a space of twelve inches between the foundation wall and the wall which forms the pit. But the annexed sketch will give a better idea than a description, as the position of the pipes and that of the soil and rubble are shown. We prefer to have the pit in which the plants are grown separated from the foundation walls, as it gives a better position for the pipes for top heat. Three pipes on each side are shown for top heat, and a flow and return in each pit surrounded with rubble for bottom heat. Means should be provided to admit front air either by a small sash or a boarded ventilator on each side, with the same provision at the apex. The pits will require to be 3 feet 6 inches deep. And as our correspondent says nothing about a tank for bottom heat, we conclude he intends to use rubble. Of this he will require a depth of 2 feet, chiefly over the pipes; this will leave 18 inches for the soil. The length of the house must be decided by the quantity required to be grown. A length of 30 feet will not furnish any great number every week from the first of November to the first of March. It would possibly suffice for a town of only 5000 inhabitants, but for Covent Garden supply it is another matter; on this point, however, perhaps the less we say the better. But after the first cost an additional length of 20 feet would not be a serious matter, as a house 50 feet long would be heated with only a little more labour, and not



SECTION OF CUCUMBER HOUSE.

much more expense as to firing, than one of 30. For such a house we should advise that 4-inch pipes be used both for top and bottom heat, and that evaporating pans be used largely to create moisture in the air. For a house 30 feet long a 27-inch saddle boiler will do admirably, and the saddle boilers are to all intents and purposes second to none. But it is as well to remember that the size of the boiler must be in proportion to the quantity of piping. At page 478 of last year's volume, our correspondent will find that Mr. Clarke went fully into the subject of cucumber houses, sections of which are there given. He may possibly find further information if he reads the article in question; and as to their cultivation, the article of a Kentish Gardener, in the number for August 3rd of the present year, is so thoroughly practical that it cannot fail to be useful to those who are not much experienced in growing cucumbers in houses.]

INQUIRIES ABOUT SOME BEDDING PLANTS.—*White Lobelia*: Can any of your readers who have grown the little *Lobelia Miss Murphy* favour me with the result of their experience of it in the beds or borders, as I did not secure my plants sufficiently early for me to judge properly of its merits? I have some doubts about it as an effective bedding plant, and should like to have them verified or dispersed.—*Irene Herbistii*: I noticed the failure of this with our Editor, and I have to record a similar fate of the first planting here. And the second ended quite as abruptly; for after allowing a long line to remain without making any progress for six weeks, I became so disgusted with it that I cut it up, and vowed I would never plant it again. Some two or three dozen plants standing in another part of the grounds were killed down by frost; and those of the second planting, although allowed to remain, have made but little progress, and the colour is a dirty sombre black. I should be glad to know if this is the case generally this season.—*Cloth-of-Gold Geranium*: With this variety of *Geranium* I am sadly disappointed this year. It has made but little growth, and the edges of many of the leaves have the appearance of being scalded, for they wither into tinder. Is this so in other parts of the country? Hitherto it has been first favourite with me; but when I look upon a long line of the *Golden Chain* we have here, I am obliged to admit its superiority over *Cloth-of-Gold*, and therefore rather reluctantly indorse the opinion of the Editor in all he has said in favour of old plants of *Golden Chain* (as I still have some affection for the other). Many of the plants here of *Golden Chain* are six and seven years old.

J. C. CLARKE.

BALSAM OR BALM.—Here is a charming story ready to the hand of HANS CHRISTIAN ANDERSEN: "The garden of the Middlesex Hospital was thrown open for the flower show of the window-grown plants in the parish of St. Andrew's, Wells Street, on Tuesday. On this occasion the flower show for Christ Church, Down Street, was combined with it. The display of plants was very good, considering the badness of the season, and the show was crowded all the afternoon with the poor of the neighbourhood. The prizes were distributed by Lady Mildred Beresford-Hope, and the Hon. Mrs. William Cowper—two out of a long list of patronesses. Among the prize-holders was one of the hospital nurses; and a prize was also adjudged to a balsam grown by a poor crippled boy by his bed-side in the *Pepys Ward*." Even old *Pepys* himself might have been touched by this simple recital! Such peeps into the diaries of the life of the poor should do good. Let us hope our quotation of the paragraph will benefit so excellent a movement as that of "Window-grown Plant Shows."—*Fun*.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. Imp. avrg of 43 yrs. Growth	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D
			rise.	sets.	rise.	sets.	rise.	sets.	rise.	sets.	Barometer.	Thermometer.	Rain	Barometer.				Thermometer.	Rain
1867																	
1	S	11th Sunday after Trinity	5 13	6 40	8 38	a.m.	8 11	p.m.	29.85	29.76	70	49	59.0	.03	57.6	Renanthera coccinea, 1 China	1867
2	M	Lea Bridge Horticultural Exhibition.	5 15	6 44	9 48	"	8 39	"	29.83	29.53	67	40	53.0	.22	67.5	Trichopilia picta, 1 Mexico	1
3	T	Oliver Cromwell died, 1659.	5 16	6 42	10 55	"	9 7	"	29.84	29.79	65	48	56.0	.08	57.4	" tortilis, 1 "	3
4	W	Moscow burnt, 1812.	5 18	6 40	p.m.	"	9 35	"	29.66	29.53	67	55	61.0	.80	57.3	Stanhopia ligrina lutescens Guatemala	4
5	Th	Louis XIV. born, 1638.	5 20	6 37	1 1 p.m.	10 14	"	"	29.48	29.33	68	52	60.0	.12	57.2	Epidendrum vitellinum majus, 1 Mexico	5
6	F	Workop Horticultural Exhibition.	5 21	6 35	1 56	"	10 64	"	29.60	29.37	68	54	61.0	.61	57.0	Barkeria Lindleyana Costa Rica	6
7	S	Length of day, 15h. 3m.	5 23	6 32	2 47	"	11 41	"	29.69	29.51	65	53	69.0	.08	56.7	Braunvola acutila, 1 C. America	7

The Gardener's Magazine.

SATURDAY, AUGUST 31, 1867.

THE SEVERE FROSTS of the 23rd, 24th, and 25th of May last were so marked in their effects on vegetation, that almost every kind of produce of the present season, in field and garden alike, is reduced in quantity and deteriorated in quality below the average, and we are compelled to call those ungenial nights to remembrance while striving to enjoy the warmth with which the harvest has been favoured. Ask the farmers in the eastern parts of England about potatoes or wheat, and they will say that the May frosts did them both so much harm, the first especially, that the total bulk of the crop is considerably reduced below what the early growth of the plant promised. Many great breadths of newly-sown seeds were killed outright, the young growth of forest trees was blackened, and the orchard fruits were nipped in the bud, and the trees are now but lightly laden. But it is in the garden that the injury resulting from frost at so advanced a period of the year is most plainly seen. Nearly every kind of hardy fruit has been scarce, those grown on walls especially so; and of the fruits yet to be gathered there is generally speaking but a small promise, and many of the best winter fruits will be scarce and dear. There are exceptions of course. We write this within view of as pretty a display of outdoor fruits as may be seen anywhere in England; but we have seen barren plum-trees, barren pear-trees, barren walls, and signs of general failure in districts far apart, and the cultivators all agree that the May frosts did the mischief. In view of the facts of the case, we may find in hornbeam and arbor-vitæ hedges, in shelter of various kinds, and even in perfect drainage of the soil, some means of counteracting the evils incident to late spring frosts; but the most important lesson to be learned from the experiences of 1867 is that GLASS is our only trustworthy shield against the elements, our only antidote to the rigours of this most uncertain of climes. There is no certainty, and there never will be a certainty unless the climate should alter, that when we plant a tree we shall ever see its fruit; there is not a single day in the whole year but on which frost is possible, and has actually happened, in this country. On many days in the year frost is of little consequence, but perhaps its occurrence at the time when fruit-trees are in bloom is most to be feared by the cultivator who desires fruit. The severe frost which occurred in July, 1863, and which killed down the brake on exposed commons and in damp valleys, was but slightly hurtful to the fruit crops, though in many places it completely destroyed the flowers of the garden. The spring frosts are those against which we especially need to protect our trees, and, generally speaking, the loss of one year's crop in any well furnished garden would be the equivalent in value of the cost of the glass that might have saved it.

Cheap glass structures are now obtainable everywhere. In the vicinity of towns and cities there are horticultural builders who understand the requirements of the fruit cultivator, and are ready to construct suitable houses at reasonable rates of charge. The admirably-planned orchard houses of Messrs. Hereman and Ormson have done much towards the multiplication of our home-grown fruits, and, what is not less important, the assurance of a crop from year to year irrespective of the spiteful changes of the weather, that form such painful themes of common conversation. Elaborate and costly structures are not needed for fruit culture; the requisites are plenty of light, plenty of air, and room enough to prevent overcrowding and overshadowing, and to afford the cultivator proper convenience for reaching with ease every part of every tree. The larger the house the better, for large houses are least affected by sudden changes of temperature, and they admit of being freely ventilated without any rush of air, such as might prove injurious. But small houses are not to be despised. Let every lover of fruit obtain the aid of glass if he can, and cut his glass according to his purse, according to the teaching of the proverb on the relations of the coat to the cloth it is to be made of.

Glass would have been much more generally employed for the growth of fruits if the pot system of cultivation had been less ardently advocated. Potted fruit-trees are extremely pretty toys,—fruitful toys, but toys after all. Let those who want toys have them; why should any one complain? But it must always be understood that if time is of value, and if every operation in the garden is to be considered as costing in money so much, the fruit produced by

potted trees will never pay for the labour demanded for its production. The only profitable mode of growing fruit under glass is to plant out the trees, and give them room. Extension! Ha! we must follow the extension system to have peaches, nectarines, plums, and pears, under glass; that is to say, extension as compared with pot culture, giving the trees reasonable head room and root room, and putting fruit upon our walls and trellises in hundreds, instead of upon the twigs of miniature trees in pots by dozens. As to heating, it must be evident that the power to keep out frost is always an advantage; where forcing is practised, heating is of course absolutely necessary. Nevertheless in almost every part of Britain glass alone, without any heating apparatus, will suffice to ensure a fair and constant production of the most esteemed of garden fruits; and, as a rule, fruit-growing under glass will always make a good return for every reasonable outlay.

THE interesting and valuable summary of horticultural affairs in connexion with the Paris Exhibition with which English readers have been favoured by the *Times* correspondent will, we have no doubt, by the happy style of expression, and the broad views and sound principles of the writer, remind many of our readers of the continued existence and flourishing condition of a certain "W. R." It is a gratifying circumstance that horticultural interests have at least one faithful and competent representative on the part of British practitioners; whether there be another entitled, even for a moment, to any sort of attention we have yet to learn.

THE HARVEST OF 1867.—The *Agricultural Gazette*, as usual, has procured from all the counties in the island details about the harvest prospects and its progress. We extract our contemporary's summing up as follows: "The following table gives the number of returns under the headings 'Over Average,' 'Average,' and 'Under Average,' respectively; and a comparison may, at the same time, be made in it with the corresponding reports of the two previous harvests, both of which were considerably below the average productiveness:—

Crop.	Over average.	Average.	Under average.	Total.
Wheat { 1865 29	90	76	195	}
{ 1866 21	96	63	190	
{ 1867 21	76	112	209	
Barley { 1865 28	112	40	180	}
{ 1866 45	102	22	169	
{ 1867 32	116	53	201	
Oats { 1865 2	27	154	185	}
{ 1866 29	84	60	173	
{ 1867 46	105	48	199	
Beans { 1865 4	53	64	126	}
{ 1866 19	65	29	113	
{ 1867 36	94	30	160	
Peas { 1865 6	58	64	128	}
{ 1866 47	59	3	109	
{ 1867 18	85	51	154	

"It will be seen from this table that wheat promises a less satisfactory yield than even in 1865 and 1866; but it will be necessary that the reader should correct the impression gathered from the totals by an examination of the detailed reports, especially in our great corn-growing districts in the eastern and southern counties. Barley is probably an average crop as regards quantity of yield, but much of it must be of very inferior quality. Oats are a better crop than they have been for the last two years. Beans are generally remarkably good; but peas are considerably inferior to last year's crop, which was unusually good. For the rest, there is generally a fair promise of green crops, mangolds, and turnips. Potatoes exhibit more than usually abundant signs of the disease; and there has been a very heavy crop of hay, most of it well got in."

Our own opinion, says the *Worcester Herald*, derived from a tolerably broad survey, of harvest results in Worcestershire is, that wheat is fully one-fifth deficient of a good average; but it would seem that one person at least takes a much more cheerful view of matters, and we need hardly say how highly pleased we should be to find that his view turned out correct. "J. L., Worcester, Aug. 20," writes to the *Times* as follows:

"Winter wheat is averaging 12 bags to the acre, and the cost of labour varies from 10s. to 15s. per acre, in addition to from four to six quarts of cider; the crop may be considered a fair average yield, and in some places far exceeds the expectations of the farmers.

"Spring wheat is now quite fit for cutting, but in places is unusually laid, thereby causing the price of labour to vary considerably, from 12s. to so high a sum as 18s. the acre. The last few days of warm weather have in great measure advanced it to maturity. Oats are exceedingly good, though rather short in the straw, and bagged oats will, if all goes well, be off the ground in a few days. Farmers are paying from 8s. to 10s. per acre for good work, not including drink, four to six quarts being allowed.

"Of barley, though much laid in parts of Worcestershire, a fair standing crop may be seen in many places; but the late heavy wind and rain have much deteriorated the value of the grain. The price for labour varies of course on account of the difficulty in mowing laid barley; but the usual price given is from 3s. to 5s. per acre. Owing to the very good promise of seeds, farmers are forced to leave their harley on the ground longer than would otherwise be necessary. Beans are above the average

crop, both as regards corn and straw, the yield being from 11 to 16 bags per acre."

According to the reports of the Inspector-General of Agriculture, the wheat harvest is almost finished in two-thirds of the French departments, and, if the fine weather continues, in about ten days the whole will have been got in. The quality is said to be generally good, but the quantity will hardly suffice for a year's consumption. The reports on the vintage, furnished from the same official sources, are unfavourable. In both quantity and quality 1867 is expected to be inferior to 1866. The wheat crop of the present year in the United States is said to be, on Government authority, the largest that country has ever harvested. With scarcely an exception the various States show a large percentage of increase over last year's crop. It is said that over 225,000,000 bushels of wheat are being this year gathered, whilst last year's yield was but 180,000,000 bushels; and while the average crop in America for a long series of years has been 5 to 5½ bushels to each inhabitant, the crop of 1867 will give six bushels for each inhabitant.

GASES FOUND IN PLANTS.—Messrs. Faivre and Dupré have recently examined the gases found in the mulberry and vine, the parts which contain them, and the changes produced in them by the process of growth and development. In a communication read before the Botanical Society of Edinburgh, it is stated that they have arrived at the following conclusions:—1. The presence of gases in the interior of the root of the stem, and of the branches in the mulberry and vine, is a normal and constant fact. 2. The composition of these gases changes with the epochs of vegetation. 3. During the period of inactivity, carbonic acid is in very small proportion, and is scarcely appreciable. Oxygen is present to the same extent as in atmospheric air. During the phase of activity the contrary takes place, and the changes are more marked in proportion as the vegetation is more energetic; with the progress of vegetation, the proportion of oxygen diminishes. 4. In the roots, during the epoch of vegetation, the quantity of oxygen is not so great, while that of carbonic acid is greater than in the branches examined under the same circumstances. 5. In the branches, as in the roots, there is an inverse relation between the oxygen and the carbonic acid; by adding to the normal oxygen that disengaged under the form of carbonic acid, we obtain a number which is scarcely above the proportion of oxygen in the air. 6. In the mulberry and the vine, injections do not penetrate the pith or the bark, whether in the branches or roots. The ligneous layers are alone permeable to mercury. The more the formation of vessels increases, the easier and more complete are the injections. The injections are fuller in the roots than the branches; they are also more in the branches than in young herbaceous shoots. In the old stems of the mulberry, the central layers cease to be permeable. 7. Microscopic examination proves that the injection specially penetrates the pitted and reticulated vessels, and also the spiral vessels in the young herbaceous shoots. 8. The pitted vessels show distinctly the mercury in the areolæ, as if in so many little pouches formed by thin portions of the wall; the same observations have been made in regard to the reticulated vessels. 9. The contents of the vessels expelled by the mercury is variable. Sometimes gas only is sent out; this is the case in winter and after dry weather. Sometimes the gas is mixed with sap, which is more or less abundant according to the epoch of vegetation and external temperature. These two latter conditions regulate in a certain degree the contents of the vessels. 10. The contents are so variable that in plants the root vessels of which contain gases and sap the stem vessels contain only gases, or inversely. 11. The presence in the vessels of animals of oxygen and carbonic acid mixed with the blood constitutes one of the best established facts in animal physiology; the presence of the same gases mixed with the sap in the vessels of plants, and the modifications which they there undergo, seem to establish an interesting correspondence between these two kingdoms.

TAUNTON DEANE HORTICULTURAL EXHIBITION.

There is probably not another town, whether of less or greater dimensions, in the whole of Great Britain, that can compare with Taunton for enthusiasm and unanimity of feeling in respect of its annual horticultural exhibition. Every individual soul within the town, and for many miles around it, appears to partake of the inspiration of a great event, and a vast rosy smile of holidays spreads over the whole place, and ripples away on all sides into the country, so that far-off towns and villages are, according to their several degrees of distance, kindled with the true Tauntonian spirit of rejoicing. Your most humble servant, the reporter on this occasion, has seen many a population "turn out," and for a time trample business under foot in the pursuit of some common pleasure, but only here, in the thriving and usually quiet capital of Somerset, does this abandonment acquire dimensions and an intensity that entitle it to be called historic. Yet by its distinctness and self-assertion, by its associations and its import, by its comparative newness, and (let us hope) its certainty of a long and happy life, the horticultural exhibition, with all its surroundings in this most excellent nest of humanity called Taunton, is historic, and the youths of this day will rejoice when aged to tell how Taunton laid the foundations of its exhibition in 1866, and added thereupon a grand superstructure in 1867. We shall come to the show presently, but now we are on the way to it. Reporter of this is somewhat taken off his feet by the universality and largeness of the spirit of festivity in the wholesome thriving town. As to the experience of your obedient servant the reporter, peculiar sensations commenced at the railway station. I thought, on alighting, that some giant, a native of some larger planet than ours—Jupiter (that is to say, the planet Jupiter), perhaps—had selected Taunton Station for the purpose of securing a good stock of winter herbs for the kitchen; for on the iron tie-bars were suspended great bunches that at first appeared to be mammoth varieties of thyme and marjoram, but on closer inspection were found to be true terrene broom, furzo, laurel, and other such stuff. On looking round, every corner of the station was seen to be planted with trees, literally planted with trees—oak-trees, fir-trees, all sorts of trees, stuck in all sorts of places, and every tree in every place breathing in its looks a kindly welcome. On the way to the show, the first important demonstration was one consisting of May-poles and garlands, or something of that sort, in the front of a nursery on the north side of the Bridge. This was finished in the best possible taste, the scaffold-poles being completely clothed with rich leafage and flowers, and the festoons between them the same. Advancing into the town, flags and streamers, masses of evergreens, great inscriptions boldly wrought on coloured cloth, devices, decorations of all kinds, were seen on every hand, and continued in every conceivable change of character the whole of the

half-mile length of public way from the Bridge to the Vivary Park, where the show was held. The market-place was particularly gay with bright banners; at many points of the public ways festoons of flags were carried across and across in prodigious profusion; and as to the number of great fir, oak, and spruce trees displayed at doorways and windows, it seemed as if Birnam Wood had called at Taunton on its way to Dunsinane to show how it could be an omen and signal of pleasure, though so commonly regarded as otherwise. I was particularly struck with the beautiful arcade which adorned the extensive frontage of Mr. Jacobs, just beyond the market-house—a real tabernacle with roof of green boughs and an outside wall of trees, a remarkable and interesting affair, which must have cost money and labour, and was worth something, though for only one day's feast. Already, as I went up to be in time to perform certain official duties, the tradesmen were preparing to close their shops, and dedicate the day to the truly rural of the park and flower-show. There was a military band in operation on the parade, and the boys were crowding round the great devices, apparently made of a stout sort of macaroni, which were piled up in the market, and were said to be the fireworks that were to wind up the day with scintillation and coruscation, and cause inflammation in the eyes and admiration in the hearts of all beholders.

The Vivary Park is a capital place for a flower-show, being within a stone's-throw of every man's door for all the inhabitants of Taunton, yet a park in the proper sense of the word, and well adapted, if obtainable for the purpose, to serve as a public recreation ground for the district. There were five large marquees, all well filled with plants, fruits, and flowers, comprising over 500 feet run of canvas, covering some 1,500 (or more) square feet of floral luxury. There was but one set-off against complete success, and that was the unbearable heat within the tents at the time when they were most crowded. It does not appear to be the fashion to ventilate the tents as the London tent makers do so effectually and agreeably. It was fortunately only for a short time during the greatest pressure of an admiring public that this heat was felt, and throughout the whole of the time the gates of the park were open a large proportion of the visitors enjoyed the pleasant promenade on the cool grass, listening to the splendid performances of the band of the Marines, from Plymouth; the leader of which would do well to wear his proper uniform, instead of giving occasion for remarks, as he does, of a by no means flattering nature in reference to his unofficial costume.

The exhibition was good throughout, in some of its features remarkably so. In the marquee devoted to open classes, Mr. B. S. Williams, Messrs. Lucombe, Pince, and Co., Mr. Robert Veitch, Messrs. Dyer, Mr. Nelson, Mr. Drummond, and other great exhibitors, were present in full force, and there was as grand an exhibition of specimen plants as the average of a first-class London show. Mr. Williams certainly presented the finest group of the plants in the show, taking first place in the class for the best twenty stove and greenhouse plants. Mr. John Nelson, of Bristol, stood second, Mr. R. T. Veitch, extra. Mr. Drummond took the lead in the class for six, Mr. J. B. Saunders, the honorary secretary of the society, second. The prizes for fine foliage were divided between Mr. J. Nelson and Mr. Drummond. The class for eighteen exotic ferns brought a splendid hank of plants; Mr. Dyer was a good first, with exhibition kinds, all of large size, and quite fresh and bright; Mr. R. Veitch second, with small plants, in the midst of which was a beautiful specimen of the true *Adiantum Farleyense*. Hardy ferns were shown by Mr. Dyer and Colonel Graham. There were plenty of zonal pelargoniums, fuchsias, and balsams, good, from Mr. Bates, Colonel Graham, Mr. Drummond, and Messrs. Kelway and Son. Achimenes, Gloxinias, and Cockscombs, in this tent, were quite second-rate. Roses and dahlias from Mr. Keynes were wonderful for quality and freshness. Hollyhocks from Mr. Hooper, good; Asters scarcely up to the mark; Verbenas from Messrs. Dobree and Bates, excellent; novelties not numerous, but a few good things, amongst them the lovely *Anthurium Seberzerianum*, and some other less notable subjects. An extensive display of valuable plants from Messrs. Lucombe, Pince, and Co. adorned the head of this tent, and gave a peculiar richness and variety to the entrance. In the midst of this group stood a pot-plant of Mrs. Pince's Black Muscat Grape, carrying some well-ripened bunches. For this, on account of the merit of the variety, a first-class certificate was awarded. Especially meritorious were the cut flowers from Messrs. Kelway and Son, comprising many valuable and all beautiful subjects, elegantly put up; Mr. Drummond second; Mrs. Dakin third.

The amateurs' tent was not wanting in any one feature of interest contemplated by the schedule. The first prize for twenty stove and greenhouse plants went, deservedly, to J. B. Saunders, Esq., (gardener, R. Foulger), for a very handsome group in perfect health, comprising many valuable subjects; Captain Crew (gardener, G. Phillips), a good second. Mr. Saunders was again first in the class for twelve, Captain Carew second, F. W. Newton, Esq. (gardener, R. Huxtable), extra. In the class for six, the awards were, first, Mr. J. B. Saunders, second Captain Carew, extra Rev. H. T. Tucker (gardener, W. Sansom). In the class for eighteen fine-foliage plants, Mr. Saunders took the lead, Captain Carew second. In the class for exotic ferns the awards were, first, Mr. J. B. Saunders, second P. Taylor, Esq., extra Colonel Graham. A strange uniformity prevailed in all these competitions: the plants were good throughout, but Mr. Saunders's were so peculiarly bright and fresh, and comprised such thoroughly good exhibition varieties, that with them it was *Veni, vidi, vici*, inevitably, and the task of judging was almost a sinecure. F. W. Newton, Esq., sent the best *Selaginellas*—they were fine large pieces, well grown, and the varieties good; Rev. H. T. Tucker, the best *Begonias*; J. B. Saunders, Esq., the best group of Japanese Liliiums. In the class for single specimen ferns, Captain Carew took a distinguishing first place with a splendid example, second J. B. Saunders, Esq., extra P. Taylor, Esq. Gladioli poor, Goraniums scarcely first-rate; *Petunias*, from Rev. H. T. Tucker, good; Cockscombs, from J. Wood, Esq. (gardener, J. Andrews), fine; the second lot, from Rev. J. A. Miller (gardener, C. Bray), not much behind them. Cut flowers, from Mrs. Dakin, beautiful; Asters of all kinds scarcely good; Verbenas from S. Dobree, Esq., and J. H. Kallend, splendid; Dahlias and Roses, from Mr. Dobree and Mr. Bowden, excellent for the time of year.

The "ladies' tent," as it was called, was occupied with dinner-table decorations and bouquets. Save and except that the tent was a trifle too small for its fair occupants, this was one of the most enjoyable exhibitions of the kind ever held within the limits of the reporter's experience. It was literally a "fierce competition," though by the gentlest of competitors, and it was a grief to the judges that they could not award many more prizes than the schedule allowed them. There might not be much difference between the first-prize decoration from Mrs. P. Taylor and Mrs. J. W.

Shepherd's second, but after these, which stood apart from the rest, by most graceful and dignified outlines and artistic finish of colouring, some twenty other contributions claimed and obtained the admiration of a crowd, which never waned in numbers during the whole continuance of the hours of admission. Extremely beautiful was the plateau with chairs from Mrs. J. B. Saunders; and the stands selected for extra prizes, the contributions of Miss Dyer, Miss Newton, and Mrs. Sweet, were tasteful and appropriate. The style of decoration which the judges especially favoured consisted of a glass stem rising from a dish, and surmounted by a smaller dish, with the relief of a ring or oval of twisted glass to finish it. The original March pattern appears to be out of fashion, and the mirror plateau is scarcely cared for. There were three groups of fruits and flowers for the table. The first prize was awarded to Mrs. J. W. Shepherd, for a small but exceedingly neat and tasteful display; Miss Newton second, with a larger and in some respects handsomer group arranged as a pyramid, but wanting a certain finish and brightness conspicuous in Mrs. Shepherd's; third, Mrs. Groenhill, with a large and elaborate device with imitation ivy-leaves and wire branches, and other apocryphal accessories. In all three the fruits were good, and the judgment turned of course on the *tout ensemble*. Hand bouquets were as far in advance of the average as the table decorations were; in truth, we have rarely seen such a beautiful lot. Mrs. P. Taylor took first place with a pretty little convex-headed bouquet very quietly coloured, and with bits of green delicately relieving the flowers all through. Second, Miss Kate Saunders, with a hearty, consisting of bright flowers and bright fern-fronds; third, Mrs. E. Sweet, with a charming example, too conical in form to take a higher place. Mrs. J. B. Saunders presented a rather large but exquisitely finished bouquet, consisting of costly flowers, some rare orchids being conspicuous alike for their beauty and their fragrance. As this was labelled, "not for competition," the judges could only express their high commendation of its merits. Several good bouquets failed to obtain distinctions for their owners through being too highly coloured; for it must be a rule from which there should be no departure, that when a lady carries a bouquet, its splendour shall neither distract attention from her face nor render her dress unattractive. It should add to the beauty of a beautiful vision, and never justify that sarcastic passage in one of his best stories where Albert Smith said he saw a bouquet go past with a lady attached to it.

Fruits were abundant and fine. The best large collection came from C. E. Kowellife, Esq.; second, Colonel Graham. In collections of six, first, B. C. Greenhill, Esq. (gardener, A. Barge); second, E. S. Richards, Esq. (gardener, W. H. Lovell); extra, J. Carver, Esq. (gardener, J. Sutton). M. King, Esq., presented a fine pine; but other contributions in this class were inferior. Good grapes from J. W. Shepherd, Esq., J. Carver, Esq., Colonel Graham, H. Warner, Esq. Melons, every kind judged by flavour, first, J. Wood, Esq. (gardener, J. Andrews), with Turner's Green Flesh, a large fruit of the most delicious flavour; one of the best melons ever cut; second, J. Woodland, Esq. Good peaches from F. W. Newton, E. E. Richards, and J. Woods, Esqrs. Nectarines from J. C. Bowering and T. Coker, Esqrs. Apricots from F. W. Newton, M. King, and B. C. Greenhill, Esqrs. All other fruits proper to the season were shown in plenty; Cherries, from J. Dominey, Esq., Captain Shuldham, and F. Woodland, Esq., being remarkable for fine quality; and orchard-house trees bearing fruit admirably shown by Rev. E. Spryway. Vegetables, both in the open and cottagers' classes, were plentiful and of excellent quality, and some of the cottagers' flowers were first-rate, and as important pictorially as socially to the interests of this most interesting exhibition. The judges were Mr. Turner, of Slough, Mr. Dodd, of Ashton Court, and Mr. Hibberd, of Stoke Newington, in the classes for plants and flowers, and ladies' prizes. Mr. Keynes, of Salisbury, Mr. Bousie, gardener to Lord Taunton, and Mr. Randall, representative of Messrs. Lucombe, Pince, and Co., in the classes for fruits and vegetables. There was a large attendance, and the affair proved financially successful, which adds to the glory of the horticultural success. Indulgence is asked for all the shortcomings of this report. The tents became crowded before the judging was quite finished, and I did not make a single note. Fifteen days have elapsed ere an opportunity presents itself to render some account of the show, and I can only now call to mind a few particulars of the various details. S. H.

ST. CLEMENT'S AND ST. ANDREW'S HORTICULTURAL SOCIETY, NOTTING HILL.

A society bearing the above designation has been formed in the populous locality of Notting Hill, more especially for the purpose of encouraging a taste for the cultivation of plants either for adorning their windows or small gardens among the working class. The society was started under very favourable auspices, having received the distinguished patronage of the Duke and Duchess of Argyll, the Duke of Rutland, the Right Hon. the Earl and Countess of Airlie, and also of many gentlemen of influence, residents in the neighbourhood, including the Rev. A. Dalgarns Robinson, M.A., incumbent of the district church, who has accepted the office of President. The first annual exhibition was held on Thursday, August the 15th, in the St. Clement's schoolroom, Lancaster Road West, Notting Hill. Of course we consider the present efforts of the exhibitors but as the stepping-stone to the development of something better in the future. The productions on this occasion belong principally to amateurs, or, more properly speaking, cottagers, and among them were some very creditable collections, though admitting of great improvement, especially in the way of training and choice of varieties. The society has put forth every inducement in the shape of liberality, for the prizes offered and awarded were worth striving for apart from the honour conferred on the successful competitors. The building also in which the exhibition was held is admirably adapted for the purpose, being very spacious and remarkably clean.

The first object that attracted our attention as we entered the room was a very neatly constructed ornamental device, which we shall name the Temple of Flora. It was contributed by Miss Lawrence. This was placed on a table in the centre of the room. It was constructed of pillars, round which were entwined fronds of fern and other graceful foliage; the base was a wire basket filled with choice fruits; the summit was adorned with a quantity of fragrant flowers, such as stocks, mignonette, and others. But the most attractive features of this unique model were the arms of the several noble patrons woven in colours on pieces of white satin, and suspended in the shape of banners over its several quarters. The whole of the arrangements must have cost the lady considerable time and patience, as

it added much towards heightening the effect of the exhibition; and I am sure the exhibitors will feel greatly indebted to her for the interest manifested by her on their behalf. At the further end of the room, on an elevated platform, was a fine collection of tree-ferns and other miscellaneous foliated plants, some of which were at once recognized as forming part of a successful collection at the Royal Horticultural Society's exhibition at Kensington. A description of many of them and the house in which they are growing has been given in page 315 of this Magazine for the present year. They were exhibited by Mr. Burley, of the Albert Nursery, Bayswater, but not for competition. Beside them were two very interesting collections of miscellaneous plants, exhibited by working gardeners, to which prizes were awarded as follows:—1st, Mr. Hill; 2nd, Mr. Turner. Of the miscellaneous collections exhibited by cottagers, there were six exhibitors:—1st, Mr. Coombs; 2nd, Mr. Sandon; 3rd, Mr. Martin; 4th, Mr. Saddler; specially commended, Mrs. Morris and Mr. Stevens. The plants consisted principally of fuchsias, geraniums, and other kinds, which could be cultivated and preserved through the winter in the absence of a greenhouse. Though some of them were small, yet they gave evidence of care having been bestowed on their training, with the view of ensuring healthy and good bushy plants. I particularly noticed this useful feature in Mr. Saddler's collection, although only fourth on this occasion.

In the class for three scarlet geraniums there were five competitors: 1st, Mr. Sandon; 2nd, Mr. Coombs; 3rd, Miss Jordan; 4th, Mr. Poole; extra, Mr. Saddler. Of the first, all three plants were one variety, viz., Little David, a very dwarf compact variety requiring but very little skill in the training; while the second contained three distinct varieties, consisting of a good established plant of Mrs. Pollock, also Golden Chain and Lord Palmerston, equally balanced in growth. In point of flower, the first had decidedly the advantage, but as regards choice varieties and the skill required to maintain them in health, the second lot was certainly the more worthy. In the class for three fuchsias there were four exhibitors: 1st, Mr. Martin, with a well-bloomed plant of Conspicua; 2nd, Mr. Coombs, with three small healthy but even-grown plants; 3rd, Mr. Campfield; 4th, Mr. Poole. For the best window plants there were three prizes awarded, the first being withheld; 2nd, Mr. Saddler; 3rd, Mr. Horn; 4th, Mr. Campfield. Of cut flowers there were two collections: 1st, Mr. Brown, with a lot nicely arranged in regard to colour and variety. On the platform at the end of the room was a circular mound of plants in pots, but the pots were so concealed by moss and turf as to appear as if planted there. The centre plant was a fuchsia, then followed rings of yellow calceolarias and other bedding plants, and lastly an edging of white lobelia; on either side were wire baskets containing ferns, and in the rear were two plants of that very old favourite, *Campanula pyramidalis*. These were so bent as to form an arch, thus giving a very pleasing and striking effect to the whole. I am not able to say who contributed this pretty group, as I did not observe any name affixed to it. For two ornamental devices, 1st, Mr. C. Shatlock; 2nd, Mr. Shatlock.

Of miscellaneous subjects, there was a most interesting collection of dried grasses, numbering 134 varieties. These were exhibited by Mr. Turner, a working gardener. In collecting and arranging them they showed evidence of a very persevering and intelligent mind. The same exhibitor sent a stand of not less than thirty-four varieties of wild fresh cut flowers in full bloom. Both collections had the name affixed separately to each variety.

There were also prizes awarded to working men for the best-cultivated flower garden. I had not an opportunity of seeing them, therefore am not in a position to offer any comment, but record the prizes in the order they were given. 1st, Mr. Darsey; 2nd, Mr. Stephenson; 3rd, Mr. Palmer; 4th, Miss Jordan; 5th, Mr. Poole; extra, Mr. Mascall. There were three scales of charges of admission during the day, so as to afford all classes an opportunity of uniting to benefit the society; and I am delighted to say that there was a large attendance of working men with their wives and families during the evening. The performance of an excellent brass band did much towards enlivening the meeting. The whole proceedings were concluded by the rev. President giving the successful exhibitors their prizes, accompanied with some general remarks on the good that must accrue to all who endeavour to profitably use their leisure hours.

JNO. F. McELROY.

ALEXANDRA PARK WORKING MENS' CLUB.

The second annual trip of the Alexandra Palace and Muswell Hill Estate Working Mens' Club took place on Monday, August 12th. The weather being delightfully fine, upwards of three hundred workmen, accompanied by their wives and sweethearts, were (by the kindness of the Great Northern and the London, Chatham, and Dover Railway Companies) conveyed by special trains to that most suitable of all places for spending a happy day, the Crystal Palace. This club is organized for the purpose of supporting sick members, paying doctors' fees, and burying the dead. Every workman becomes a member, and contributes 4³/_d weekly, in return for which he receives 12s. per week when he is unable to work, his doctor's fees are paid for him, and in case of death £5 towards funeral expenses, and £2 10s. towards the funeral expenses of a member's wife. This club has now been in existence over two years, and enough money has been saved annually to pay for the trip to the Crystal Palace, provide a good dinner, and a day's healthy exercise and rational recreation. The dinner was provided by Messrs. Bertram and Roberts, and was served in good style; the men seemed thoroughly to enjoy themselves, and there is great credit due to Mr. M'Kenzie for the promotion of such an institution as this. I should like to see others doing the same thing, especially where they have a number of men under them, as is the case at the Alexandra Park. I have twice enjoyed the annual dinner of this club, and I can say that the whole affair is a pattern of able organization and personal decorum. The chair was taken by Mr. M'Kenzie, supported on the right by the Rev. Mr. Webster, of Horsey, and on the left by G. E. Webster, Esq., of Sydenham. After dinner, the usual loyal toasts were given. G. E. Webster, Esq., proposed success to the Alexandra Park and the Crystal Palace Companies. He spoke in the highest terms of the Crystal Palace, and the public benefit it had proved to be in furnishing instructive recreation to the people. He sincerely hoped the Alexandra Park would meet with equal success, and even rival the Crystal Palace. The Rev. Mr. Webster proposed the health of Mr. M'Kenzie and family, and spoke in the highest terms of that gentleman, especially in respect of the way he is carrying on the works of the Alexandra Park, and the good he does in providing such a treat to the men. He had pleasure in being there last year, and he was glad to meet them again this year at the same place; but he was sorry there were only

three hundred men instead of four hundred; but the reason was, the remainder had left last week to go to harvest work, and for that he thought they might be spared for the good of themselves and the country. He gave the men an invitation to come every week to the meetings at Hornsey, where he had the pleasure of meeting many who were now present, and still hoped he should see more of them; and if there was not room for them all, he would hold the meetings in the open air. Mr. McKenzie returned thanks. He spoke in the best terms of his men, and the good he had seen arising from the club, and as long as he had to do with men he should always try and provide for the sick and needy, and for their comforts, especially while the men behaved as they had done at this and the previous meeting. He went on then to tell us the state of affairs of the club, a subject which of necessity interested all present.

B. S. W.

AUTUMNAL ROSES.

The question of a second rose show on a large scale, and later in the season than those already held, is of great interest and importance, not only to amateurs and nurserymen who have small collections or late soils, but also for the real improvement of the flower itself in one of the most valuable qualities it can possess. Every one desires to obtain as much as possible from his garden, whether fruits or flowers, and, as far as the subject of this paper is concerned, the greatest progress has usually considered to have been made in the direction of the hybrid perpetuals or continuous blooming kinds. Yet, from the periods at which the shows are at present fixed, many fine varieties are never seen on the tables, and are in consequence dropping out of repute and cultivation till it will be too late to recover them. Indeed, as far as rose shows are concerned, from the dates at which they are usually held, mere summer roses would answer every purpose, as they afford neither test of nor encouragement to the development of one of the most valuable properties the rose can possess, and for the want of which summer-blooming roses only have been almost entirely cast aside. Many varieties which are now recognised favourites with exhibitors are in ordinary seasons virtually but once-flowering kinds, such as Madame Boll, Madame Hector Jacquin, Madame Boutin, and a host besides; while a numerous list of others could be given which are never completely in season in time for the earlier shows, and which are seldom therefore seen in true character in public, to the loss of their deserved reputation as well as to uninitiated cultivators, who are too often simple enough to believe the names in prize lists indicate the best varieties to grow. The opportunity afforded by the Crystal Palace Autumnal Show of fruits and flowers ought not to be passed by without a strong effort being made by all real well-wishers to the progress of the rose to inaugurate a rose-show in connexion with this September exhibition. The fine weather we have recently had will have tended to produce an unusual quality of the autumnal kinds, which ought to be an additional reason for making the attempt.

If we analyse the productions of our rose grounds, it will commonly be found that the property of frequent blooming lies chiefly in the kinds partaking of China or Bourbon origin, the term China including the Teas and certain of the Noisettes. The twelve varieties most to be depended upon for flowers during the season, combined with quality, are Gloire de Dijon,—especially if the long shoots are stopped at three or four feet, almost every lateral will then produce a flower; Souvenir de la Malmaison (B.), still the most beautiful of the tinted whites, and exquisitely perfumed; Safrano, Madame Falcot, Madame Willermoz, Devoniensis, Vicomtesse de Cazès, the last five are Teas, and require more or less protection during winter, especially the last; Mrs. Bosanquet (C.), though it appears to have some affinity with Malmaison; Emotion (B.); with H. P.'s General Jacqueminot, Jules Margottin, and Victor Verdier. Of the last class, Anna Alexieff, Madame de Cambacérès, most adaptable of roses, and Madame Domage, one of the largest and sweetest, must be added. All the above are show flowers, as well as such admirable adjuncts to the borders or rosery. Among the Bourbons, as previously intimated, a wide range of autumnal roses would be met with, many of which now only exist in old catalogues, and perhaps in some remote country gardens which the spirit of innovation—not always the spirit of improvement—has not divested of old favourites. Aurore du Guide, Armosa, Apolline, Bouquet de Flore, Dupetit Thouars, Le Grenadier, Paul Joseph, Prince Albert, Molière, Souvenir de l'Arquebuse, Empress Eugénie, if not large enough for the taste of the present generation, have not been surpassed in their line, amongst which symmetry of form is not the least feature. Add to them the following, of somewhat later date: Paxton, Victor Emmanuel, Modèle de Perfection, Baron de Noirmont, Rev. H. Dombrain, Catherine Guillot, the last four classed by some growers under the more novel head of Bourbon Perpetuals; and the cultivator will have a nice collection of compact flowers, free in the fall of the year, if not so large as the fashionable monstrosities of the tables, whose coarse hulk should be a disqualification instead of a beauty and recommendation.

The common China and its varieties is a persevering exhibitor of its pretty pink blooms, early and late, and should be copiously distributed in every garden. The Teas also are usually free-flowering kinds where the climate will allow them to be grown in the open air.

The Noisettes are late, but not very perpetual, blooming in clusters, and suitable for walls.

The best of the twice-blooming Hybrid Perpetuals, for very, very few of them go beyond this, will be found in the following list: Hybrid Perpetuals, alphabetically arranged—Alfred Colomb, likely; Admiral Nelson, Auguste Mic, for good climates; Baronne Prevost, Beauty of Waltham, Charles Lefebvre, Comtesse Chabriland, Comte de Nanteuil, Colonel Cambriels, Comtesse Kergolay, Crimson Perpetual (D. P.), Duchess of Norfolk, Doctor Julliard, Duchesse de Morny, Eugène Verdier, Eugène Appert, François Lacharme, Géant des Batailles, Gloire de Chatillon, Henry IV., Impératrice Eugénie, Jacques Lafitte, old; Jean Goujon, Jean Bart, John Hopper, La Brillante, La Fontaine, La Reine, La Ville de St. Denis, Louise Peyronny, Le Rhône, Louise Darzens (P. N.), La Reine de la Pape, fit only for borders; Madame Alfred de Rougemont (P. N.), Madame C. Crapelet, Madame C. Wood, Madame C. Joigneaux, not always; Madame Domage, Madame E. Vilmorin, Madame Freeman, Madame Souppert, Madame Bruny, Madame J. Daran, Madame Knorr, one of the most certain; Madame Pierson, an incurved rose; Mdle. T. Appert, Mdle. Bonnaire, Madame V. Verdier, Mareschal Suchet (Guillot's), Marie Boissée, Marcella, not sufficiently proved; Marguerite St. Amand, Monsieur Montigny, Mrs. William Paul, Mrs. Rivers, Pavillon de Pregny Parmentier, Pierre Notting, Prince C. de Rohan, not always; Prince de Porcia, Princess of Wales (W. Paul), Prince Napoleon, Pius IX., Rosa Mundi, Reine des Fleurs, Red Rover (W. Paul), Reine de la Cité, Reine de Castile, Sophie Coquerelle, Souvenir de Leveson-Gower, Sénateur Vaisse, Sœur des Anges, where locality suits; Triomphe de la Terre des Roses, Triomphe des Beaux-Arts, Triomphe de Caen, Triomphe de Paris, Triomphe d'Angers, Vainqueur de Solferino, Virginal, Vicomte Vigier, William Paul, Xavier Olibo, not sufficiently certain. Of course the previously-named kinds must be included in this list. Noisettes are mostly late-blooming roses, and none are preferable to Maréchal Niel, good Aimée Vibert, Jean d'Arc, Ophir, and the once favourite rampant grower, but unfortunately too tender, Jaune Desprez; the blossoms of this are as beautiful as curious in their mixture of colours, and are also remarkably sweet. It is not pretended that the above is a perfectly exhaustive enumeration, but it is copious and reliable, being the result of actual experiment and research.

It cannot have escaped the notice of the observant horticulturist how much sooner the foliage of deciduous trees and plants turn yellow and fall in the neighbourhood of large towns. The same causes affect the rose, which is consequently much less disposed to bloom a second time in such localities than in regions where a purer and more rural atmosphere prevails.

Before quitting the subject, it will be desirable to point out that improper treatment or neglect will speedily reduce a free-flowering to a sparse-blooming kind. Those who wish for a second crop of roses must behave to their plants liberally, feeding them well, and flooding them plentifully in dry weather. Three or four times before August they should have a couple of gallons of liquid manure each, thoroughly saturating the soil round the plants, but not touching the collar; the soil would be better previously loosened with a fork. Attention should likewise be paid when cutting the flowers to go back to a promising eye, indicating by its form a future bloom-bud. A succession of flowers may also be procured by varying the time of pruning in the spring. Annual or biennial lifting in November should also form part of the course of culture of all who desire their roses to bloom satisfactorily in the autumn, always renewing the soil as well as enriching it during the operation, *i. e.*, giving fresh earth as well as manure. The process will also afford opportunity for root pruning—an important thing. A spadeful of clean crushed bones thrown into the hole is a valuable and nourishing addition. I have been told by one who practised it, that in a short period the roots would run amongst them in a mass of fibres, which enabled him to lift and replace them with great ease and security.

W. D. PRIOR.

London Road, Clapton.

POT CULTURE OF THE GLADIOLUS.

The season has arrived when the most of us are beginning to think of selecting our bulbs, especially for growing in pots. Lilliums, Hyacinths, Tulips, &c., have each their place assigned for the above purpose; but very few make choice of the Gladioli for pot culture, considering that they succeed best when grown in beds or borders, and certainly their effect when so grouped and in flower is strikingly grand; but let me advise those gardeners who have to maintain a succession of bloom in the conservatory throughout the year, now they are ordering their bulbs, to procure some roots of Gladiolus for growing in pots. If they have not previously adopted the practice, they should now select them for flowering during next summer; and, if they succeed, I am certain after that they will be only too anxious to extend their culture in the future.

Having, in the early part of this year, a surplus stock of Gla-

diolus Brechleyensis, floribundus, and one or two other varieties, for which I had no room in the borders, the thought occurred to me that I would see what they would do in pots. The roots of Brechleyensis were very large and fine. Of this variety I planted three in an eleven-inch size pot. The soil which I used was good stiff yellow loam, mixing with it about a fourth of decayed manure. In planting them I did not cover the crown of the root with more than an inch in depth of soil; but I potted them very firm, taking care to press the soil well round the bulb. After this they were placed in a cold pit; and as soon as they had grown somewhat, and the weather would permit, they were removed to a spot out of doors, and abundance of water given them as they needed it. The great object of the cultivator should be never to let them suffer for lack of moisture to their roots, otherwise the foliage will become brown and unsightly. Thus treated, my bulbs have sent up splendid spikes of flowers, and the effect has been gorgeous, the colour of Brechleyensis being a rich vermilion-scarlet, contrasting finely with the soft but delicate white and rose colour of Floribundus, another beautiful variety. Pot Gladioli are the more useful because they come in when the showy pelargoniums and other early summer subjects are ceasing to attract admiration.

JOHN F. McELROY.

PLANTS USED FOR DECORATING WINDOWS IN PARIS.

I send you a few notes upon the principal plants which serve for window decoration in Paris. Among these plants the *Palms*, without doubt, occupy the most important position. I give below a list of those which are most generally used, not only because of their rustic appearance, but also on account of the very moderate price at which they can be obtained.

Chamærops humilis and *excelsa*.

Corypha Australis.—This plant, although now but little known, is destined in a short time to occupy a foremost place in the decoration of apartments, where it makes itself conspicuous by its peculiar beauty, and the number of its leaves; it is, I believe, the most rustic in appearance of all the Palms. The *Cocos coronata* and *flexuosa* are very elegant, and produce a charming effect. *Lantana borbonica* is certainly the most *recherché* plant of this family, and is valued as much for the beautiful green of its leaves as for its general rustic and elegant appearance.

Phoenix dactylifera, *leonensis*, and *reclinata* are also very much sought after, and are highly esteemed.

Areca alba, *lutescens*, and *rubra*.

The following list of *Palms* could also be used with great advantage in the decoration of apartments; but their high price and great rarity cause them to be not much known, although they accommodate themselves to the atmosphere of rooms as well as any of those previously mentioned.

Areca sapida, most of the species of the genus *Caryota*, *Chamædorea amazonica* and *elatior*, *Chamærops palmetto*, *Elais Guinensis*, *Euterpe edulis*, with its finely-serrated and very graceful foliage; *Oreodoxa regia*, young plants of which are very frequently used; *Phoenix pumilis*, *Rhapis flabelliformis*, and *Thrinax argentea* and *elegans*.

Next in importance to the *Palms* we must place the *Dracænas*. Those which are the most frequently noticed are *Dracæna Australis*, *cannæfolia*, *congesta*, *indivisa*, *indivisa lineata*, *rubra*, *stricta*, *terminalis*, and *umbraculifera*. Those most easily managed, and therefore the most popular for window ornaments, are *Dracæna congesta*, *rubra*, and *terminalis*.

Pandanus utilis, *Neudermerschi*, and *Javanicus variegatus*; *Cycas revoluta*, and the different varieties of *Aspidistra*, occupy also a very important place in the decoration of apartments.

The plants composing the following list, although very rural and elegant in appearance, are less sought after and cultivated than the preceding ones, because they are more difficult to manage as window plants, and require considerable care and attention. They are more suitable for frames and cases, and may frequently be met with cultivated in that manner.

Several species of *Aralia*, more especially *Aralia Sieboldii*; *Bambusa japonica variegata* and *B. Fortunei variegata*; the different varieties of *Begonia*; most of the *Bromeliaceæ*; *Caladium odoratum*, for winter decoration, and the other species, with their beautifully-spotted and mottled leaves, for the summer; *Carludovica palmata* and *plicata*; *Croton pictum*, *pictum variegatum*, and *discolor*; *Curculigo recurvata*; some species of the genus *Dieffenbachia*. The *Ficus elastica* is a very elegant plant for a window ornament, and some years ago was very much employed for that purpose; but since it has become somewhat common *Ficus Chauvieri* has been substituted for it in many places. *Isolepis gracilis*; *Maranta zebra*—this is the only species of *Maranta* suitable for cultivation in apartments, as all the others speedily succumb to the hot and dry atmosphere inseparable from a living room. Several species of *Musa* are favourites, but principally *M. discolor* and

M. rosca; *Musa cnscte* is particularly suitable for window culture, but it is still so scarce, and of such a high price, that it is but seldom met with. *Pandanus amaryllifolius*; *Philodendron pertusum* was much sought after during the past winter, and has in most places thrived so well that it has given general satisfaction. Several varieties of *Pencenctia* are very suitable for rooms, and produce a very beautiful and graceful effect when grown in suspended vases or baskets. *Rhopala corcovadensis*: this plant exhales a somewhat disagreeable odour, but is nevertheless very much sought after, on account of its very elegant and graceful appearance during the development of its young leaves. *Tradescantia discolor*, *Phormium tenax*, *Rhododendron*, *Camellia*, *Grevillea robusta*, *Euonymus*, *Aucuba*, *Bonapartea*, *Agave*, &c., &c.

The family of Ferns, although classed among plants with delicate tissues, and having a great dislike to dry hot atmospheres, nevertheless furnishes numerous examples, which, with careful management, add very much to the beauty of apartments. Thus I have very frequently remarked several species of *Adiantum*, which, wherever they can be preserved in good health, produce without doubt a most ravishing effect. *Pteris argyrea*, *P. cretica albo lineata*, and *P. serrulata variegata* also produce a very fine effect, with their prettily-marked foliage. *Alsophila Australis* and *Balanium antarcticum* are also sometimes employed for decorative purposes in rooms of large dimensions, where their magnificent appearance never fails to produce a very imposing effect.

All kinds of plants bearing flowers have paid their tribute to the ornamentation of rooms, from the humble mignonette, upon which the patient sempstress loves to turn her weary eyes, to the magnificent orchid that, with its brilliant colours and fantastic forms, fills with grace and beauty the apartments of the affluent.

Until very recently, I had believed that orchids would never flourish if taken from the greenhouse; but a gardener of my acquaintance has introduced them while in bloom into a drawing-room with perfect success, the plants not having suffered in the least by the change of atmosphere. These orchids were, if I remember rightly, species of *Catleya*, *Vanda*, *Aerides*, &c.

Paris.

A. CHANTIN.

ON DEEP CULTIVATION.

Every feast leaves its crumbs, and some which I collected on the spot I now venture to send to you. Were we to examine the depth to which the roots of many of our cultivated plants will penetrate a loose open soil in quest of food, we should be less sceptical as to the advantage which deep cultivation affords to the roots of plants. The market gardeners around London trench often and deeply, not only to change the surface, as some suppose, but to allow the roots of their crops to range as deep as they please, and without this assistance the enormous crops of first-rate produce they take from the land could not be obtained. If deep cultivation is requisite in the rich and deep alluvial soils of the Thames valley, how much more so is it on poor and shallow soils, which afford comparatively only a limited pasturage for the roots of plants!

It is true, gravelly and rocky subsoils are almost beyond the reach of improvement, as the expense of breaking up the substratum would, in most instances, be too great to pay. But this is not always the case, for I have seen the brashy subsoil of some localities broken up with good results, as well as some gravelly subsoil, particularly where the layers of gravel are thin, and mixed with clay or ferruginous matter, rendering them impervious to water as well as to the roots of plants. By breaking through this crust, so as to admit a free passage for the water, a marked improvement follows. Clay subsoils, however retentive, are capable of being reclaimed; but this is a work of time, as all you can do after thorough drainage is to break up the clayey bottom to the depth of twelve or eighteen inches, according to its nature, each time the ground is dug or trenched. This bottom when forked up should be kept as open as possible, which will facilitate the passage of water through it, and the salts and ammonia carried down by the rains from the manuring, &c., of the upper soil will in time reduce its tenacity, assisted by the decomposing action of the air, which will now have better access to it; and, in a few years, by practising this you will find your land gradually increasing in depth and productiveness.

Many calcareous and slaty rocks are likewise capable of improvement when broken up and exposed to the action of the weather, and when shallow soils rest on these descriptions of rocks, by all means break up a stratum of it yearly below the top soil. Many hard compact marls of the red sandstone and lias formations are as unfavourable for the growth of plants as rock or gravel, and yet when broken up, and exposed to atmospheric influences, they make fertile soils capable of producing every kind of crop. To obtain a sufficient depth of soil for the roots of vegetables to penetrate is one means, and a great one, of increasing their produce. Plants growing in soils made open for a considerable depth are much less liable to suffer in dry weather, as their roots are in a position to obtain moisture at a lower depth, and hence the suitability of deep soils for summer crops; the same soils are likewise warmer in winter. A soil from which the water passes through freely can never be very damp, and relatively never very cold; nor are they so dry in summer, for this reason—the action of the sun's rays on the surface soil causes the moisture contained therein to be given off by evaporation, and this produces an upward action of the moisture contained in the soil below, to supply that which has escaped by exhalation from the surface. We shall find, then, that, in proportion to the power of the evaporating process on the surface, there will be a corresponding rise of watery particles through the entire mass of soil below. This will positively keep the soil moister, because it is more open and porous than a shallow soil with a compact subsoil, which would obstruct the progress of moisture from below, at the same time as it prevented its escape downwards. By all means, then, for vegetables have a mass of soil, if practicable, from two to three feet deep, sufficiently open to admit air and water to pass freely each way when needed.

BENJAMIN HILLS.

Albert Nursery, Pembroke Place, Bayswater, W.

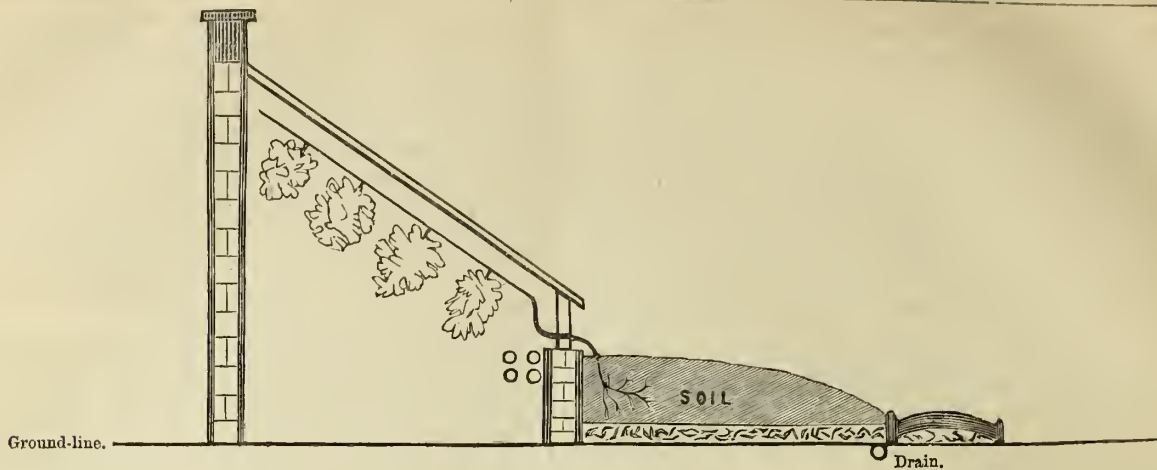


Fig. 1.

CONSTRUCTING A VINERY.—No. II.

When I closed my last article on this subject, I did not intend to give plans of vine borders, thinking that a plain description would suffice. But as some friends think they would be serviceable to inexperienced cultivators, I very cheerfully comply with their wishes; and I here give such outlines as will enable any of my readers to construct a vine border, whether in a favourable or unfavourable position. And here perhaps some general remarks may be necessary to a proper understanding of my views on the subject. In the first place, it will be seen that I am an advocate for placing the border above the ground level. This remark I mean to refer

those who made it. I do not mean to say that the water so drawn to the bottom of the border lies there in a stagnant state, as, if constructed as I have here shown, the drain would carry it away (at least for a time). What I want to show is, that when borders are so made, there is a much greater quantity of water passing beneath the roots of the vines than many suppose, and every sensible cultivator will understand that it must have a tendency to render the soil cold above; and when the bottom of the border is concreted or paved, and surrounded with a brick-wall, then no harm can come to it, as the water cannot affect the border. But as the majority of borders are only surrounded with the natural soil of the

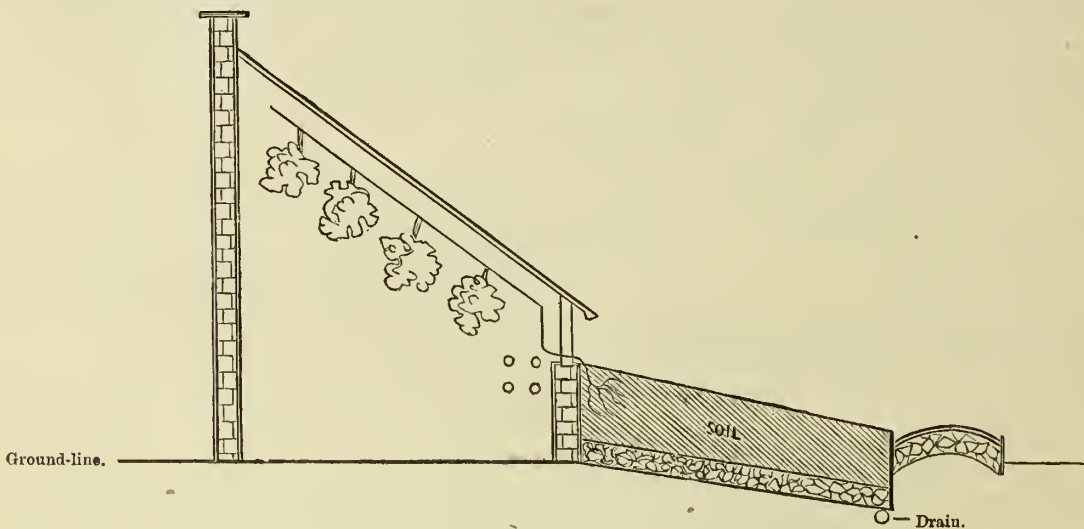


Fig. 2.

to the majority of cases. It is not strictly necessary in some few instances, and this last remark only applies to those exceptionally favourable soils and very dry situations. There are many ungenial soils and cold situations where it would be very unwise to place the border on a level with the surrounding surface of the garden, as the drainage provided for the roots of the vines serves also to drain the surrounding grounds, so that the vine border actually serves as a receptacle for a much greater space that ever was anticipated by

place, we must deal with it in the surest way possible that is likely to lead to success, and this is best secured by placing the bottom of the border on a level with the surrounding surface, or, at the most, only a few inches below it at the point farthest from the house, as shown in figure 2. I have the greatest possible objection to borders beneath the surface in cold soils, unless they are concreted at bottom and surrounded with a brick-wall up to the level of the soil, because after some ten or twelve years' standing the

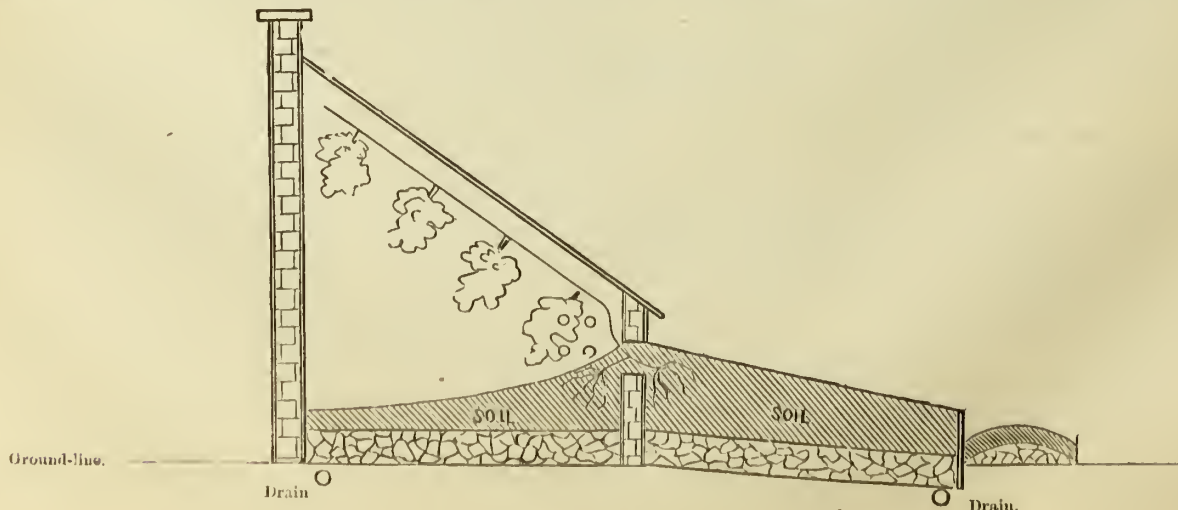


Fig. 3.

drainage gets choked up, and the border ultimately becomes sodden and sour. When this takes place, the roots of the vines work less freely, consequently they begin to show signs of weakness, until they get so bad that they are condemned to removal, and all this while the cultivator is perplexed and disappointed, and is continually hunting up excuses to account for the unfavourable condition of his vines. That this is the cause of many failures with vines that for a few years were promising I have not the slightest doubt.

Another consideration in favour of borders above ground is that, lying drier, they are consequently warmer, and are at all times more manageable. They may require more water in dry seasons,

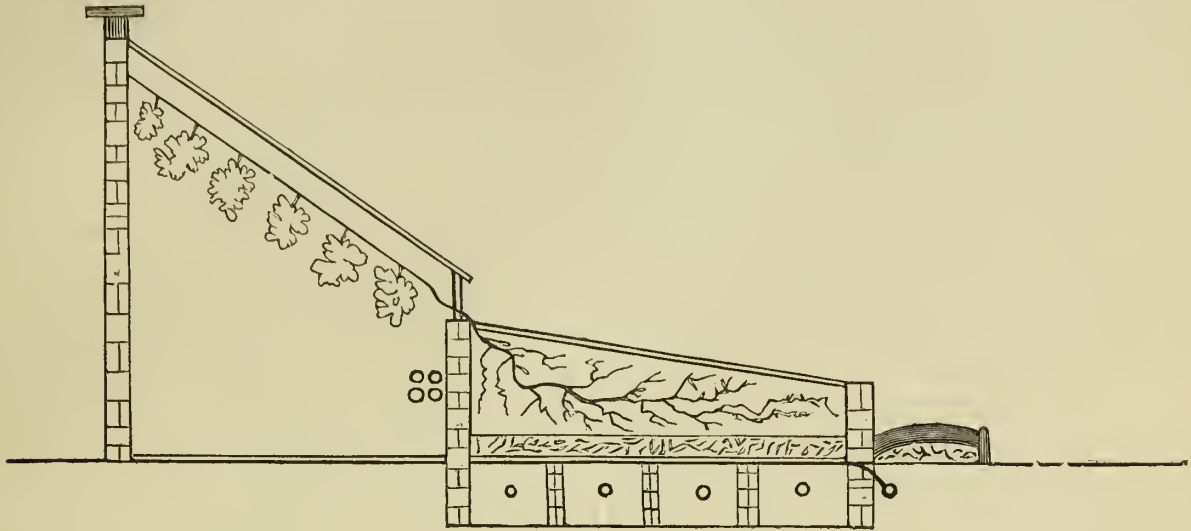


Fig. 4.

but it is much better for the vines to have to give them an occasional soaking than to have them constantly surrounded with a damp cold soil.

I am no advocate for restricting the roots of a vine that is not forced early, unless it be in an unfavourable soil or situation. And there are many positions where the roots may ramble for many yards without injury, but, on the other hand, collecting a more abundant amount of sustenance, which necessarily adds to their fruitfulness and vigour. But in every case the border should be concreted at least ten feet wide, the whole length of the house, and beyond this it is not likely that the roots will come to harm.

It is almost impossible to say to what distance the roots of a vine will travel in search of food, when there is nothing to impede its action. I well remember, when at Moor Park, finding the roots from a large old vinery some twelve or fifteen yards distant, and the vines in that house were not surpassed in fruitfulness and vigour by any in the same county. There are very few good grape-growers but could tell us of similar instances. Therefore I maintain it is not desirable to confine the roots to a limited space, when the surrounding position is dry and the soil favourable for their extension. In every case which I have seen of old houses remarkable for their productiveness, the roots of the vines have had unlimited room for extension, and I am not afraid to hazard an opinion that a healthy vigorous vine, fifty years old, will extend its roots, if the surrounding soil be suitable, the same number of yards.

Turning our attention now to the sections of houses and borders shown, we find figure 1 specially designed to suit a position that is cold and the soil stiff and damp. The border, as shown, is made upon the surface; the drainage placed upon a concreted bottom, with the drain to take away the water. If the soil and position is cold then the roots should be confined, and the border kept in a fertile state by rich surface dressings.

Figure 2 is for a similar position. I merely give this section to meet the case of those who may object to a raised border, or where the position will not admit of the border being all above ground.

Where this plan is adopted, it will be still more important to confine the roots in an unfavourable soil.

Figure 3 is applicable in any case with the roots divided between the inside and outside. This is a very desirable plan for an early house, and gives any one who may wish to try it an opportunity of growing vines upon two sets of roots. Figure 4 is a chambered border, which can be heated either by a flue or hot-water pipes. The three piers supporting the floor being composed of bricks let in pigeon-hole fashion, to allow the heat to circulate evenly, the floor should be supported either by slate or stone slabs, leaving a vacancy of about an inch between each two, to allow the heat to ascend into the soil above. In this case, eight inches of

drainage and two feet of soil will suffice, as the surface of the border will require to be annually enriched.

Figure 5 is given to meet the case of a correspondent who has only a space of sixteen feet wide, on which he wishes to put up a span-roofed vinery, a span being essential to be in character with his dwelling-house. Similar inquiries are often made by those who have small places. I therefore hope the rough outline here given may be useful to many. The roots are all inside, with the border considerably raised to meet the case of our correspondent. But there is no reason why it should not be some twelve or fifteen inches lower, if desired. I may add that many amateurs seem to forget that vines can be grown with their roots inside. Here I must close this article, leaving the remarks I had intended to make on the construction of the border until another opportunity. J. C. CLARKE.

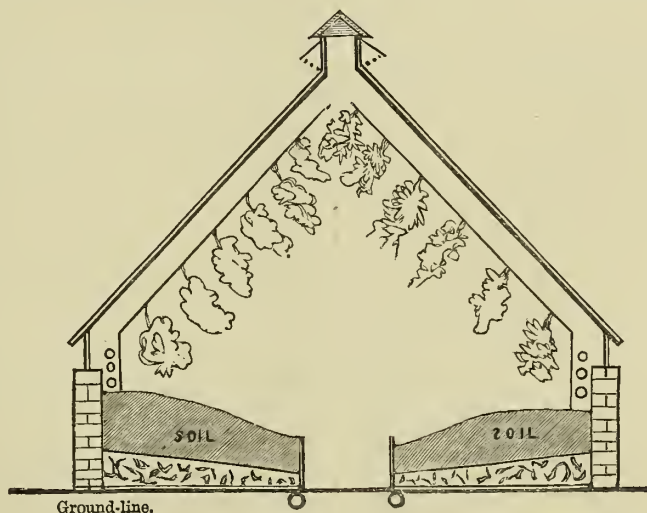


Fig. 5.

were taken away, when the bird forsook its nest in the beech, and again commenced building over the door, in the place it had first chosen. The nest was again destroyed, and two slates placed over the spot. The bird contrived to throw down one of the slates from a slanting to a horizontal position, and then began to build upon it. The nest was again destroyed, and the three stones replaced, and kept there a fortnight, after which they were again removed, and directly they were taken away the bird again began building. The nest was subsequently destroyed several times in succession. The bird was twice driven away by a towel being thrown at it. A stone, wrapped in white paper, was placed on the ledge to intimidate it, but the fly-catcher still persevered, completed a nest, and laid an egg in it. On hearing the circumstances, I directed that the persecution of the poor bird should cease, after which it laid two more eggs, hatched all three, and successfully brought off its brood.—“The Birds of Norfolk,” by Henry Stevenson.

PERTINACITY OF BIRDS.—A spotted fly-catcher (says Mr. Gurney) began to build a nest over the door of the lodge at the entrance of my grounds. The woman who lives in the lodge destroyed the commencement of the nest. Every day for a week the bird placed new materials in the same place, and every day the woman removed them, and at the end of a week placed a stone on the ledge, which baffled the fly-catcher's efforts at that spot; but the bird then began building at the latter end of the ledge, from whence it was also driven, and three stones being then placed on the ledge, the bird relinquished its attempt, and commenced a nest on a beech-tree opposite, which it completed, and laid two eggs. When the bird was thus apparently established, the stones over the door

HORTICULTURE IN FRANCE AND AT THE GREAT FRENCH EXPOSITION.

(FROM THE TIMES CORRESPONDENT.)

French horticulture is, generally speaking, less advanced than our own, but in some respects it is far superior. Its best features were but very imperfectly represented at the Exposition, and therefore, in attempting to point out such of them as are best worthy of adoption with us, I shall not confine myself to the reserved garden in the Champ de Mars, but discuss the horticulture of the country generally, having had good opportunities of studying it. This course is the more desirable, in consequence of the Commissioners having refused to allow the Imperial Horticultural Society to manage the gardening part of the Exposition, and therefore many good exhibitors have not taken part in it.

I will first touch upon the most elegant phase of the subject—plant decoration in Parisian houses. Here the French are far before us. In many British houses plants are so ill arranged, and so very ill selected, that we must not be surprised to find a good many people dispensing with them altogether as an ugly and expensive nuisance, though they are, when well selected and tastefully disposed, the most refreshing and desirable of all indoor embellishments. Instead of employing a number of ordinary flowering plants as we do, they use a great number of small graceful palms, and other plants distinguished by striking or elegant habit, or by leaf-beauty. There are obscure nurseries about Paris in which you may find thousands of handsome young palms, *Dracænas*, Screw pines, the New Zealand flax, aralias, ficuses, and numerous other plants distinguished by beauty of form. The British gardener still adheres to his scarlet geraniums and dumpy graceless plants, generally excluding a particle of grass or verdure. Of course, we must change all this if we are to fully enjoy our plants and gardens. Not only do those palms, &c. furnish the finest effects, but they, not depending on flowers for their attractions, may be used at all seasons, and have generally a strong and leathery texture of leaf, which enables them to thrive very much better in the dry air and dust of a house than the flowering plants which we usually employ so much. There is scarcely a decent house in Paris in which you may not see the refreshing verdure of palms, comparatively diminutive it is true, but in every line as beautiful as when fully developed in their native wilds. Of course the dwarf flowering plants may be employed with these palms, and far more effectively than if arranged alone. When the French decorate a house for special occasions, the utility of their quantities of "fine-leaved" plants is seen at a glance. They produce such effects with them as those who have not seen the *Hôtel de Ville*, or any large Parisian house decorated for a fête, can have no conception of. Even on occasions when we can command plants of light character, we frequently place them so ill that the artificial conditions under which they exist with us are suggested at a glance. At the annual reunions of the Linnæan or Royal Societies, where they get the best plants from Kew, you may see a fine subject with its ugly pot or tub more conspicuous than its head; while the French, on the other hand, always arrange the plants in tasteful groups, in which you see a sufficiency of gay and choice flowers among the nohler materials already spoken of, and not a trace of awkwardness, in consequence of the pots, tubs, &c., being plunged in banks of fresh moss. A due proportion is carefully preserved in all parts; they line staircases with a border of dwarf but still graceful things, and in wide halls with pillars they place tall palms with great arching leaves and drooping leaflets, which meet overhead and make the scene more beautiful than anything of the kind we ever see in England. The effects often produced in this way in Paris are, indeed, superior to anything seen at our flower shows, in consequence of the pleasing mixture of all the materials, and the charmingly natural effect which results from it. However, it is as permanent indoor ornaments that the plants named deserve most attention in the British isles.

To turn to the edible department, we have first to admire the magnificent apples and pears which the French grow. These are often to be seen in Covent Garden, and at some of our great fruit shows. During the past spring, specimens of the *Calville Blanche*, *Reinette du Canada*, and other fine apples, were sold in Paris fruit-houses for as much as two and three francs apiece. It may well be imagined that apples which could command such a price must be very fine, and such was the case. In point of flavour or external beauty they were such as we never produce by the ordinary way of growing apple-trees. The choicer kind of pears may be grown in the same way and with equal success, so that planting pears with the philanthropic view of supplying ones' heirs and posterity generally is not now so praiseworthy, or, at all events, so necessary a practice as it used to be. They adopt it to gain increased light and warmth, and we have the same wants in a somewhat greater degree, even admitting that the climate of a great part of France is very like our own and much more disagreeable than we generally suppose it to be. The way they induce the apple to bear such fine fruit is by training it as a single shoot along a wire supported at about one foot from the ground. They graft those little trees on a stock called the "Paradise," which induces a dwarf habit and early fertility, so that trees on it bear fine fruit at two years of age. The single shoot which forms the tree is kept closely pinched to its wire, the fruit it bears is at all times freely exposed to the sun, and it is perfectly under the command of the cultivator, who thins the fruit so as to allow of a large development. These *cordons* are trained round the borders of many French gardens as an edging to the vegetable quarters, but the method best suited for the English garden is that of having several lines stretched along a cosy warm border, fully exposed to the sun, and placed at a couple of feet or so apart. They are thus grown to a considerable extent in the Imperial kitchen garden at Versailles. Such an arrangement would be capital for the choicer kinds of dessert apples, our ordinary wants being best supplied from trees allowed to grow naturally, and well thinned out to allow of a free supply of air and light to the fruit. They grow the pear in the same way, and with an equally good result, but it is also very extensively grown as a pyramid.

The peach is also grown to great perfection, and chiefly for the Paris market at Montrouil, a few miles east of Paris. Near that town a large surface of land is noted over with white walls, enclosing small squares of ground, and against those walls the peach-trees are trained. Some of the gardens are very interesting, and exhibit specimens trained in a singularly perfect and beautiful manner. The celebrated Napoleon peach tree is one of them, and is an interesting example of their complete mastery of the tree. It is simply a single specimen trained so as to figure the name "Napoleon" very largely on a white wall, one branch going to form each letter. Two great shoots are trained around the letters so as to enclose them with a border. The

tree bears a capital crop, and is an excellent example of what may be done by skillful training. There are many other shapes, some of them equally interesting, but of course these curiosities in training are more for ornament than use, though they bear as well as the simpler and more natural shapes. The soil is a calcareous loam, but there is nothing either in the soil or climate of the place which is so effective as the special and careful training and culture, and undoubtedly quite as good a result might be produced with the best of our open-air fruits in the warmer and more genial parts of England and Ireland.

A French gardener is capital at a cauliflower or the materials for a salad, but it is at asparagus that we find him great. One of the first things that strikes the English visitor to Paris is the great excellence of this dainty herb for many weeks in spring. The student in the Latin Quarter, who pays a couple of francs for his dinner, enjoys it longer than many an English country gentleman with a bevy of gardeners. A plate of it at any of the great establishments (*de bouillon*) is very nice for 2½d., while its aldermanic proportions, polished ivory shaft, and rosy bud at Philippe's, Durand's, or any of the first-class restaurants in Paris, is truly admirable. In France it is very much more extensively grown than with us, and everybody enjoys it, so that they have for a long time in spring and early summer what we may term the season of asparagus. For the Paris market it is grown to the greatest extent in the valley of Montmorency and at Argenteuil, a town on the Seine, a few miles north of Paris. About the latter place several thousand persons are continually employed in its culture, and thence were sent the specimens which were so successful and so much remarked at the Exposition. Their system of cultivating it is directly opposite to ours, much more sensible, and equally or more adapted to British soil and climate. Instead of planting on a bed or on the level, as we do, they plant in a shallow trench. Instead of crowding the plants together, as we do, they place each quite distinct, so that it has full room to become a strong and vigorous plant; and instead of leaving them to nature, as we generally do, when once planted, they continually exercise a watchful care to preserve them from breakage with wet winds by staking, to replace all delicate plants, and refresh them every year with a little manure. About Argenteuil it is very much grown among the vines, each single plant or stool standing 6 ft. or 8 ft. apart in every way. But the special way of growing it is best suited to our own wants, and of the several ways adopted the best is that of planting in a trench about 8 in. deep, the ground having been previously prepared, and the contents of the trenches thrown up between each row. They place the plants at about a yard apart in these little trenches, and every year afterwards they remove the earth carefully to the roots, spread a couple of handfuls of rotten manure over them, and cover up again. Small crops, such as lettuces, early potatoes, &c., are grown on the little ridges of earth between the trenches, and in some cases a wide trench with two rows of plants is employed. When the plants get well established and old they gradually grow up, and the little ridges being gradually added to the annual dressings, the surface becomes level, or nearly so. In a word, by planting below the surface they allow for and encourage the natural tendency which the plant has to rise, develop each plant with a good healthy "stool," and in this way heat us as much with asparagus as we heat them with hothouse grapes. Finally, I have to record that their system of small framing is infinitely superior to our own, inasmuch as it is a great deal cheaper. They successfully employ material which would be despised with us, and probably consigned to the rubbish heap. It is true they do not force indoor grapes as we do, and that the best forced grapes at the Exposition were of English growth; but in all small matters, from a good bed of endive or lettuce in the middle of winter to a great melon in early summer, their system is excellent. The salad that one may get in the middle of a hard frost in January in one of the best Parisian restaurants at a couple of francs needs no praise—one is to be had clean, fresh, and perfectly good at a large workman's restaurant near the Boulevard Mont-Parnasse on the same evening for about three sous. This is the result of the capital system pursued by the market-gardeners. They employ a great number of bell-glasses, as large as beehives, and secure a crop of magnificent cos-lettuce in the very dawn of spring. Around Paris you may see acres covered with these great bell-glasses, which cost about a franc apiece, and are useful for many purposes. But it is chiefly in the application of an intermediate degree of heat that they surpass us. They, like ourselves, depend to a great extent on stable manure for affording heat to frames, but apply it very differently and very much more successfully. We use a well-made expensive frame, and place it on the top of a mound of heating material, so that it is only warm on one side. They use a very cheap, rough, and narrow frame, plunge it completely in heating material, cover the top at night with a neat straw mat, and thus preserve a genial and steady temperature at all times. Those little frames are about four feet wide, very cheap, and are excellent for many garden purposes—from the production of early strawberries to the preservation over winter of summer flowers. They are never placed singly, but several rows together, the manure being placed right up to the edge of the frames and forming a narrow pathway between them. The greater portion of the immense collection of hedging plants grown at Passy for the decoration of public gardens and parks is kept all through the winter in these rough and simple frames; but as in this case the exclusion of frost is all that is required, the only material employed to put between them is the rakings of leaves and moss from the adjacent Bois de Boulogne. The French market-gardeners make a great use of these frames at all seasons, while they are also employed in the best private gardens where money is no object. The other day I saw several acres of large melons ripening off in these frames in a large market-garden. The lights had been taken off for some weeks, the full sun being sufficient to perfect the fruit. By looking closely among those melons a leaf or two could be seen pushed aside here and there, and a young cauliflower plant inserted. The sagacious cultivator had, in fact, prepared for a capital crop to come in soon after the melons are ripe. Most likely in a British garden the rich bed of earth in which the melons grow would be left unoccupied till autumn, and then thrown out; whereas the Parisian market-gardener secures another valuable crop before it is time to put in his autumn saladings. I have indeed never seen anything to surpass the careful cropping of these market-gardens. At all times their surface is quite green, and not a spot unoccupied except the little narrow paths that traverse the ground, and the quantity of produce they yield immense. They have always two crops on the ground at the same time—sometimes three. Thus the fine endive which they have now tied up and ready to cut for the market has a crop of lettuce between, ready to spread out and become quickly fit for use as soon as the endive is cut, and so on.

While the poorest Parisian regularly enjoys his palatable salads, nice

button mushrooms are not an unknown luxury to him. The mushroom is grown well and in great abundance under Paris, in the great mines or caves from which the stone for building has been extracted. Their equable temperature is highly conducive to the successful culture of this delicious esculent. As there is, unfortunately, nothing analogous to these caves in the profound bed of putty-like clay which underlies a great part of London, we cannot readily apply the fact to our own wants; but it may be worth relating. Anywhere that an opportunity occurs of making a "mushroom house" in the side of a chalk bank or pit, or in any other position in the earth, it should be taken advantage of; and is there not an opportunity of carrying out the cave system of mushroom growing in some of our mines, especially in those in which horses are employed, in useless railway arches, &c.? In like places, or in any dark cellar, may be produced the *barbe de Capucin*, the cheapest and best salad to be had in Paris, or in any northern clime, in the middle of winter. It is simply common chicory grown in the fields or gardens during summer, and dug up, tied in bundles, and placed in beds of sand in the caves in autumn. There it soon springs up white and crisp, and is sold cheap enough for the poorest to enjoy. There is no reason why Londoners should not also have *barbe*, when so disposed, though it takes time to introduce a thing of this sort to the people. But no English family in possession of a cellar (or even a dark closet, for you may pack the roots in a box) and a field or garden need be without this excellent salad.

Calendar.

WORK FOR WEEK COMMENCING AUGUST 31.

Kitchen Garden and Frame Ground.

CABBAGE to be planted out for spring supply on ground well manured. Collards planted close will now be getting crowded, so draw for use as soon as possible every other one, and ply the hoe between them.

CAULIFLOWER to be pricked out into frames for the winter, and to be kept as hardy as possible.

ENDIVE to be planted out on warm well-manured borders, to stand the winter.

SPINACH must be thinned till the plants are about six inches apart; vacancies to be filled up by transplanting, and if the ground is heavy or trodden during the operation, loosen it with care, so that the roots may have the benefit of the air.

WEEDS will be found to grow rapidly after the favourable showers we have had, and in fact much faster than the autumn crops, and will make their appearance in every place where the seed was allowed to ripen and fall during the summer months. Now is the time to give them an effectual check; and short work may be made of them on a bright sunny day with the Dutch hoe, when they may be either raked up in a neat manner, or left to wither on the ground.

EXHAUSTED CROPS of peas, beans, &c., should be cleared off as soon as they have done bearing, and the ground manured at once, trenched at the first opportunity, and planted with other crops.

LETTUCE to be sown again for the last time. For management of the autumn and winter crop refer back.

MINT to be potted for spring forcing. There is in almost every family a demand for mint before it can be supplied, and the only way to make sure of it is to pot it, then it will be an easy matter to push it on as wanted.

Flower Garden

AURICULAS.—If infested with green-fly, shake a little dry fine sand amongst them, and then blow it out with force, when the insects will be blown out with it. Caterpillars must be sought for diligently, and picked out by hand, or they will soon make general havoc. Keep the soil clean, free from dead leaves and weeds, and stir the surface gently. Shade from bright sunshine, and protect from heavy rain.

BEDDERS to have every necessary attention to keep them in proper order. If seeds are allowed to ripen, the plants will begin to decline in bloom, so remove them promptly, and serve a twofold purpose thereby. Take cuttings of Geraniums in plenty, and to save further trouble put them in pots or boxes as they are to remain for the winter. Use plenty of drainage and a poor sandy compost now, in order to check growth and harden the wood.

CARNATIONS.—Layers to be potted or transplanted, as soon as rooted, in sandy soil; avoid rich soil or stimulating manures, as they must not be encouraged to make much growth, or they will get a gross habit, which will be very detrimental during winter, for then it is necessary that they should rest. Place the pots in a close frame for a few days till fresh roots are made.

GLADIOLI to have regular watering for some time after the bloom is past; but as the foliage begins to decay give less and less, and when the soil in the pots is nearly dry, lay the pots on their sides in the full sun, to promote their ripening. Those in beds will take care of themselves till time to take them up.

LILiums to be treated the same as recommended for Gladioli. Give water till the leaves begin to fade, then lay them on their sides.

PINKS.—Plant out the old stock plants that have been grown in pots into borders, and keep the beds of young ones perfectly clean and free from weeds.

PROPAGATE all sorts of bedding stuff that will be wanted for next year as fast as possible. As soon as cuttings are rooted pot them off, or place in boxes as recommended above; keep them in a close pit or frame for a week or ten days, and then expose them to the weather for a short time before housing them for the winter.

ROSES may be propagated now by inserting cuttings in a bed of light soil in a frame or pit. But a more certain way will be to prepare the cuttings and insert them in damp sand in a shady place, and keep them frequently sprinkled till they callus, and then pot them and plunge them in a gentle bottom-heat.

VIOLETS for bloom during the winter and early spring should be taken up now with good-sized balls, and potted in 48 or 32-sized pots in rotten turf, or a mixture of leaf-mould and road-sand, and then placed in a pit or frame near the glass.

THE GLADIOLUS.—Many of the best varieties of this favourite flower are now in bloom, and selections may be made for next season. The time is

near at hand, too, for purchasing bulbs; and while the subject has a special interest a few cultural remarks may be seasonable. The bloom is generally good this season, and the new sorts have mostly turned out well, and we may therefore consider the flower to have made some real advance in popularity. It may be safely said that for decorative purposes there are no had gladioli, though among the named varieties some are better than others, and those who have what is termed "a florist's eye" will prefer flowers with broad segments, flat faces, and smooth edges, provided they have firm, pure, and regular colour. One of the principal causes of disease in gladioli is *keeping them too long out of the ground*. The practice has been to pot them or plant them in April or May. The consequence is, they have not time to make roots before the heat of the weather pushes up the flower-spikes, and the sap is consumed faster than the roots can furnish supplies. In such a case disease *must ensue*. Another mistake is the fear of using manure. Some very foolish papers on gladioli appeared a few years ago in the gardening journals, and did much mischief. People were told that manure was poison to these plants, and the consequence was that, being in the first instance impoverished by planting too late, they were next badly fed through fear of using manure. With two impoverishing causes against them, no wonder many an amateur lost his stock, and was disgusted for a season. *Early* planting is essential to success. If the bulbs are ripe and *hard*, they may be potted in September, but as there need be no great haste, hyacinths and crocuses may be disposed of first. Instead of waiting till April and May, take care that every gladiolus bulb is in the ground before the 1st of February, and if any quantity is required, pot them in successive batches, so as to secure a long season of bloom. Imported bulbs are, of course, ripe earlier than those grown at home, and may be potted before it would be safe to take up our own. And, indeed, as to taking up, if the beds are rather dry and safe from frost all winter, the next season's growth and bloom will be finer than by the system of annual planting. There are two evils to guard against in winter; do not let them be touched by frost, and do not force them into growth. Suppose a bed of gladioli now in full bloom; they will probably keep green till the end of October. If they are green then take them up with as little injury as possible, put them into pots without injuring the roots, fill in with any fine soil,—mere grit or cocoa-nut fibre will do,—and place them in a sunny pit or greenhouse. After potting, water them once, and after that do not give them a drop. This treatment will cause them to ripen off, and, to complete the process, expose them to the full sunshine on a shelf of a lean-to house, or in any dry place where there is some degree of warmth, to ripen them; remembering that in their native country the bulbs get well roasted by sunshine before the winter sets in, and that the winter they are subjected to is a very mild affair. The best material for covering the beds is new straw. Lay this on at the end of November, six inches thick, and over it throw two or three inches of quite rotten dung, which hides the straw, and adds to its protective powers. Take off the straw in March, and then rake the powdery manure evenly over the bed, and the growth subsequently will be satisfactory. As to soil, a good turfy loam with plenty of sand, leaf-mould, and thoroughly decayed manure is the best they can have. Good drainage is indispensable; and in case of a long continuance of hot dry weather, in a place where the soil is thin over chalk or gravel, liberal watering should be done. However, as a rule, these, like other subjects *properly* planted out, do better without artificial watering than with it. When grown in pots, let the compost be mellow turfy loam two parts, and one part each of leaf-mould, sharp sand, and thoroughly decayed manure, say, for example, three-year-old hotbed dung. They may be potted singly in five-inch pots, but are more effective if three or four bulbs are put into a seven-inch pot; and for peculiar purposes such sorts as *Brenheleyensis* or *Bowiensis* may be potted in ten or twelve inch pots, using seven or eight (or more) bulbs in a pot. These, when in bloom, would make magnificent ornaments for a terrace-walk or the front of any building. Another mode of dealing with them is to combine pot culture and planting out, and this should be done by all who are afraid to leave their bulbs out all the winter. Pot them singly in January, and plunge the pots to the rim and cover them a few inches deep with some protective material. During frost lay branches of spruce over, or in any other way that may be convenient, protect them from frost. By the 1st of May the pots will be full of roots, and they may then be planted where they are to bloom, and this, of course, should be done without any damage to the roots. There is yet another way of forwarding them preparatory to planting out, and that is to bed them in frames without pots. Cut a lot of grass turfs into breadths of about six inches, set them on edge, six inches apart, and fill in between with suitable soil. Then plant the bulbs in these divisions six inches apart, and leave them till the first week in May, when, the beds being ready to receive them, they may be lifted out of the frame in squares, and be planted where they are to remain.

SPRING FLOWERS.—Now is the time to make notes for next year's decorations, and it is a good time to buy in hardy herbaceous plants for flowering in the spring. Messrs. Dillistone, of Sible Hedingham, Essex; Mr. Webb, of Calcot Gardens, Reading; and Messrs. E. G. Henderson, of St. John's Wood, London, are rich in choice spring-flowering plants. Daisies, polyanthuses, primroses, and violets may be parted and planted now.

GARDEN PLANTS IN BLOOM.—*Pentstemon breviflorum*, *diffusum*, *Aster luxurians*, *multiflorus*, *inuloides*, *artimisiiflorus*, *Solidago procera*, *gigantea*, *Lysimachia ephemerum*, *Aconitum chinense*, *Anemone vitifolia*, *Japonica*, *Linaria vulgaris peloria*, *purpurea*, *Helianthus linearis*, *giganteus*, *trilobatus*, *Veronica complicata*, *Rudbeckia fulgida*, *asperima*, *columnnea*, *Vernonia angustifolia*, *oligophylla*, *serratuloides*, *Pyrethrum uliginosum*, *Hemerocallis Sieboldii*.

Fruit Garden and Orchard House.

CROPS of apples and pears to be gathered now as they ripen, always selecting a dry sunny day for the purpose, if possible; be careful to preserve them from bruises.

PEACHES and **NECTARINES** must be looked to as soon as the last fruit is gathered; if any are infested with red-spider, dust them liberally with powdered sulphur early in the morning before the dew is off the leaves, or else syringe them well before the operation, so that the powder may adhere.

Greenhouse and Conservatory.

GREENHOUSE and **CONSERVATORY** must be cleaned thoroughly at once, and got ready to receive the plants which are standing out of doors, for as boisterous winds, heavy rains, and sudden changes are to be expected soon, it would be well to stage the choicest and tenderest of them at once. When arranging them, have an eye to a general pleasing effect; put them so far apart that the air can circulate freely all around them;

and don't shut them up close. Examine the surface of the soil, and if any signs of worms are visible, turn the ball carefully out of the pot, when they may generally be picked out; supposing, however, that they are still invisible, do not break the ball to look for them, but return it to the pot, and stick a peg in it to serve as a reminder till the intruder is captured. Remove dead leaves, &c., from the plants, and see that the drainage is faultless. Give all the air possible, and only reduce the ventilation when there is an unfavourable change in the weather.

HELIOTROPES to be kept in healthy growth for winter flowering.

Sow mignonette for winter blooming."

GREENHOUSE PLANTS IN BLOOM.—*Borbonica cordata*, *Arctotis decumbens*, *Gesnera discolor*, *Douglasii*, *zebrina*, *elongata*; *Bignonia jasminoides*, *Venusta*, *Angophora cordifolia*, *Banksia verticillata*, *Nivenia spicata*, *Coeha scandens*, *macrostema*, *stipularis*, *Grindelia coronopifolia*, *Lambertii*, *Vinca pusilla*, *Meyenia erecta*, *Opuntia Dillenii*. Many of the Chinese primulas are now showing a fine bloom, and some of the species of *Cytisus* and *Coronilla* are now in flower. *Ericas*: *Oblonga*, *obtusa*, *pellata*, *infundibuliformis*, *amabilis floribunda*, *Farriciana*, *versicolor major*, *verticillata major*, *Archeriana*, *carneola*, *exposita*, *flava imbricata*, *curvifolia rubra*, *exsurgens major*, *Cushiniana*, *Eweriana longifolia*, *mammosa*, *vestita mutabilis*, *Savileana*, *radiata*, *pellucida rubra*.

MIGNONETTE IN POTS FOR ALL SEASONS.—Amongst all the odoriferous plants which are cultivated for decorating the conservatory and the drawing-room, there is none more universally admired or more easily cultivated than the mignonette; and yet it is seldom that we see it brought to that perfection of which it is capable, more especially during the winter and spring months. *Reseda odorata*, or the Mignonette, is a native of Egypt; it is, under ordinary treatment, an annual plant, growing from six inches to a foot in height, and is hardy enough to stand this climate during the summer months; but it will not survive our ordinary winters, unless in some very sheltered situations. In order, therefore, to obtain a regular succession, recourse must be had to pot or box culture, which will form the subject of the following remarks: The beginning of February is early enough to make the first sowing for a spring supply. The soil which should be used should consist of one-half loam, one-fourth part dung, and one-fourth part leaf-mould, well mixed together, and used in as rough a state as possible: the worms (if any should be in the soil) ought to be carefully picked out, or they will cause great injury to the plants, by stopping the drainage and disturbing the roots. The pots known as "forty-eights" will be large enough for this sowing; and these should be prepared by placing a crock over the hole in the bottom, and laying on this about two inches of the roughest of the soil, after which they should be filled with soil, pressed evenly and firmly, leaving the surface level within half an inch of the rim. On this the seed should be sown regularly, and, if its quality can be depended on, two dozen seeds will be enough for each pot; they will come up stronger than if sown thicker. Sift a little soil over the seeds, and give this a gentle pressure with the back of the hand, leaving the surface smooth and even, but not "glazed;" then give a gentle watering with tepid water, which will warm the soil and assist germination. Plunge the pots in a frame with a gentle bottom-heat, and keep the lights shut till the plants begin to appear; afterwards admit a little air every day, if the state of the atmosphere will allow; but at all times avoid the admission of currents of cold air, as I am convinced that mignonette suffers severely from too rash an exposure to cold winds. When the plants become a little innred to exposure, remove the lights every fine day, which will prevent them from being drawn, and better enable them subsequently to support themselves. As soon as the seed-leaves are fully developed, thin out the plants, leaving at this time ten or twelve in each pot; this number should be retained, as they are liable to damp off if over-watered, and especially if the weather should happen to be dull. When they have made three or four leaves, thin them out to five plants, which number is sufficient for a 48-sized pot; at the same time stir the surface of the soil, which often becomes caked by continual watering, and thereby prevents the access of air to the roots. When the sun begins to act powerfully upon them, a thin shading for a few hours during the heat of the day will be of great service, by obstructing its rays, which give to the foliage a yellow and unsightly appearance. When they have grown three or four inches, they will require to be tied up, to prevent them from falling over the sides of the pot. In doing this place five small stakes at equal distances close by the edge of the pot; then pass a strip of matting, with a turn round each of the stakes, and fasten it: it is necessary to leave the stakes two or three inches higher than the plants, as I have found them sometimes to require a second tie. If the roots at that time have found their way through the bottom of the pot, they must be broken off, or the plants will receive a severe check when finally removed. In re-plunging them, give them sufficient room to prevent their being drawn. They will require little more attention, besides giving plenty of air, watering, and shading, till the middle of May, when they will be in good condition for removing to the conservatory. The next sowing will require to be made about the beginning of April. The same compost as previously recommended should be used. For this sowing, however, I would prefer 32-sized pots, and would allow seven plants to remain in each: by thus having a greater body of soil, it will be found to retain moisture for a greater length of time, and the plants will not be so liable to receive any check by an accidental omission of watering. In other respects the treatment already detailed should be followed. By the middle of May, if the frames should be wanted for other purposes, the pots may be plunged in a shady place out of doors. They will come into bloom about the beginning of July. Other successional sowings should be made about the beginning of June and the beginning of August. These may be plunged in a sheltered spot out of doors; and, with attention to watering, thinning, and tying up, as previously directed, they will come into bloom respectively about the middle of August and the end of October. The latter of these sowings must be removed to a frame as soon as danger from frosts may be apprehended. The next sowing, which is to provide plants for blooming through the winter months, must be made about the middle of September. A little more attention is necessary at this season of the year, in order to prevent them from damping off, and also to secure as much of the sun's rays as possible. The soil I would recommend for this sowing consists of three parts of loam, one part of dung, and one part of leaf-mould. My reason for using more loam at this season is, because the compost then retains moisture longer than if a less proportion were employed; and thus the necessity of frequent applications of water is in great measure done away. In dull weather mignonette is very impatient of water; and, when it is applied, it should be done in the morning, in order that the foliage may become dry before night. For this sowing I would use 48-sized pots, giving them a good drainage. In

preparing the frame for their reception, it should be raised behind, so as to give it a good inclination towards the south, for the purpose of gaining the full benefit of the sun, and also of preventing drips, which are very injurious, as the plants seldom recover from checks occasioned by their becoming very wet. The bottom of the frame should be covered with brick rubbish, and over this there should be a stratum of rough coal-ashes, and again, on the top, six inches of finely-sifted ashes. This must be arranged so that, when the pots are plunged, they may not be more than nine inches from the glass. When the seeds are vegetated, give as much air as possible; and by attention the plants will begin to flower about the beginning of December, and keep in good condition for three months. The final sowing should be made about the beginning of October; using the same sort of soil and pots, preparing the frame in the same manner as directed for the preceding, and taking great care in the watering and thinning. By the beginning of March the plants will commence flowering. When frost sets in, cover the glass with mats and loose hay, taking them off on every favourable opportunity, as the young plants, when excluded too long a time from the light, will turn yellow and damp off. I would also lay some long litter around the frame, to prevent the frost from penetrating through the sides.

Stove and Orchid House.

ORCHID HOUSE to be shaded as little as possible, so that the pseudo-bulbs and strong healthy shoots may be assisted in ripening off by the influence of the sun; the process to be perfected by keeping up a genial atmosphere, ranging from 70° to 80°, with abundance of air in favourable weather. Give plenty of water to such as are growing freely, but very sparingly to those which are now rapidly approaching their season of rest. *Cattleyas*, *Lællas*, *Odontoglossum grande*, and *Lycaste Skinneri* may be kept rather cool with an occasional slight syringing. Orchids that have quite finished their growth for the season will require plenty of air during warm weather, to assist in ripening their pseudo-bulbs, and at the same time less water must be given. But in such a season as this the adventurous cultivator will sometimes encourage further growth by using a high temperature and plenty of moisture, reckoning upon having time yet to put the plants to rest safely. Many of the *Vandas*, *Saccolabiums*, and *Dendrobiums* will submit to this sort of treatment very cheerfully, and where there are abundant evidences of an inclination to keep growing, it is not at all advisable to check it. Young plants generally are reluctant to cease their growing, and these must have plenty of moisture and continued shading. But those that are unmistakably settling down to rest should no longer be shaded, and there must be a decrease of temperature and of water supply. Established plants of *Cattleya*, *Lycaste*, *Odontoglossum*, and *Lælia* will, for the most part, require no more stimulus this season, but they must nevertheless have light but regular refreshings from the syringe. *Stanhopeas* must be looked to, that they do not go too dry, which is very likely to happen if they have not been put into new baskets this season.

Forcing Pit.

VINES.—Pinch off laterals, as it is too late for the plants to benefit by leaves formed now, and remove useless growths.

FINERY.—Pines growing freely must have the aid of weak manure-water, and a moist atmosphere, but the bottom heat must be brisk if any stimulants are used. Shading may be removed early this month. Guard against forcing small plants into fruit, and to prevent it keep the plants growing by frequently sprinkling the beds and paths of the house. Bottom-heat for pines 84°, those ripening to be kept tolerably dry. Young stock to have air cautiously, which is best done when in dung-beds by first applying a lining to keep up the heat, which will allow of giving a little air at night.

FEMALE LOVE OF FINERY.—The Countess of Waldegrave was present last week at a school examination at Wigton, and delivered a short address, in the course of which she said: "I wish to speak to the females present, especially mothers. There is a subject which I believe a great many will join with me in thinking important in these times in which we live, and that is the subject of female dress in all ranks of life, but especially among those who attend our schools. I regret to say that there is a great deal of what may be called useless finery among the young girls of the present day, and I should think that probably mothers are a little to blame in that particular. I have observed this passion to be on the increase during all my life; and as God's mercy has spared me through eighty years, I think I may speak from experience on the subject. I must say I think it a great mistake on the part of mothers to dress their children to the utmost extent of their means, instead of inducing them to lay by their pence for what is called a rainy day, or to collect clothing for winter; in place of which they allow their girls to spend all their little money, and what they can add of their own as well, on what I should call unnecessary and useless finery. I am very glad to find that you educate the children well here, and I am delighted to see that needlework is made a very particular point of examination in many of the schools; because, in seeking for female servants, we all want those who can be useful in those particulars, as well as in knitting and darning, for which I have had pleasure in giving prizes in my own country on various occasions. Now, while children are taught to spend all the money that they can get together on little bits of finery, the first thing a mistress has to teach her young servant is to dress neatly, and properly, and respectably, and thus correct the great mistake of mothers who help their children forward in unnecessary outside clothing, while very often, I regret to say, the inside is exceedingly deficient (laughter and applause). I therefore hope that mothers who have such opportunities of having their daughters educated—and you have many compared to those enjoyed in my part of the country—will earnestly strive to give them that degree of propriety and neatness in their dress which is always respectable, useful, and efficient. I trust you will excuse me, coming such a distance as I do, for making mention of what many, if they would speak out, really feel in their hearts (applause). I am often told by mothers, 'Well, ma'am, I can't help it. My girl will go to the second-hand shop and get these bits of things, where they are cheap. And it is only a penny flower, and a flower does not wear out so soon as a ribbon' (laughter). Well, but that is not neat, nor is it desirable; and when they get into service, most mistresses will object to that kind of finery which is not suitable to the station in which it has pleased God to place them (hear, hear). I hope my female friends will excuse me for giving them these hints, for they are the result of long experience."

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1867.			M. Imp. avg. of 48 yrs. Growth	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D	
			rises.	Sun sets.	Moon rises.	Moon sets.	Barometer.	Thermometer.		Rain							
1867			h. m.	h. m.	h. m.	h. m.											
8	S	12th Sunday after Trinity	5 25	6 29	3 33	11.11.			29.74	29.57	68	55	61.5	.22	56.5	Dendrobium Hayneanum, 1 ... ..Bombay	8
9	M	Tower Ham. Flor. Soc. Exhibition, Old Ford.	5 26	6 27	4 14	..	0 31	..	29.77	29.57	68	53	60.5	.24	56.3	Huntleya marghiata, 1 ... ..S. America	9
10	T	Crystal Palace Autumn Show, 10, 11, & 12.	5 27	6 25	4 49	..	1 28	..	29.58	29.45	69	50	59.5	.00	56.0	Scuticaria Stollii, 1 ... ..Guayana	10
11	W	Working Men's Ex. West Ham Lane, 11 & 12.	5 29	6 22	5 10	..	2 29	..	29.68	29.48	63	46	51.5	.16	55.9	Cattleya bicolor, 1 ... ..Brazil	11
12	Th	Farnworth Agricultural Exhibition.	5 31	6 20	5 47	..	3 32	..	29.93	29.74	60	47	53.5	.03	55.6	" marginata, 1"	12
13	F	Eclipse Moon vis. in Eng. com. at 10h. 57m.	5 32	6 18	6 15	..	4 39	..	29.91	29.68	63	50	58.0	.49	55.5	" punctata, 1"	13
14	S	Full Moon at 1h. 27m. a.m.	5 33	6 16	6 40	..	5 48	..	29.92	29.43	65	42	53.5	.02	55.4	Eriopala blotta, 1 ... ..S. America	14

The Gardener's Magazine.

SATURDAY, SEPTEMBER 7, 1867.

THE EFFECTS OF A HOT MOIST AUTUMN, following a cold and rather dry summer, are likely to be, upon the whole, beneficial. To speak of matters of somewhat trifling import first, we may direct attention to the comparatively sudden and very decided improvement of many kinds of bedding plants, more especially those that produce effects by the colours of their leaves. These have been, for the most part, very unattractive; in fact, somewhat unsightly until quite lately, but, with the augmentation of solar heat accompanied with a due degree of moisture, the species of Coleus, Iresene, Perilla, Amaranthus, and other like subjects, have suddenly acquired their proper splendour, and the season of the parterre promises to close as gloriously as the close of a bright day, when the western clouds are richly painted, or as one of the greatest modern poets described the dying of the dolphin. So far good; if we are to have bedding, and in great gardens it is as indispensable as it is superfluous in little ones, let us have it in the most gorgeous style possible, let not taste be violated, but let us have every plant in its true colour, and if the elements hinder the development of colour it is a matter for general regret. Another of the advantages of the increased temperature is, that we may look for a perfect ripening of all the growths of the season. The young shoots of trees will be hardened, fruits and roots will finish their career honourably, seeds are likely to be good; we may cease to tremble for the harvest. The moisture and the heat together favour greatly all autumn sowings of seeds: turnips are doing extra well, there is a prospect of abundant winter feed on the farm, and of winter vegetables in the garden; whatever growing remains to be done will be well done we have no doubt, and we shall have special cause for thankfulness that a summer so unpromising should close its career with so much of promise.

But let us learn caution from past experiences. The rains now falling are accompanied with high temperature. The wind is westerly, and likely to continue so for some time to come. The farmer and the gardener have alike to guard, so far as they can, against the second growth of subjects which should now cease growing and go to rest. Unless an early frost prevents it, we shall soon see a beautiful second growth in all forest trees; amidst their brown leaves will be tender green shoots, and that pretty dappling of colour peculiar to seasons such as the present. In the fruit-garden something similar may be expected, and we need not tell the practical reader that late growths on fruit-trees are absolutely worthless. To prevent this partial lifting is perhaps the best possible proceeding. Old fruitful trees rarely break into second growths; therefore, as it is impossible to lift them, so also is it unnecessary. But miniature trees, bushes and pyramids, are all likely, being in an artificial condition of restraint, to break away into sappy shoots to their own injury; and the only check to this absurd proceeding is to gently and carefully heave them over, or, in other words, to commence operations for lifting them, and to cease working when they are just ready for the last lift. The check to root-action will promote perfect ripening of the useful wood, and quite check the development of wood that could be of no use ultimately, and which is extremely likely to be destroyed in the winter.

There is great danger of a second growth commencing with potatoes yet remaining in the ground. Where they are yet green and growing, this is not to be apprehended, but where they are ripe, or nearly so, every day that they remain in the ground adds to the probability of their deterioration. Wherever potatoes are ripe, or nearly so, even if the haulm is still a little green, it is advisable to lift them at once. Let them be housed while they are good—and, generally speaking, they are good; and those who make much moan about disease deserve to have cause to moan for their morbid sensibility. The potato harvest of 1867 promises to be one of the best ever gathered; and we may attribute its general perfection to the augmentation of solar heat during the ripening of the tubers. While the temperature continues high there need be no fear of disease; but, we repeat, a second growth is extremely likely to take place. As tubers cannot form tubers

when unaided by leaves, without deterioration, so, though a second growth may increase the total number, it can only decrease the total value, and is to be prevented if possible. Many other precautions will suggest themselves to practical men as the result of these remarks. Let us obtain, if we can, by the exercise of caution, prudence, and vigilance, a maximum of advantages with a minimum of disadvantages from the peculiar conditions of atmosphere at present prevailing.

THE CENTRAL PARK, NEW YORK.—In the *Times* correspondent's letter from New York, published on Monday last, occur some interesting particulars of this grand undertaking. He says, "You have heard so much of mismanagement and corruption in the city of New York, that it must be almost a relief to be told of a great work which has been carried out with perfect success for the free benefit of the public, and without the waste or misuse of a single dollar. I refer to the Central Park, destined in a few years to be the most beautiful park in the world, and already far superior to anything of the kind in America. Those who have only driven round have but a very poor idea of its extent; to see it properly, one should explore it on foot. It is full of exquisite walks by lakes, or through miniature woods and plantations, and hours or days even may be spent there (as I can testify from experience) without exhausting their beauties. The trees are young yet, but some idea of the efforts which are being made to get the park well wooded may be gathered from the fact that last year nearly 18,000 trees and shrubs were planted. The park drive is within a fraction of nine and a half miles in length, there is a bridle road of five miles and a half, and a length of walk available to the public of over twenty-six miles. The cost of this park to the city, including the purchase of land, has been little over 10,000,000 dollars. In the winter there is an unrivalled skating pond open to the visitors, and in summer bands of music play popular selections on one or two days a week. In every respect the park is managed for the convenience and benefit of the public, and every cent produced by the tax for its maintenance is honestly devoted to the improvement of the ground. If any one is puzzled to account for the fact that while this park is so great a credit to the city, everything else in it connected with the corporation is a disgrace, he must be informed that the citizens were wise enough to keep the park entirely beyond the control of the city authorities. Their rapacious and dishonest fingers—always let it be remembered that the mayor of the city is a gentleman of unblemished integrity—have never been permitted to handle the money designed for the common benefit of all. If they had, we can easily imagine what the park would have been like. It would have been scarcely so ornamental as Boston Common, while it would have been made the pretext for practising every kind of extortion and roguery upon the people. But the whole design was entrusted from the first to the guardianship of gentlemen of high character and position in the city, and they have ever since done their work, and very hard and onerous work it has been sometimes, without the least charge to the public. The Board of Commissioners, with Colonel H. G. Stebbins, the commodore of the New York Yacht Club, and one of the most deservedly popular men in America, have deserved the gratitude of the public for setting an example to the city corporation."

SOLDIERS' GARDENS.—The "garden allotments" of the soldiers of Portsmouth on an extensive piece of ground outside the head-quarters boundaries, and lent for the purpose by the War Department, are well worth a visit from any one who may be in the neighbourhood, and who feels an interest in the barrack-life of the soldier. Each plot of a company has its fringe of flower-beds which now are glowing with colour, and many of them contain flowers of more than common worth. The remainder of the plots are covered with fine vegetable produce, in seeming sufficiency to supply a large army. In some parts of the country the troops have been permitted to work in the harvest fields. Surely it would improve the morale without deteriorating the physique of the army to encourage in every reasonable way the practice of gardening as the favourite recreation for soldiers. In too many instances beer destroys money, time, health, and decency, and "Satan finds some mischief still for idle hands to do." Soldiers everywhere, except when in the field, should have gardens. The gain in respect of order, health, and loyalty, would be immediate and immense, and in the event of a long campaign in an enemy's country, the knowledge acquired in barracks might be of great service in aid of the commissariat as well as to give a cheerful side to painful duties.

THE PEACH CROP in the Southern States of North America has been a large one, and yet has realized good prices. In Kentucky the crop has averaged from two to three dollars per tree, large purchases having been made for preserving.

A NEW WOUNDWORT.—The loaves of geraniums are said to be excellent for cuts where the skin is rubbed off, and other wounds of the like kind. One or two leaves must be bruised and applied to the part, and the wound will be cicatrized in a short time.

FLORA IN THE NEW WORLD.—New York spends 400,000 dollars, and Boston 200,000 dollars, annually, for cut flowers. All know that large sums are paid for presentation bouquets and baskets; but some people would be astonished to see what money is expended regularly for flowers, by families who think they are economical. A New York merchant of ordinary means thinks nothing of spending fifty dollars for artificial flowers to decorate his table when he has a few friends to dine.

VEGETABLE DYES APPLIED TO STONE.—Variegated marble is now imitated in all the rich-coloured veins for which some species of it are distinguished. For this purpose a solid block of marble, to be treated, is first warmed in an oven to open its pores, after which the colours are applied. These consist of an alcoholic solution of alkanet root, to produce a rich lavender, a madder lake to make a crimson, indigo to produce a blue, verdigris green, and gamboge yellow. They are put on according to the fancy and taste of the artist, so as to form the desired patterns, after which the marble is again warmed to make it absorb the colours.

NORTHWICH GOOSEBERRY SHOW.

ANGEL INN, NORTHWICH, JULY 27TH.—The following is a list of exhibitors, varieties, and weights of berries:—

		dwts. grs.	
T. Lanceley	.....	Red Seedling	20 4
G. Beckett	.....	Yellow Seedling	17 18
T. Lanceley	.....	Green Seedling	19 7
S. Shone	.....	White Seedling	18 19
J. Wynne	.....	Twins	39 11
J. Wynne	.....	Premier Prize	26 18
J. Hale	.....	Steward's Prize	24 0
T. Lanceley	.....	ditto	22 12
G. Beckett	.....	ditto	19 18
S. Shone	.....	ditto	21 15
T. Ball	.....	ditto	20 4
R. Forster	.....	ditto	18 1
G. Plant	.....	ditto	17 16
F. Jenison	.....	Careless	19 18
G. Beckett	.....	London	23 10
S. Shone	.....	Red	23 0
J. Wynne	.....	Red	22 22
T. Lanceley	.....	Red	22 12
S. Shone	.....	Red	22 6
T. Lanceley	.....	Red	22 6
J. Wynne	.....	Red	21 2
J. Wynne	.....	Red	21 0
T. Lanceley	.....	Yellow	24 4
J. Wynne	.....	Yellow	23 16
T. Lanceley	.....	Yellow	23 10
R. Forster	.....	Yellow	22 0
T. Lanceley	.....	Yellow	20 15
J. Wynne	.....	Yellow	20 2
T. Lanceley	.....	Yellow	19 6
J. Hale	.....	Yellow	19 0
T. Lanceley	.....	Green	23 2
J. Wynne	.....	Green	21 16
T. Lanceley	.....	Green	20 7
.....	.....	Green	19 19
.....	.....	Green	19 13
G. Beckett	.....	Green	19 7
.....	.....	Green	18 12
.....	.....	Green	18 12
J. Wynne	.....	White	26 0
.....	.....	White	25 0
.....	.....	White	23 11
T. Lanceley	.....	White	22 13
J. Wynne	.....	White	21 22
T. Lanceley	.....	White	20 2
R. Forster	.....	White	19 18
T. Lanceley	.....	White	19 17

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.

The last exhibition of the season took place at Old Trafford, in connexion with the centenary gathering of the Liverpool and Manchester Agricultural Society, and was continued from the 27th to the 31st of August, five days inclusive. It was a highly meritorious affair, rich in all the several subjects proper to the season, and especially so in cut flowers and valuable decorative plants. Two great tents, on the site of the National Exhibition of June last, were appropriated for the purpose; and consequently for some part of the display—that comprising specimen plants, for example—the advantages of green banks and picturesque effects were obtained. In the first tent a central table, well filled with spikes of hollyhocks, gladioli, grand bunches of grapes, and miscellanies, divided the space into two broad walks, beyond each of which, forming the boundaries of the tent on either hand, were banks of cut flowers, fruits, ferns, and other subjects of comparatively small size. The second tent was grandly filled with bold artistic groups of tree-ferns, palms, ericas, and miscellaneous gatherings from the stoves and greenhouses of the district, comprising such subjects as Crotons, Caladiums, Rhopalas, and the like; and these were lighted up by an abundance of zonal and variegated geraniums, cut flowers, and other light subjects. Nor was it any detraction to the finish and beauty of the exhibition that there was a profusion of vegetables and fruits contributed by gardeners and cottagers; and, in respect of the last-named class, we must do them the justice to say that, although what they sent was of necessity interesting, they for the most part presented such admirable examples of horticultural skill that the exhibition would have been storn of one of its best features had they not been there.

ORCHIDS.—There was a class for ten exotic orchids, poorly filled, yet perhaps, considering the time of year, the plants were no discredit to this generally good show. The first place was awarded to J. A. Turner, Esq., of Pendlebury (gardener, G. Toll), for a pretty group, comprising *Odontoglossum grande*, *Aerides nobile*, *Onoidium incurvum*, *Lælia gigantea*, *Vanda suavis*, *Disa grandiflora*, with three spikes of flowers, a pretty example of a plant which does not show well in a group; *Aerides suavis delicatissima*, *Odontoglossum hastilabium*, *Saccolabium Blumei gigantea*, and *Cattleya labiata pallida*. Dr. Ainsworth (gardener, G. E. Mitchell) second, with *Lycaete Skinneri*, *Lælia gigantea*, *Miltonia virginalis*, *Miltonia Regnelli purpurea*, *Miltonia spectabilis*, *Vanda Lowii*, *Lælia Turneri*, *Cattleya Schilleriana Regnelli*, *Onoidium incurvum*, *Odontoglossum hastilabium*. Some of these plants looked as if they had been exhibited on previous occasions this season, and had not yet quite recovered. The plant of *Vanda Lowii* was one of the best of this fine species we have yet seen: it had three fine racemes, the basal flowers bright orange and buff, the others crimson-brown and white lip, the two distinct classes of colour being a constant character of the species. The third place was awarded to Mr. Stafford, of Hyde, who had clean and bright examples of *Dendrobium chrysotoxum*, *Epidendrum vitellinum*, *Odontoglossum grande*—the last a finer variety than the one generally grown, having broader segments and richer colours. Dr. Ainsworth also contributed an extra group, comprising *Promeneia stapeloides*, on a block, with two fully-developed flowers, quite a gem for lovers of curiosities, and, though a strange dull thing, not destitute of a certain kind of beauty; and a poor plant of *Cologyne speciosa*, with two of its eminently unattractive flowers. There were also examples of *Vanda suavis* and *Renanthera matutina* shown apart from the classes the first of these two was an extra fine specimen; the second was a middling good plant, of a scarce and not much valued species; it is certainly far inferior as a decorative subject to the better known and everywhere admired *Renanthera coccinea*. It may not be out of place to notice here a contribution of a very interesting kind, though it takes us aside from the orchids. This was a raceme of flowers of one of the species of *Nepenthes*. The name was not given, but it appeared to be *N. phyllamphora*. The stem was about twenty inches in length, beset throughout with small flowers of a dull brown colour, about 100 in number, and apparently consisting in great part of females, as in very few could we perceive the peculiar club-like stamens by which the males are distinguished.

STOVE AND GREENHOUSE PLANTS IN FLOWER.—As remarked above, these were abundant and beautiful, and it is perhaps especially desirable the names of the subjects shown should be fully reported, as there are but few exhibitions at this time of the year at which first-class subjects of this kind are to be seen, and cultivators are interested to know as much as possible respecting plants presentable now. The first place in the class for eight plants was taken by Mr. John Stevenson, of Timperley. Here were five examples of *Erica emula*, *obbata*, and *Faireanum*, *Cattleya devoniensis*, *Phenocoma prolifera Barnesii*, *Allamanda Schottii*, and *Hendersonii*, *Bougainvillea glabra*. In the class for ten miscellaneous, the first place was taken by Thomas Hobson, Esq. (gardener, W. Cardwell), with splendid examples of *Anthurium magnificum*, *Cyathea dealbata*, *Dasylium acrotrichum*, *Croton longifolium*, *Yucca aloifolia variegata*, *Allamanda Hendersonii*, *Geonoma magnifica*, *Theophrasta imperialis*, *Cordylina indivisa*, *Erica tricolor Wilsoni*. Second, Mr. John Shaw, of Manchester, with *Croton variegata*, a grand plant of the beautiful *Eurya latifolia variegata*, five feet high, a perfect pyramid; *Rhopala corcovadense*, *Yucca aloifolia variegata*, *Phoenix sylvestris*, *Pandanus ornatus*, and some beautiful tree-ferns. Third, Mr. Stafford, of Hyde, with a pretty clump of *Vallota purpurea*, *Lilium lancifolium album*, *Aralia Sieboldii variegata*, *Latania Bourbonica*, *Pandanus utilis*, &c. In the class for six miscellaneous, first, Thomas Hobson, Esq., with *Gleichenia flabellata*, *Cordylina Australis*, *Croton variegata*, *Erica ampullacea major*, &c. Second, S. Schloss, Esq., with a most charming plant of *Davallia tenuifolia*, one of the very best of this tribe, possibly surpassing in beauty *D. aculeata*, and in airiness of style reminding one of *Ouyohia japonica*; *Bougainvillea glabra*, &c. Extra, Mr. Shaw, with some good palms, cycads, yuccas, &c. The best single stove plant in flower was a fine *Bougainvillea*.

ERICAS.—There were but few of these, but the quality of all was of the highest: the plants large, round, bushy, bright with flowers, and without any exception fresh and honest. Mrs. Cole and Sons, of Wittington, first in the class for six, with *Irbyana*, *Insignis*, *Jacksonii*, *Metulæflora*, *Emula*, *Austinianum*. In the class for the best single heat, T. Hobson, Esq., with *Irbyana*; second, Mrs. Cole and Son, with *Irbyana*.

ACHIMENES were good. First, J. C. McConnell, Esq. (gardener, John Smith), with fine round dwarf plants of *Edmund Bossier*, *Carl Wolfurth*, *Longiflora major*, two of each. Second, Thomas Hobson, Esq., with *Leopard*, *Scarlet Perfection*, this is a fine scarlet kind, free to flower, and an advance upon *Dazzle*; *Purpurea elegans*, *Edmund Bossier*, *Carl Wolfurth superb*; *Colonel Watford*. Third, Mr. Rylance, with *Colonel Watford*, *Amroise Verschaffelt*, *Rose Imperial*, *Dr. Hopf*, *Longiflora major*, *Dazzle*.

GLOXINIAS were good; plenty of flowers, no rags; the varieties good. First, Mr. Rylance, with *Madame Picouline*, *Grandis*, *Conspicuous*, *Madame Warner*, *Showgood Seedling*, lavender purple; and *Seedling*, fine puce purple. Second, E. Brooke, Esq. (gardener, E. Milford), with *Helen of Orleans*, *Brilliant*, *Sir Hugo*, *Perfection*, *Keleckeri*, *Princess Alice*.

LILIUM.—The best four *Lilium* came from — Brocklehurst, Esq. (gardener, J. Miller), all of them varieties of *lancifolium*, fine plants, rather drawn through being flowered under glass, which is no benefit to them. Too much same-ness in the group. Best three pots of *Auratum*, first, Mossrs. Yates, of Manchester, with short handsome plants, profusely flowered, and fresh in leaves to the bottom. Best single specimen of *Auratum*, E. Philippi, Esq., with a giant about seven feet high, the expanded flowers thirteen in number, and nine more coming. This was not drawn, but had naturally made a single towering spike.

FINE FOLIAGED PLANTS, INCLUDING PALMS AND FERNS.—The first prize in the class for 10 fine-foliaged plants was awarded to Mr. Stevenson for a group of extraordinary specimens, gigantic in dimensions, admirably grown, fresh as the face of the pimpernel on a sunny forenoon, and comprising subjects of great value and the highest decorative excellence. We did not obtain the name of the winner of second prize in this class, owing to the absence of the card at the time our notes were made. Whoever it was, need not be ashamed to be placed second to Mr. Stevenson, for scarcely anywhere in England could his plants be surpassed. The second lot was, moreover, a very few degrees less meritorious; and as to condition and culture, there was nothing wanting. The two lots were grouped on one bank, and made a most imposing picture. They comprised examples of

Alocasia Lowii, *A. metallica*, *A. zóbrina*, *A. macrorhiza* var., *Caladium Belleymei*, *Croton variegat.*, *C. angustifolium*, one of the finest ever shown; *Theophrasta imperialis*, *Yucca aloifolia variegata*, *Spherozyne latifolia*, a big plant, every leaf perfect; *Anana sativa variegata*, *Latania Bourbonica*, *Gleichenia flabellata*, *Anthurium grande*, *Cordylina Australis*. Tree-ferns were abundant: the best six came from Mr. Stafford, of Hyde; they were *Dicksonia squarrosa*, *D. antarctica*, *Cibotium princeps*, *Alsophila Australis*, *Cyathea medullaris*. The best 12 hardy ferns came from Mr. Rowbotham; a fine *Trichomanes radicans*, *Blechnum spicant anomalum*, *Polystichum acrocladum*, *P. angulare proliferum*, *P. a. plicatum*, *Scolopendrium vulgare undivifolium*, *S. v. submarginatum*, *S. v. cristatum*, *Athyrium Filix femina densum*, *A. f. f. Fieldii*, *A. f. f. plumosum*, *A. f. f. Todioides*. All the *Athyriums* were labelled *Asplenium*, for which we have the authority of Deskin, Hooker, and Arnott; but the accepted generic name for the Lady fern now is *Athyrium*, and they ought to be so labelled at exhibitions. Second, Mr. Shaw, with a quite second-rate lot; but amongst them were good plants of *Scolopendrium vulgare glomeratum*, and *S. v. digitatum*, and *Adiantum pedatum*; and, better than all, a large piece of *Trichomanes radicans*, shown (as in June last) without a bell-glass. Mr. Shaw shall have our best thanks if he will tell us how he manages to present this at a five day's show thus unprotected. Is there any magic in it? The plant appeared by its intensely dark green colour never to have known the comfort of a bell-glass, and it just reminded us of the peculiar dark green leaves of Messrs Veitch's specimens of *Spirea japonica* shown at the Manchester National, and which we did not fail to award warm praise in our report. Third, Mr. Rylance, who had a good *Lastrea Filix mas cristata*, and some beautiful varieties of *Scolopendrium*, which are always good exhibition subjects. Palms were conspicuous both in mixed and special classes by their freshness and beauty, and in variety they were not stinted. The first place in the class for 4 was awarded to H. Blackmore, Esq., of Pendleton, for splendid specimens of *Latania Bourbonica*, *Verschaffellia splendida*, *Calamus dealbata*, and the best *Phenacophorium sechellarium* in the show, the leaves being richly stained with the clear cinnamon hue peculiar to this species, and all the leaves (about ten in number) perfect. By the way, this is no longer to be called the "thief palm," Old Bailey and assize associations are abolished; it is henceforth to be labelled *Stevensonia sechellarum*—please make a note thereof, Mr. Blackmore. Second, Mr. Hobson, with *Latania Jenkinsonii*, *L. Verschaffellii*, *L. Bourbonica*, and *Coroxylon niveum*. Mr. Shaw had *Scaforthia elegans*, *Areca rubra*, *Geonoma Gheshrechtii*, and *Phenacophorium (Stevensonia) sechellarum*.

Mr. B. S. Williams, of Holloway, London, occupied a great bank with a collection of plants not intended for competition. Here were many plants of great value, and, as fine foliage and flowers were freely mingled, the effect, in a decorative point of view, was fully equal to the interest attaching to the plants themselves. Amongst the larger subjects were examples of *Phenacophorium sechellarium*, *Agave schidigera*, *Yucca filifera*, a very fine habited plant of the most compact construction, very dwarf; *Nepenthes phyllamphora*, *Maranta Lindenii*, *Nepenthes hybrida maculata*, *Maranta Veitchii*, *Beaucarnea longifolia*, one of the grandest of this grand family, the leaves five feet long, and beautiful in colour and brightness. The more noticeable ferns were the following: *Trichomanes reniforme*, the plant in perfect health, with about half a dozen fronds nearly as large as the palm of the hand, evidently put there to cause water in the mouth of every lever of ferns who should catch sight of it. *Hymenophyllum demissum*, a pretty species, like a dissected *Trichomanes radicans*. *Trichomanes anceps*, with stout, varnished, selaginella-like fronds. *Trichomanes angustata*, like a delicate, finely-divided, erect *T. radicans*. *Adiantum scutum*, a charming fern, descended from A. Farleyense, one of the best exhibition varieties known. *Davallia tenuifolia*, a very fairy-like species, most finely divided of all. *Pteris serrulata*, in a tasselled form, pretty for those who can take to it; but the varieties of this *Pteris* always appear to us worthless, though we find much to admire in a thoroughly well-grown plant of the species, weed as it is. *Stenochlæna heteromorpha*, a pretty dwarf species. *Todea superba*, indescribable in its beauty. *Lomaria gibba*, &c., &c. Yet a few more from this beautiful bank. *Gynerium argenteum variegatum* is a splendidly coloured variety; get it if you can, everybody. Whoever can get up a great plant of it out of doors will deserve a dinner, a vote of thanks, a medal, and to be talked of in whispers of adulation. *Lilium punctatum*, which may be described as *lanifolium album* refined to the last degree, the pure white tenderly spotted with palest rose. Everywhere amongst these fine plants tufts of *Nerine Fothergillii*, *Vallota purpurea*, and tall plants of the old chimney *Campanula*. A lesson this for people who, made giddy by the new possession of a few palms and ferns, begin forthwith to despise their grandmother's pets, and all else in the floral way that finds a place near the heart and angle of the cottager. Mr. B. S. Williams thinks the chimney *Campanula* one of the prettiest of plants, and—these are his own words—"shouldn't like to be without it."

PELARGONIUMS.—The show varieties of the large flowered class, the *pelargoniums par excellence* of usage, were of course not shown; they are over for the season, and there were plenty of "geraniums" instead. The botanists insist upon calling these *pelargoniums*, and we must submit; but for purposes of usefulness it is a pity we cannot pitch the botanists and their distinctions to some very far-off limbo, because, apart from diagnosis, "geranium" is a household word, and all the world knows what is meant by the term: the world knows that between *Pelargonium speciosum* and *P. zonale* and *P. inquinans* there is a vast difference in appearance, constitution, and habit of growth; and it is a pity that usage cannot in this case over-ride technical correctness; for what is technical correctness, in the case of plants so popular and so extensively cultivated, against rough-and-ready methods of making ourselves understood. Well, there were no *pelargoniums*, but plenty of geraniums in the generally-understood classification of these plants, and a very interesting point arose respecting them. But let us go on with the report, and we shall in due time come to the interesting point, and deal with it in our usual plain way. In the class for eight zonals, first, Mr. Rylance, of Aughton, near Ormskirk, with *Madame Vaucher*, *Pre-eminant*, *Bright Eye*, *Prime Minister*, *Eugénie Mezard*, *Archevêque de Paris*, *Marie Labbe*, and *Comet*. Second, Mr. Robert Barnes, of Huddersfield, with *Madame Werle*, *Rose Rondatler*, *Rev. H. Dombrain*, a fine scarlet; *Chieftain*, *Premier*, *Madame Vaucher*, *Faust*, and *Glow*, the last a beauty. Third, Messrs. Yates, of Manchester, with *Snowball*, *Bel Demonio*, *Eva*, *Volcano*, *Augusta*, *Madame Vaucher*, *Beauté du Suresne*, *Diadem*. The interesting point occurred in the class for eight variegated zonals. Here Mr. Wills, of Huntroyde, took first place with a well grown, finely-finished group, containing only one variegated plant, according to

commonly-received notions; the rest were bronze zonals, some of them with so much green in the leaf as scarcely to surpass in respect of leaf colouring the old *Commander* or *Cerise Unique*. Mr. Wills's varieties were *Bridesmaid*, a true variegated, and one of the most beautiful; *Florence*, *Rosalind*, *Radiance*, *Admiration*, *Fascination*, *Gladiator*, *Favourite*; with them were *Lilian*, *Sultan*, and some others. The second place was awarded to Mr. Watson, of St. Albans, for an extremely pretty group of gold and silver zonals, the plants smaller than Mr. Wills's, but, as respects variegation, much more properly coming within the terms of the schedule. The varieties were *United Italy*, *Amy*, *Queen's Favourite*, *Little Beauty*, *Burning Bush*, *Picturata*, *Glowworm*, *Mrs. Pollock*. Third, Messrs. Yates, with a mixed lot of no merit. The best eight nosegays came from Mr. R. Barnes, of Huddersfield; they were a poor lot, and badly labelled; the varieties were *Black Dwarf*, *Indian Yellow*, *Pink Stella*, the flowers of this shone out brightly, it is one of the first of the nosegays; *Violet Hill*, this is good; *Le Grand*, *St. George*, *Lord Palmerston* (a very bad scarlet, like the old *Compactum*, was so labelled), *Ornamental Damasus* (so labelled, the proper name probably *Magenta Nosegay*).

The only novelties shown in this section were Mr. Watson's seedling golden tricolors. *Mrs. Dix* has the merit of a nearly perfect arrangement of colours in the leaf, the tendency to present radial bars of colour being apparently reduced to a minimum. *Miss Watson*, very neat in habit, and a lively disposition of colours. *Mrs. Gladstone*, extremely bright on the margin and zone. *Enchantress*, leaf flat, pale yellow margin, zone brown, pale red, and carmine, mixing into a mulberry shade, habit very compact. *Annie Merry*, a diminutive gold zonal, which, when in good condition, has a blood-red belt, but on this occasion not in its proper colours. *Jenny Fairbairn*, a gold zonal, with flat leaf, pale yellow edge, some black and red, promising.

In other collections the following were noted as interesting—*Little Beauty*, intermediate between a gold and silver zonal, leaves much cupped, margin creamy, less red in the zone than *United Italy*. *Annie Findlay*, (Wills), a pretty gold zonal of medium habit, margin pale yellow, small green disk, zone much umber brown and bright red. *Her Majesty* (Wills), a splendid variety of the bronze zonal class, clear disk and margin of sulphur green, bold, broad, sharp zone, cinnamon deepening to chesnut. *Perilla* (Wills) a bronze zonal, fine dark zone. *Lizzie* (Wills) a beautiful gold zonal, in the way of *Mrs. Pollock*. *Princess Alice* (Wills) a bronze zonal, sulphur green, zone broad reddish crimson deepening to chesnut. *Empress Eugénie* (Wills) a bronze zonal of the finest quality, the leaf round, disk yellowish green, sharply and regularly defined, zone broad and bold, chesnut deepening to umber. *Unique*, a pretty good zonal, in the way of *Sophia Dumaresque*; the young leaves showing splendid zones of carmine, red or scarlet.

FUCHSIAS were neither plentiful nor very good. It is strange that Manchester, where stove and greenhouse plants of high character are quite in the fashion and are admirably done, such generally useful and easy things as geraniums and fuchsias should receive comparatively little attention. There are in these classes some good openings for men of spirit in the district. The best six fuchsias came from Mr. Rylance, they were neat, well flowered, rather small pyramid plants of *Prince Alfred*, *Tristram Shandy*, *Rose of Castile*, *Madame Cornelissen*, *Queen of Beauties*, *Venus de Medicis*. Second, Mr. Gresley, of Fallowfield, with *Fair Oriana*, *Prince of Orange*, *Marginata*, *Rose of Castile*, *Sir Colin Campbell*, *Sensation*. Third, E. Philippi, Esq., of Bowdon, with *Venus de Medicis*, *Schiller*, *Sensation*, *Guiding Star*, *Rose of Castile*, *Madame Cornelissen*.

DAHLIAS constituted one of the most brilliant features of this exhibition, and they were so good throughout that we could not find fault even with the stands that were not placed. The leading collections were remarkable for freshness, purity, and good staging. First for 36, Mr. Draycott, of Humberston Nursery, Leicester, with *Pauline*, *Flossy Gill*, *Vice President*, *Baron Taunton* (this is usually labelled *Baronne*, the French form for *Baroness*; there is no such title as *Baroness* here, and the flower is English and named after an English peer, *Baronne Taunton* is therefore wrong), *Bird of Passage*, *George White*, *Freemason*, *Lady M. Herbert*, *Imperial*, *Golden Gem*, *John Downie*, *Royal Robe*, *Lord Derby*, *Willie Austin*, *Harriet Tetterel*, *Leah*, *Donald Beaton*, *Fanny Purchase*, *George Wheeler*, *Miss Henshaw*, *Bob Ridley*, *Earl of Shaftesbury*, *Charlotte Dorling*, *Charles Turner*, *Lady G. Herbert*, *Hugh Miller*, *Clara Simons* (?) *Blushing Fifteen*, *Yellow Triumph*, *Lilac Queen*, *Lady Palmerston*, *Edward Sparey*, *Annie Austin*, *Lord Palmerston*, *Lord Russell*, *Lotty Atkins*. Second, Mr. May, of Hope Nurseries, Bedale, Yorkshire, with *Golden Drop*, *Lord Derby*, *Lady G. Herbert*, *Bob Ridley*, *Miss Henshaw*, *Eli*, *Peri*, *Chancellor*, *Mrs. H. Vyse*, *Hugh Miller*, *Goldfinder*, *Harry*, *Alexandra*, *Seedling*, buff and orange, good; *Mrs. Boston*, *Garibaldi*, *Miss Roberts*, *Norfolk Hero*, *Stella Colas*, *Delicata*, *Charles Turner*, *Jenny Austin*, *British Triumph*, *Lady M. Herbert*, *Charles Waters*, *Lady Popham*, *Seedling*, fine reddish buff; *Hero*, *Triomphe de Pecq*, *Surety*, *Chang* (a coarse thing not fit for a place even in a stand of 100), *Lilac Queen*, *Leah*, *Peri*, *Ebor*, *Norah Creina*, *George White*, *Pauline*, *Ne plus ultra*, *Artemus Ward*, a second-rate striped lilac, *Chaitman*, *Lady of the Lake*, *George Elliot*, *Fanny Purchase*, *Foxhunter*, *Andrew Dodds*, *Charles Turner*, *Enchantress*, *Juno*, *Miss Butler*, *Bob Ridley*, *General Jackson*, *Flambeau*, *Bullion*, *Edward Sparey*, *Bird of Passage*. Third, Mr. Rylance. In the class for 18, first, Mr. May, with *Lord Chancellor*, *Peri*, *Lord Palmerston*, *Hon. Mrs. Trotter*, *Golden Gem*, *Lord Derby*, *Lady G. Herbert*, *Bob Ridley*, *Vice President*, *Miss Henshaw*, *Charles Turner*, *Mrs. Boston*, *British Triumph*, *Lady Popham*, *Miss Roberts*, *Alexandra*, *Mr. Charles Waters*. Second, Mr. Rylance, with *Vice President*, *Queen Mah*, *Chang*, *Criterion*, *Miss Henshaw*, *Duke of Roxburgh*, *Lady Russell*, *Prince Alfred*, *Golden Gem*, *Andrew Dodds*, *Queen of Primroses*, *George White*, *Scarlet Gem*, *Mrs. Thornhill*, *Ambrose Wilde*, *Lady Jane Ellice*, *Freemason*, *Umpire*. Third, Mr. T. Painter, of Smallwood, Lawton, with *Hugh Miller*, *Andrew Dodds*, *Leah*, *Baron Taunton*, *Lord Derby*, *Pauline*, *Donald Beaton*, *Charles Turner*, *Earl of Shaftesbury*, *Lilac Queen*, *Miss Henshaw*, *Freemason*, *Lotty Atkins*, *George White*, *Lady G. Herbert*, *Fanny Purchase*, *Bob Ridley*, *Bird of Passage*. In the class for 12, first, Mr. May, with *Hugh Miller*, *Peri*, *Fanny Purchase*, *Bob Ridley*, *Goldfinder*, *Criterion*, *Miss Henshaw*, *Charles Waters*, *Charles Turner*, *British Triumph*, the best flower of this variety in the show; *Lady Popham*. Second, Mr. Draycott, with *Leah*, *Baron Taunton*, *Miss Henshaw*, *Lilac Queen*, *Charlotte Dorling*, *Lady G. Herbert*, *Hugh Miller*, *Donald Beaton*, *Annie Austin*, *Fanny Purchase*, *Bob Ridley*, *Charles Turner*.

HOLLYHOCKS were plentiful and good, some few of the contributions being of such high quality as we seldom meet with, even at the best of the southern exhibitions. The *Rev. E. Hawke*, of Willingham, took the

lead, both in spikes and cut flowers, with extraordinary examples, such, in fact, as may be most properly described as perfect. Mr. Henry May was not far in arrears of his distinguished leader in the splendour of his cut flowers. We measured a few average flowers of these two stands, and found they were exactly 10 inches from edge to edge across the face. But it was not in mere size or splendour of colours that these two collections arrested the attention and claimed the admiration of professional and non-professional visitors alike: their crowning quality was perfection of form, pockets being out of the question, and the finely-rounded surface densely and smoothly frilled, just according to the plan of an *ideal* rosette, but not like a real rosette, for no one could make one like them. First, for eighteen cut flowers, Rev. E. Hawke, of Willingham Rectory, Gainsboro', with Gem, Bidesmaid, Chairman, Prince, Acme, Ruby Queen, Seedling, straw-buff, fine; Seedling, deep crimson-red, in the style of J. B. Ullett; Willingham Defiance; Seedling, lavender, valuable for its colour, scarcely first-rate; Miss Todd, Mrs. Downie, Gladiator, Decision, Seedling, delicate straw colour, superb form; Seedling, reddish pink, splendid; Seedling, bluish purplish base, scarcely first-rate; Seedling, reddish pink, bright, distinct, fine form. Second, Mr. Henry May, of Bedale, Yorkshire, with Hercules, Mrs. McKenzie, Acme, Purple Emperor, Glory of Walden, Gem of Yellows Improved, Gladiator, William Dean, Mrs. J. Dix, Countess of Craven, Chairman, Phaeton, Mrs. Downie, Empress Eugénie, Willingham Defiance, Beauty of Mitford, Invincible. Third, and a good third, Mr. M'Indoe, of Bishopsthorpe, with Mrs. B. Cochrane, John Downie, Invincible, Lord Derby, Hercules, James Anderson, Lord Clifden, Princes, Countess of Craven, J. B. Ullett, Cygnet, John Tweedie, Mrs. Downie, Charles Eyre, Jaune d'Or, Mrs. Hastie, Glory of Walden, Purple Emperor. In other collections, fine examples of Pauline, a fine black; Mrs. Chater, lively carmine; Prince Imperial, fine carmine; Lady Helen Stewart, maroon-crimson; Queen of Buffs, Excelsior, Miss Barrett, John Bright, a fine black, with too broad a guard. Eight spikes, first, Rev. E. Hawke. These spikes averaged four feet; they were all topped and much thinned, and partially disleafed. They were solid with flowers of the finest quality, and were evidently, by the enormous thickness of the stems, cut from plants in a most vigorous state of growth. The varieties were Decision, Lady Phaeton, Willingham Defiance, and five seedlings. Second, Mr. May, with Phaeton, The Marquis, Hercules, Mrs. Chater, Emperor, Cygnet, Glory of Walden, Ochroleuca. Third, Mr. Rylance, with Tyrian Prince, Adela, Splendour, Hercules, Electra, Golden Perfection, Queen of Buffs, Warrior. The old question, if it is politic to allow seedlings to be shown with named varieties, will occur to many of our readers. Our own opinion on the subject—that seedlings and named flowers should never be staged together—has been frequently expressed. We invite attention to the subject in connexion with the foregoing particulars of the hollyhocks at this exhibition.

GLADIOLI.—In the class for thirty-six, Mr. Samuel Yates, of Manchester, with Reine Victoria, Comte de Morny, Madame Place, Madame Furtado, Diana, Jean d'Arc, Prince of Wales, Maria du Mortier, Diana, Impératrice Eugénie, Madame de Vetry, Thomas Paxton, Penelope, Monsieur A. Brogniart, Archimede, Clemence, Linné, Brencleyensis, Madame Brinder, Dr. Lindley, Milton, John Waterer, La Quintinie, Lælia, Chateaubriand, Reine Victoria, Janire. Second, Messrs. G. and W. Yates, with Walter Scott, Dr. Lindley, Reine Victoria, Mazepa, Penelope, Brencleyensis, Princess Mary of Cambridge, M. Brogniart, Lord Granville, Van Houtte, Madame Leseble, Maria, Le Poussin, Calendulescens, a nice salmon-coloured flower, scarcely at all known; Ophir, Madame Domage. First eighteen, Mr. S. Yates.

There were some tolerably good roses, but we made no note respecting them. They could scarcely have been spared from the exhibition, for they contributed much to its interest and beauty, yet there were none good enough to command praise in this report, and to speak blamefully of good endeavours is not our forte. Bouquets were shown in plenty, but there was not one that we could regard as desirable either for exhibition or actual use—the old failing, too many flowers, too much, too much of everything; the handle of the best like the handle to a bunch of water-cresses. The best was the one placed third; it was comparatively small, not overloaded with colour, neatly convex, chaste and pleasing, but surrounded with such a quantity of fern as to look as if it were stuck through the centre of a cabbage-leaf. There is nothing unkind or cynical in these remarks, ladies; you will get over the shock of severe criticism, and I hope try again. The one evil common to all failures in bouquet-making is *excess*, too many flowers, too much colour, too many fern-fronds—the result a vast aggregation, too heavy, too clumsy for the gentle hands of any sweet little miss, and the colours generally so gaudy as to clash with the colours of her dress, and sometimes make a discord.

FRUIT.—This part of the show was highly satisfactory, both as to the quantity and quality of the samples. In the class for six dishes, first, J. Dixon, Esq. (gardener, John Wallis), with two bunches Black Hamburg Grapes; two bunches Royal Vineyard, with uncommonly small berries; a fine Malvern Hall Melon, Moor Park Apricots, Jefferson Plums, Black Jamaica Pine. Second, S. Barrett, Esq. (gardener, G. D. Davis), with two bunches black Hamburg Grapes, two bunches Muscat of Alexandria, Trentham Hybrid green Melon, Apricots, Peaches, and Nectarines. Third, Lord Wharnclyffe (gardener, J. Simpson), with a fine Queen Pine, Austins' Incomparable Melon, Bellegarde Peaches, very fine Brown Turkey Figs, two bunches Black Hamburg and two White Tokay Grapes. In the class for two dishes of Black Hamburg Grapes, first, W. Jackson, Esq., M.P. (gardener, M. Woolley), large broad-shouldered bunches, highly finished in colour. Second, Earl Crawford (gardener, John Reid); here the berries were of extra size, scarcely so black as to be considered "finished," but the flavour was excellent. Third, S. Barrett, Esq., Altrincham; very highly finished indeed, beautiful to look at, but no flavour at all. There were two large bunches shown of a bright reddish-bronze colour; the flavour of these was excellent. Two bunches of any other black kind, first, J. Dixon, Esq. (gardener, John Wallis), fine samples of Black Prince. Extra, H. Broadhurst, Esq., for a fine basket of Black Hamburgs. Two bunches Muscat of Alexandria, first, Mr. A. Henderson, with bunches large, tapering, perfectly ripe, delicious in flavour. Second, E. Brooke, Esq., of Timperley (gardener, E. Milford), one bunch perfect, the other rather green. Two bunches any other kind of white grape, first, A. Henderson, Esq., with Trebbiano of immense size. Second, Buckland Sweetwater; name of exhibitor not appended. Third, Mr. Broadhurst, with Buckland Sweetwater. Four kinds of grapes, one bunch of each, first, W. Jackson, Esq., M.P., with Black Hamburg, Muscat of Alexandria, Buckland Sweetwater, and an unknown, like Lady Downes. Second, A. Henderson, Esq., of Thursby Park, with Black

Hamburg, 4 lb.; Trebbiano, 6½ lb.; Barbarossa, 7½ lb.; the last two wanted a fortnight to ripen them. Queen Pine, first, R. W. Thornton, Esq., of Sidmouth (gardener, G. Eveley), a very fine fruit, with two or three green pips. A contributor sent a very large and very coarse Thoresby Queen, which was properly taken no notice of by the judges. Any other kind, first, Mr. A. Henderson, with a beautiful fruit of Charlotte Rothschild, weighing 7 lb. Second, Mr. Thomas Booth, of Arley, with a highly-coloured Montserrat. The third place was given to a handsome Black Prince, of superb colour, but with over-ripe pips near the stalk.

Other fruits were shown in plenty. There was an abundance of vegetables and roots of the finest quality. We stop here, but without having exhausted the exhibition; for the cottagers' contributions would be worthy of a few columns, could we but spare them for the purpose. The Judges were Mr. William Dean, of Shipley; Mr. Tapley, of Chatsworth; Mr. Ewing, of Anglesea; Mr. William Thomson, of Dalkeith; Mr. B. S. Williams, of Holloway; Mr. S. Hibberd, of Stoke Newington. The attendance on the first day was large, showing the great interest felt by subscribers, in spite of the great attractions of the agricultural show only a few yards away.

S. II.

EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.

The exhibition of this society was held on Thursday, the 29th of August, at The Elms, Acton, by the kind permission of H. B. Walmsley, Esq. At the same time visitors were permitted to ramble freely over the beautiful grounds, and the enjoyments of the day were thus enhanced considerably. There was a large attendance of visitors, and as there were a few showers the tents were occasionally very much crowded, and in consequence uncomfortably hot. The principal tent was 300 feet in length; this was devoted to the productions of gentlemen's gardeners and nurserymen. There was another tent, about half the size of the former, for amateurs and cottagers. Both were well filled; in almost all the classes the productions shown were eminently praiseworthy, and exhibitors and visitors appeared to be alike satisfied with the day's proceedings.

Amongst the more noticeable subjects were some well-grown lilioms in pots, the first prize for six being awarded to R. Attenborough, Esq., of Acton Green (gardener, T. Parsons); second, H. B. Walmsley, Esq., The Elms, Acton (gardener, R. Holliday); third, H. S. Turner, Esq., Acton, (gardener, J. Bryan). Mr. Attenborough's gardener brought a single specimen *Lilium lancifolium rubrum*, with 100 flowers in full perfection, and took the first prize in the class for single specimens. The best four balsams came from Mr. J. Long, of Ealing; they were stout, symmetrical, and smothered with fine flowers. *Petunias* were shown in beautiful condition by Mr. H. Wilkinson, of Ealing, who took first prize in this class; also by Mr. G. J. Sutton. *Fuchsias* were plentiful and good—exceedingly good. First, Rev. W. Arthur, East Acton (gardener, N. Camp), a splendid lot; second, R. Attenborough, Esq.; third, H. B. Walmsley, Esq.; fourth, J. S. Budgett, Esq. (gardener, W. Cole). *Pelargoniums* of the zonal and variegated sections were exhibited in plenty, and we particularly noticed a fine lot of miscellaneous plants from Mr. Smith, of Harlesdon House, which were not submitted to competition. Mr. Stevens presented a group of seedling tricolor-leaved *pelargoniums*, the most attractive of which were *Mrs. Stephens* and *Ealing Rival*. Messrs. Lee, of Hammersmith and Ealing, contributed liberally of orchids, cut roses, and other attractive subjects, adding thereby very much to the interest of the exhibition.

The show of fruit was highly creditable to the district, though we noticed many samples of unripe grapes. The best pot vines came from J. S. Budgett, Esq.; second,—Hinchcliff, Esq., of Acton (gardener, W. Carey). In the class for three bunches of any kind of black grapes, Mr. J. S. Budgett first, with superb samples of Black Prince, one of the best of show grapes, and as good for the dessert as for the exhibition; second, C. Lapraik, Esq., of Acton (gardener, C. Rose). In the class for three bunches of white, Muscats excepted, first, H. Blackett, Esq., of Ealing (gardener, J. I. Giles); second, R. Attenborough, Esq., with Dutch Sweetwater; third, H. T. Trautman, Esq., Twyford Abbey (gardener, J. Cooper). Very fine samples of Muscat of Alexandria were shown by J. S. Budgett, Esq. The heaviest bunch of any kind came from J. H. Buchan, Esq. (gardener, G. Vennier), the variety Black Hamburg, weight 2 lb. 9 ozs.; second, R. Yeo, Esq. (gardener, E. Marcham). Fine pines were shown by H. B. Walmsley, Esq., first; and J. S. Budgett, Esq., second. Six peaches: first, S. Tiddesley, Esq. (gardener, R. James); second, S. Turner, Esq. (gardener, J. Bryan); third, H. Blackett, Esq., these were finer fruit than the second-prize lot, but wanting in colour; equal fourth, F. Hamilton, Esq. (gardener, J. Belcher), and H. Wilkinson, Esq. (gardener, J. Sutton). Six nectarines: first, J. Smith, Esq. (gardener, Mr. Edwards); second, R. Attenborough, Esq.; third, Captain Tyrrell, R.N. (gardener, Mr. Hall). One scarlet-flesh melon: first, D. Lapraik, Esq., the smallest melon in the show, but very highly coloured; second, E. Oates, Esq. (gardener, R. Marcham); third, R. Attenborough, Esq. One green-flesh melon: first, E. Oates, Esq.; second, H. Wilkinson, Esq.; third, J. Smith. Six dishes of fruit: first, C. Watson, Esq. (gardener, C. Smith), with greengage plums, pears, cherries, &c., all extra fine; second, E. Wood, Esq. (gardener, F. Prece), in this lot red currants good; third, Rev. J. North (gardener, Mr. Boswell); fourth, R. Attenborough, Esq., in this lot a dish of Pond's seedling plums as large as hens' eggs and full ripe.

In the amateurs' and cottagers' tent, abundance of good flowers, fruits, and vegetables. The prizes in some of these classes were awarded by the Baroness Rothschild, the Hon. Mrs. Walpole, and Mrs. Budgett. The highest praise is due to Mr. E. Marcham for the admirable staging of the subjects shown, and also to Mr. Weatherly, the indefatigable honorary secretary.

MAMMOTHS AD LIBITUM.—About 40,000 pounds of fossil ivory—that is to say, the tusks of at least 100 mammoths—are bartered for every year in New Siberia. As many as ten tusks have been found lying together in the "Tundra," weighing from 150 lb. to 300 lb. each. Notwithstanding the enormous amount already carried away, the stores of fossil ivory do not appear to diminish. The mammoths appear to have been suddenly enveloped in ice or to have sunk into mud which was on the point of congealing, and which, before the process of decay could commence, froze around the bodies and preserved them in the condition in which they perished.

STRIKING VERBENAS IN BOTTOM HEAT.

I will not stop to inquire whether the old adage of "better late than never" is equally applicable to operations appertaining to the garden as it is to other social affairs, but pass on to the practical part of this paper, for I have no doubt that I shall be thought by many to be frightfully behind-hand in writing about Verbenas at the end of August. Be that as it may, I admit that it is rather late, but, at the same time, there are hundreds, nay, thousands, who have not done more than make a commencement towards providing for next year's display. It would be no matter to me if there were no more than fifty, or that the late birds could be counted by units instead of tens, provided my advice enabled them to get up a few thousand Verbenas without one half the trouble which is usually employed in that operation at this season of the year. What I mean by half the trouble is simply to strike 95 per cent., instead of from 20 to 50, which is most unquestionably a vast difference, and also a matter of some importance. The 95 represent what can be struck with the assistance of a nice, sweet, gentle bottom heat, and the 20 to 50 will represent those cuttings which will be rooted in a cold frame. I am not speaking at random, or overstating the number on the one hand, or understating it on the other, presuming, of course, that the most careful attention is bestowed upon the cuttings in both cases.

I am well aware that very few gardeners think of making up a hot-bed for propagating purposes in the autumn, a fact which goes a very long way indeed to account for there being so many inquiries respecting each other's success in this respect, and the frequency of the remark that the Verbenas are doing badly and going off by wholesale. I am unable to see any great difficulty to prevent us from arriving at the cause at once. Generally speaking, we contrive to give cuttings a greater degree of warmth to the soil in which they are placed, even if we do not increase the atmospheric temperature, than the plant from which they were taken enjoys. For instance, we do it in the spring in the propagation of the usual stuff employed in bedding out, and it is attended with the most beneficial results, and I am certain that equal success would follow were it employed in the autumn. It may be recollected what a difficulty there was to get Verbenas to root three years ago this autumn, and what a cry-out there was about them the following spring. That year I made a hot-bed up expressly for them, and I am certain I never saw a better autumn-struck lot in my life; not more than 5 per cent. of the cuttings perished, a number which it will be admitted was very small. To anyone who requires several thousand it is a matter of importance, and also of time, if he puts in two thousand cuttings for every thousand plants that he wants, while on the other hand he can depend with the greatest certainty upon 90 plants for every hundred cuttings, if he chooses to make up a hotbed for the purpose. The bottom heat is not required to be so strong as it is usually employed in the spring. I shall not go into the routine of the whole process, but remark, that as soon as the cuttings are rooted they should be shifted from the hotbed and gradually hardened off, for if they remain in heat too long, they naturally enough will be tender and unable to stand the cold and damp through the winter, and I am no advocate for coddling them after I can once get some roots on them.

GEORGE GORDON.

NOTES ON FUCHSIAS OF 1866.

We are annually having new varieties of Fuchsias introduced into cultivation, and until they become generally grown, we can know but little of their several habits or adaptations for the purposes for which the purchasers may require them. The descriptions given of them in the nurserymen's catalogues, in the first instance, are but transcripts of the raiser's own words respecting them. Any other particulars that may be afterwards afforded by other growers must be acceptable to those who are anxious to become acquainted with their respective claims, either as plants for the conservatory or for exhibition—not that we doubt the veracity of the raiser's words concerning his own seedlings, only we must not be unmindful of the saying, that "Every parent considers his own child the very gem of children." Influenced by these considerations, I venture to offer a few remarks on twelve varieties of Fuchsias introduced in 1866. But before I proceed, let me say that the plants which are the subjects of my task were not purchased till the early part of the spring of the year. They were then well established in small 48-size pots, and from them they were transferred into 24 or 8-inch size pots and plunged in cocoa-nut fibre in a pit, which afforded them both bottom and top heat. Every attention was bestowed on the watering and syringing them till they showed flower, when they were removed to their blooming house. We will commence with—

Alexandrina (Banks).—This is perhaps as rapid a grower as any variety in cultivation, and somewhat after the style of that once popular sort *Venus de Médis*. As it progresses in growth, it extends its branches from every eye of the main stem. Thus it forms a complete pyramid, gradually expanding in dimensions from the top to the bottom of the plant. Although but a few inches in height in the spring, it has now attained that of five feet. It is very free to bloom, and is now, after a short pause, producing a second crop of flowers. It has a white corolla with a scarlet tube;

the flowers are of medium size. I believe that it would prove a fine variety for training up the pillars inside a conservatory. That you may give density to its growth, continue to stop or pinch its side shoots in the earlier stages.

Arabella.—This is a noble flower, with white tube and sepals, and as one of the large flowering light varieties, it is an invaluable acquisition. It is a very free bloomer, comes in early, and continues throughout the season. It is a strong grower, and should be pushed on, if required to attain a good size, on account of its predisposition to flower early; it is inclined to be tall, with a fine branching or pyramid habit.

Blanchette.—The flower of this light variety is very fine, and of a colour much needed, viz., white tube and sepals, with a bright rose-coloured corolla, reminding one of that good old variety *Cléo*. I cannot say anything in favour of its habit, although the description in the catalogues speaks very favourably of it. With me it has made very indifferent growth, but has shown every disposition to flower profusely.

Catherine Parr.—This excellent variety cannot be cultivated too extensively either for ornamental or exhibition purposes. Although the flowers are but of medium size, yet they are produced in great profusion, and continue throughout the season. The colour of the flower is very pleasing, being white tube and sepals, with a bright scarlet-rose corolla. Its habit is first-rate as a good branching pyramid.

Lizzie Hexham.—This is a very good dark variety; a very free bloomer. The habit is also first-class; but that you may obtain a well grown specimen, you should commence to grow it early, say some time in November or December. If subjected to a nice intermediate moist heat it will grow rapidly.

Ben-e-Gloe.—This is a very dwarf variety, does not require so much pot room as the more rapid growers. It is a first-rate variety for the centre of a table. Not only is its habit dwarf, but it is also very bushy, with short-jointed wood, somewhat similar in its growth, though much dwarfer, to *Bo-peep*, which was a great favourite in its day, and not now to be despised. The colour of the flower is very striking, bright scarlet sepal, with a corolla of glowing dark lavender. Altogether it is a very desirable variety and free bloomer; valuable, too, for its distinctiveness.

Conquest.—This is a very pretty dark variety; very free bloomer. The flowers are not large, but they are very attractive, and finely reflexed. With care will form a nice pyramid.

Lady Dumbello.—Too much cannot be said in praise of this flower, for it is both grand in size and colour, being very long and wide, with scarlet reflexed sepals, and a rich lavender or blue corolla. It is of very bushy habit, but makes very long shoots. It is more suitable to grow as a bush than as a single stem pyramid. It is of a moderate height, and a very profuse bloomer, but does not flower till late in the season.

Harry George Henderson.—Not so good a bloomer as the preceding variety, although a very noble and effective flower. The shoots are long and erect. I do not think any coaxing on the part of the cultivator would induce it to become a good single stem branching pyramid. Its colour is very attractive, being a bright scarlet with a rich plum-coloured corolla.

Julia de Guest.—We may rank this with the two latter varieties as regards the season of blooming, the trio being decidedly autumnal flowering plants, and as such are a great acquisition to the list of good fuchsias. This variety is a very strong grower, and remarkably free to bloom, producing long erect shoots, furnished with plenty of bright red flowers with the addition of a beautiful lavender blue corolla. For style of growth and period of flowering, the three last-named may be considered to be of equal merit.

Beauty's Bloom.—A very pleasing dark free-flowering variety, of medium size. Habit good; with early attention the plant would make a unique specimen. This we can employ for table or decoration; it is very dwarf, with a nice compact habit, and forms naturally a pyramid shape. Its branches gracefully hang over the sides of the pot, so that when slightly elevated its fine white double corollad flowers are seen to advantage.

The observations which I now offer are entirely from notes I have made of the respective varieties in bloom, thinking they may assist those who are anxious to make choice of good and useful varieties of this popular flower.

JNO. F. McELROY.

ON PLANTING STRAWBERRIES IN SPRING.

Some advise strawberries to be planted in the end of August, or in September, or, better still, between the 1st and 15th of October; others prefer the months of March or April. Those who advocate the former period say that the plants put out in the end of summer or beginning of autumn have time to establish themselves in the soil before winter, and to gain sufficient strength to bear a crop in the following summer. This reasoning, it must be admitted, appears plausible. The success of plantations made at this season depends, however, in a great measure, on the soil being well worked, and in proper condition as regards moisture; on the plants being sufficiently strong and furnished with good roots, and on their being carefully transplanted. I agree with the opinion of those who prefer spring planting. For more than a quarter of a century I have planted at all seasons, but the spring plantations have always proved the best. The cause of this success lies in the following facts.

The plants established round the stools since last summer, without being detached from their parent plant, will be found much stronger after winter than those that have been separated before winter, either for planting out in nursing beds, or at once in the plantation. When carefully taken up with their fibres in spring, they soon take root, and grow vigorously in well-prepared, newly-dug ground; and in June or July they produce as much fruit as those that have been detached in a young state and planted before winter.

On taking up some young strawberry plants, it will be observed that the very slender fibrous roots extend obliquely in the soil in all directions round the parent plant. From this fact the cultivator should infer that in transplanting he ought to extend the roots in a similar oblique direction, covering them successively with soil up to the necks of the plants. On examining these a fortnight after, it will be found that new spongioles have been formed all along the roots, a circumstance which shows the utility of preserving all the fibres when taking up the plants.

Every cultivator must be aware that strawberries push roots more than a foot into the ground, provided it is deep, and rendered loose and permeable by manures suitable to the nature of the soil. They extend obliquely more than a foot and a half in all directions round the plant. If they are planted so closely that the roots entangle each other in struggling to obtain nourishment, it may be easily conceived that the produce must in consequence be diminished, not only in the first, but also in the second, and more especially

in the third year after planting. By some this is ascribed to the plants being exhausted; but this is an error arising from mistaking the effect for the cause. It would be more reasonable to say that the elements of nutrition in the soil become insufficient for the demand. These observations show the necessity of planting widely apart, so as to prevent the roots of strawberries and other plants from coming in contact with each other, if we wish to obtain fine produce.

Those who plant exclusively with a view to crop, and to obtain the fruit in full perfection, cut off the runners in spring and summer as they are produced. The fewer runners a variety of strawberry throws out, the easier the plantation is kept in order. A variety naturally disposed to make few runners is preferred to those that produce many, if in other respects it possesses equal merit, a property which is becoming more and more appreciated by connoisseurs. The limited production of runners is considered a fault of *La Constante*; and this is a reproach thrown on this strawberry which is even not well founded, for if planted in good soil, neither too dry nor too stiff, cold, and wet, it produces runners sufficiently well. A dozen young plants, which were planted out in August, 1862, furnished by October 127 plants, which was at the rate of more than 1,000 per cent. The circumstance of this variety not producing a superabundance of runners is considered one of its meritorious characters by the most intelligent cultivators.

J. DE JONGHE.

[The foregoing is reproduced from another work, in compliance with pressing requests from several correspondents.]

THE BEDDING DISPLAY AT VICTORIA PARK.

The flowers in Victoria Park have for a long time past attracted thousands and thousands of persons from the eastern parts of London to enjoy a cheap festival in the open air, and witness how great are the triumphs of art in embellishing the face of nature. Generally speaking, the schemes of colouring are rich and satisfactory, in one notable instance particularly so; and though some things have flowered out and become rather weedy-looking, the display will continue bright and good for several weeks to come, should the weather prove favourable. Indeed, such things as *Coleus*, *Amaranthus*, *Dahlias*, and sub-tropical plants, have but just now acquired their proper characters, so unfavourable was the weather all through the earlier portion of the summer. During that cool time the *calceolarias* attained their maximum of splendour, which is now past, and cannot be revived this season; yet the *calceolarias* are tolerably flowery even now, and there have not been many deaths in the beds, an immunity which may be accounted for perhaps by the richness and usually moist condition of the soil here. The mellow fertile loam of Victoria Park suits the *calceolaria* admirably, and they have no need of the six inches of rotten manure which constitutes my golden recipe for keeping them alive and well on soils where they commonly refuse to live in a dry season.

Some very interesting facts may be gathered about beds and bedding at Victoria Park just now; for example, *Coleus Verachaffeltii* has been as black as a bad hat (a once black hat, of course) all the season till this present, and now it has its true character—a rich modulation of crimson and chocolate, with a soft tinge of violet on the top. *Amaranthus melancholicus* has been brilliant from the first, the best perhaps of all known foliage bedders; but now it has acquired a deeper hue than ordinary, a blackish tone in fact, but which does not spoil it, nay, rather improves it when its relief agent is some good golden or silvery leaf. *Iresene* is not much used here, but that is everywhere beautiful now, and our once discarded plants at Stoke Newington have “picked up;” the solar heat has cured their malady—a sort of slow consumption—and when seen against the sunlight, the colouring is just of that “stained-glass” character that I ventured to describe it on its advent to the bedding world. In respect of edgings, the *Dactylis* carries the day at Victoria Park against the *Poa trivialis*; but Mr. Prestoe has a notion—a good notion—of using it for edgings, and *keeping it clipped*. This will stop its seeding, and keep it down to a close line; for its tendency is to grow more upright, less like a mat, than the variegated *Dactylis*. In the matter of geraniums, let every visitor to this interesting place take note of Lord Palmerston. It may be seen everywhere, in fine solid self beds and in combinations; and though it is not one of the sorts that we ought to look close at and down upon, as we do with Mrs. Pollock, it is grand when seen from a proper point, and we may say of it, as Campbell says in the opening of his “Pleasures of Hope,” that “distance lends enchantment to the view.” Here, too, *Attraction*, prince of scarlets, is fine, splendid; the beds are paved with big leaves that form a groundwork for splendid trusses of scarlet flowers. It is as flowery as Tom Thumb, and the flowers have quality, which most of the popular scarlets are deficient of. *Commander*, *Cerise Unique*, and *Stella*, are all equal to their high repute; but *Cybiater* disappoints me, and in the great semicircular scheme it may be judged well, and it will be seen to be weak as compared with *Stella*, which has immense power, in the same scheme; more power probably of colour—and right regal colour—than any other known geranium. *Phlox Drummondii* has been less used than in former years, and *Gazania splendens*, usually a favourite here, is scarce. These circumstances have nothing to do with the intrinsic merits of those plants; they are the results of accident, matters of local and not general import. Another matter worthy of a special note is that *Dianthus Heddwegii* is largely used, and remarkably well done. I could pick out many a first-rate florist's flower amongst them, and the poorest in quality are nevertheless gay in colour, and fulfil all the conditions required of a bedding plant.

In the issues of the Magazine for August 4th and 11th, of last year, will be found our report on the bedding in 1866, accompanied with some large diagrams of the principal schemes. I shall not now attempt to describe every bed, but shall touch upon as many of the more prominent features as will render this number of the Magazine useful as a guide to the colouring for those who can see it, and I hope useful also to those who cannot. I will ask the reader to refer to the figures and descriptions published last year; and now we will take our stand somewhere on the road which connects together the Crown and Royal Hotels, and which, if I remember right, has been described in former reports as Llanover Road. But no matter, the two hotels are as well-known in the district as Aldgate Pump is known elsewhere, and in a place of such vast dimensions it is better to select a position for reference about which there can be no mistake, for to see the bedding the visitor must find this road or be disappointed. Now, on the way from the Crown to the Royal is a continuous shrubbery on the right. The shrubbery approaches and recedes so as to form bays and inlets, and it is finished off with a waving line of ribbon, which consists of front row *Calceolaria Gem*, and next line *Stella*, which to my eye is a very unhappy

combination, for the deep dull orange-red of the *Calceolaria* is overpowered by *Stella*, and on the other hand *Stella* is muddled by the discordant combination. The first gap we reach after leaving the Crown contains a splendid bed. It is a circle divided by a great cross of *Centaurea ragusina*, the angles filled in with *Coleus*, the edge *Cloth-of-Gold*. Draw a circle, divide it into four quarters by lines at right angles through the centre, and you have the simple plan of a great bedding success.

Presently, as we proceed, we arrive at the great bay whereon is the double scroll and group of beds, figured at page 360 of last year (August 11, 1866). Contrary to the prevailing rule, this looks poor on paper, as the print will prove, but on the ground it is grand, and a view of it lengthwise is better than a view across from the centre on the pathway, though the last is the view which must be considered most proper. The scroll has for edgings on both sides *Lobelia Paxtoniana*, and central line of *Little David geranium*. The central circular bed opposite the point where the two scrolls meet is *Treatham Roae* alone, a broad sheet of colour not surpassed for richness, freshness, and completeness by anything else in the Park. On either hand two circular beds, consisting of *Calceolaria aurantia* edged with *Lord Palmerston geranium*, a charming combination, and a better balance than *Calceolaria* and *Christine*. At each extreme, right and left of the scroll, lozenge-shaped beds, with *Christine* centre, *Flower of Spring* all round, and edging of *Amaranthus melancholicus*. Again, further outwards, a pair of circular beds, consisting of *Punch*, with *Amaranthus* edging. At the extreme ends of the design lozenge-shaped beds of *Christine*, edged with *Lobelia Paxtoniana*. Next the shrubbery are some small beds, consisting of *Calceolaria Gem* alone, and yellow *Calceolaria* edged with *Perilla*. There is a richness and completeness about this colouring that will delight all who see it, so far as they are capable of discriminating good and bad. I do not say that it surpasses the colouring of last year, when *Cerastium* brought out the scroll very brightly; but it is warmer, and there is not a single improvement to desire.

To the left of this scheme is a pleasant walk beside the ornamental water to a place of shade and rest. All sorts of good things may be found accompanying this walk. There is a group of beds on the right, or, if you keep to the road which connects the Crown and the Royal, you see the same beds on the left, for they lie between the bye-walk and the drive. But we are on the walk, and we observe that one bed in particular is attractive and striking. It is a large oval, filled with *Centaurea ragusina*, and edged with *Perilla*. All around the beds are highly coloured, else this one would be cold; but in its place it contrasts pleasingly with rich masses of scarlet, yellow, and purple, and may be made a note of as well adapted to serve as a decided neutral agent in a scheme of strong colouring. Here will be seen a front waving line to finish off the shrubbery consisting of variegated coltsfoot *planted out* (which accounts for the huge leaves they have made; this plant is usually plunged to prevent its rambling), behind the coltsfoot *Calceolaria Gem*, and behind that the old *Prince's Feather*, a sort of lively funeral plant when seen associated with ordinary bedders, but a plant not to be despised, for its very heaviness is a help to gay things. Observe on the left, going toward the resting-place, a splendid specimen of *Aralia Sieboldii*, observe everywhere how fine the tufts of *Indian Corn* look; observe the isolated beds of tobacco-plants in bloom: they are not gorgeous, but very useful; for it is well the east-enders, who smoke and spit considerably, should see the plant that does so much to make them pale, and renders them liberal pecuniary supporters of the state, through the medium of the revenue. At the corner of the side-walk that conducts the weary traveller to a place of repose is a nice plant of *Aralia spinosa*, in perfect health and growing freely. It stood there all the past winter, got cut back a little, but has quite made up its loss by a vigorous new growth.

The way I go may actually suit no one but myself; but I go the way I am led, for I never trust myself to find my way about a place of this sort. I might, as somebody in the versifying line says,

See the summer daylight fall,
And leave half told the pleasing tale.

That is to say, I might wander all day from the objects of my search, and at nightfall be nowhere. So I allowed my conductor to take me towards the Crown, but not to take me to it. At the gate we turned round to the right, and behold we were in the “Avenue,” one of the prettiest drives in the place, with a great sweep of ornamental water, and one of the finest collections of willows in the world, on the right of you. On the left a series of bays, in every bay a scroll, the borders beyond filled with herbaceous plants, which, I must say, are not of the best; there are too many weedy kinds of *Calliopsis* there. Perhaps a hundred good hollies dotted along the front line of that border would improve it much. Scroll No. 1 has a centre line of *Little David*, edged on both sides with *Lobelia Paxtoniana*, pretty. Scroll No. 2, diagonal bars of *Little David*, blue *Lobelia*, *Amaranthus*, *Lobelia Paxtoniana*, *Little David*, and so on again; don't like it. Scroll No. 3, centre line of *Lord Palmerston*; on each side of it *Calceolaria Gem*, edging of *Cineraria maritima*; bad. Scroll No. 4, centre line of *Christine*, line each side of *Calceolaria Amplexicaulis*, edging of blue *Lobelia*; this is nothing now, for the rain has washed away the flowers, and the *Calceolaria* will not make many more. But I will prophecy backwards that it has been one of the prettiest scrolls in the place; it must have been; wish I had seen it a month ago. No matter; put this down as a good scroll, and you will be safe. Here is the beautiful arcade, a most cosy retreat, pretty well occupied with humble folk: what a blessing for such to have a place of rest fit for a Sultan, and therefrom to look upon a scene so beautiful, and teachable, and comforting, as that smooth lake, with its swans and islands, boats and trees, sunshine and shadows! If this appears too gushing in style, go and see the *people* as well as the park; you will not be long in concluding that hard toil and poverty, and perhaps some demoralizing influences from which the east of London is not quite free, war with terrible energy against the creature that was formed in the image of God. Mind you, towards evening the park is crowded with a very merry population. The East End can turn out its plump holiday-makers, as well as its emaciated representatives of the social miseries for which it has an unenviable fame.

By a turn round to the right from the top of the Avenue, we come upon the display at Shore Place, which is the most select district of the park. Please turn about here and view things leisurely. Nothing elaborate, curious, or difficult, but much beauty and the place well kept. Always a grand waving ribbon here, and now we have a good one to sustain the fame of the spot, and of its master, Mr. Prestoe. Front line, *Lobelia Paxtoniana*; next line, *Variegated Dactylis*; next line, *Calceolaria aurantia*; next *Stella*, next *Captain Ingram Dahlia* (there are people who suppose the *Captain*,

once most popular of bedding dahlias, extinct, not so—go and see it); next mixed Dahlias, and beyond a rich mixture of shrubs and trees. Standing somewhere towards the gate at Shore Place, you see two low mounds. The one on the right was figured last year, at page 347 (Aug. 4th, 1866). This mound is now planted in a succession of scrolls, consisting of blue Lobelia. Where the scrolls meet are dots of Baron Riccasoli, and Cloth-of-Gold. The bank is filled in with a groundwork of *Gnaphalium lanatum*. The top line is Lord Palmerston, the bottom line *Amaranthus melancholicus*. I fancy a blaze of scarlet would look well there, the beautiful ribbon leading up to it well; but as it is, let us be content and thankful for so much beauty. The mound on the left is in a series of festoons of Flower of Spring, enclosing semicircles of Lord Palmerston, *Calceolaria Amplexicaulis*, *Stella*, *Christine*, *Centauria ragasina*; the filling-in below is blue Lobelia, the margin white Alyssum. Several very distinctive and beautiful beds about here. Observe one large circle divided into six parts from the centre, the divisions in pairs, one pair Brilliant, one pair *Calceolaria aurantia*, one pair *Amaranthus melancholicus*; the edging *Gnaphalium lanatum*. Everywhere about beautiful top lines of *Dahlia albana*, one of the best, and now at its best, and likely to keep so for some time to come.

Let us now go up the road towards the Crown again, and observe various things on the left of the drive. Oblong bed of *Verbena Grand Boule de Neige*, edged with blue Lobelia, good. Oblong bed of *Tropaeolum compactum*, with leaves the size of a florin or less, and smothered with small orange-red flowers, edged with blue Lobelia, splendid. The great mound, which has usually been planted with *Phlox Drummondii*, is this year in mixed Dahlias, edged with *Phlox*. The latter is breaking up, but the Dahlias are all right; a bold affair. Oblong of *Christine*, edged with *Heliotrope Muleteer*, a good purple kind. Oblong of *Amaranthus melancholicus*, edged with *Viola cornuta*, good; yet the *Viola* not half so flowery as at Manchester, and anywhere and everywhere in the Midland counties and the North. Oblong of *Petunia Alba magna*, edged with a small *Achillea*, the *Petunia* fine. Oblong of *Dianthus Heddelegi*, equal to the best bed of Sweet Williams, and just in that style, except that the flowers are larger, and the Sweet Williams have done blooming long ago. Now we come upon the great semicircular scheme, which is as grand as can be,—enough red to give it richness, and enough of other colours and contrasts to draw it out to its full dimensions, and demonstrate all its parts.

This great scheme is represented true to scale at page 348 of last year (August 4, 1866). The key to it is the bird or butterfly in the centre next the drive. From this point we see in every direction, right, left, and forward, alternations of colour that in every way help each other, and there is not a hitch anywhere, which is great praise for so large a system, and one so disadvantageously placed in respect of the absence of architectural accessories. I think it is better coloured this year than I have ever seen it before, and you will find in the reports of the past six years that I have sometimes found fault with it by that process of hypercriticism on which these reports proceed,—the vice of the dilettante who splits a hair to discover if one side is in any way different to its fellow. The two wings of the butterfly are of Baron Riccasoli, with dots of Cloth-of-Gold; the tail of the butterfly is Cloth-of-Gold, the body of the butterfly is a round dot of Cloth-of-Gold; the edging is *Cerastium tomentosum*. On each side the butterfly right and left, next the drive, round beds of Scarlet *Verbena*, very much like one that Messrs. Low and Co. have under the name (apocryphal) of James Shaw; at all events, a splendid scarlet. In the semicircle which these *verbena* beds commence, the next beds are oblongs of *Petunia Alba magna*, splendid. Next, in the same semicircle, round beds of a seedling *Petunia* of Mr. Prestoe's, the colour soft rose; this is a good one. The keystone to the arch of the centre bed of this series consists of blocks of *Alma* filled in with *Amaranthus melancholicus*.

Beginning again next the drive in the semicircle next following outwards, oblong beds of Purple King *Verbena*, edged with *Cerastium tomentosum*. Next circular beds of *Tropaeolum compactum*. Next oblongs of *Calceolaria Prince of Orange*, edged with *Geranium Brilliant*. Circles of Lord Palmerston, edged with the *Dactylis*. Key bed of *Cybister*.

Begin again, and in the same way, with round bed of *Lobelia Paxtoniana*. Next oblongs with four blocks of *Christine*, filled in with *Calceolaria Aurantia*; very cheerful and sound. Oblongs again of *Stella*, edged with variegated coltsfoot; a wonderful pair of beds, improved by the distance, and led up too skilfully over the white *Petunia*, the rosy *Petunia*, and the orange *Calceolaria*. Oblongs again of *Calceolaria aurantia*, edged with *amaranthus*. It scarcely matters out here what the beds are edged with; the big blocks of colour are the visible constituents of the display.

In the outermost of all the semicircles, the planting is as follows:—oblongs next the drive, variegated Alyssum and Flower of the Day mixed for a groundwork; the edging *Amaranthus*. Next circles of Brilliant. Next oblongs of *Calceolaria Amplexicaulis*; band all round of *Calceolaria Gem*; edging of *Dactylis*. Circles of *Trentham Rose*. Oblongs of *Punch*, edged with *Perilla*. Circles of the "Variegated Ribbon Grass," *Phalaris arundinacea*, edged *Cineraria maritima*, the two grays blending when seen from the drive, and serving admirably as gray blotches to carry the eye round the boundary beds. Key of the arch, *Trentham Rose*, a glorious bed, well worthy of its position, and in every way a fine finish to Mr. Prestoe's best work of the season.

The curtain ought to fall here, for though we may go on and find beds and borders everywhere, and when tired of colour find a feast in a criticism of the trees, there is nothing of import sufficient to detain us longer on the present occasion. The triangle hard by is in a quite different style to the scheme, it will be observed; so are the beds and borders on the opposite side of the road. And, by the way, there is an exceedingly good ribbon on the other side, which will not bear close inspection, but viewed as a ribbon is unique. The front line is Variegated Coltsfoot; next, *Amaranthus melancholicus*; next, *Calceolaria Amplexicaulis*; next, *Geranium Trentham Scarlet* (syn., *Crystal Palace Scarlet*); next, *Perilla*, top line mixed Dahlias. The *Perilla* comes out well in this, and the *Amaranthus* balances it perfectly.

S. H.

Calendar.

WORK FOR WEEK COMMENCING SEPTEMBER 7.

Kitchen Garden and Frame Ground.

ARREARS must be fetched up, or the fogs and morning frosts will overtake something that has been too long delayed. Refer back to notices of the past few weeks, and especially be on the alert to propagate whatever has been neglected hitherto.

CAULIFLOWER AND BROCCOLI to be planted in quantity for spring use, and rather close, that the plants may protect each other; and in case of hard weather all except the outside rows may escape injury. Recently-sown stock should now be in rough leaves, and should be pricked out in frames or small clumps, to be covered with hand-glasses. A few of each of the kinds of cauliflower should be potted to keep in frames all winter.

LETTUCES to be sown to stand the winter, if not done already. Choose a sheltered piece of well-drained ground. Those sown three weeks since to be planted out under walls or in patches, to be protected with hand-lights.

MUSHROOMS.—Prepare the bed for winter supply. The first thing to be done is to collect plenty of short unfermented dung, or if only long dung can be had, pick out the long straw and lay it in small heaps to ferment gently, and turn it every three or four days till it produces only a gentle heat, then make up the bed. A dry dark shed is as good a place as any, but a better crop and a larger supply may be ensured where the beds can be made over a warm chamber.

POTATOES left in the ground after this time will spoil faster than they grow; get them up and stored; and should you intend to follow the practice of autumn planting, throw out all the middle-sized greenish tubers, and plant them at once, seven inches deep, and the rows not less than thirty inches apart.

Flower Garden

AURICULAS.—Look over the whole stock, and stir the surface of the soil in the pots, and remove dead leaves. If any leaves are damaged, turn the plants upside down and search for insects. If any green-fly is visible, shake some dry silver-sand among them, and blow it out with force, and the vermin will be carried away.

BEDDING PLANTS struck now should be potted singly and shut up close in frames. It is too late now to put cuttings in the open border, as the ground is cooling and the plants are sappy, owing to the late abundance of rain. All the bedding stock that is now well rooted and potted off for winter should be placed out of doors on a hard bottom of stone or slates, to harden for three or four weeks.

BULBS to be planted. Those most important now are Snowdrops, Crocuses, and Narcissus, and hardy border Lilies, as these do no good if kept long out of the ground. Pot Hyacinths, early Tulips, Narcissus bulbocodium, *Tritonea aurea*, *Ixia*, and *Sparaxis*.

CALCEOLARIAS may be propagated now in quantity; they need no bottom-heat. Take short stubby side-shoots, dibble them into a mixture of leaf, very rotten dung, and about a fourth part sand. They strike quickly, and make fine strong plants in cocoa-nut waste well rotted; so if the plunged bed can be cleared out, the rotten cocoa waste will be the best stuff that can be used for them; they will readily root now, and make first-rate plants for next season. Put in plenty of short stubby side-shoots, and shut up in a frame.

HARDY ANNUALS may still be sown to keep over winter. If sown in the open ground, it must be on poor hard soil, in a dry position. We named the best sorts a fortnight since, and may now repeat that all the really hardy annuals are better from autumn than spring sowings.

HOLLYHOCKS to be cut down as soon as they have bloomed out. Any very choice, from which cuttings are required, to be cut down without waiting for the last blooms to open, as it is important to gain a week or so to get good breaks from the stool to cut from.

CLEMATISES are now in their full splendour, and a few words about them may be useful. *Clematis lanuginosa*, *C. azurea grandiflora*, and others, have long graced our gardens, and are remarkable for their enormous flowers of various shades of blue; but it is only within the past few years that numerous striking varieties of the family have been noticed at our shows, in various shades of blue and rich dark purple. They are so attractive in appearance and noble in flower that doubtless many of our readers have been induced to purchase young plants, and therefore a few words on their culture may not be amiss. They are, when well grown and flowered, the noblest of all climbers for walls, trellises, or any other position in which hardy climbers may be desired. We have seen them flourish freely planted on the level ground, and allowed to stroll over it in their own way. On trellised arches which one occasionally sees in gardens, on the slender wirework fence so often used of late, they are truly beautiful and effective. They, like most things that we have to treat of, enjoy a good rich soil, and if with that it is light and free, so much the better. If the soil is very heavy, it had better be made light by the admixture of road-sand, leaf-mould, and other matters which may be convenient before planting; if light, it must be well deepened and enriched with rotten manure and stiffish loam, if convenient; but, no matter what the soil may be, the secret of cultivating these clematisses is to give them a few inches of well-rotted manure, on the surface of the earth all round where the roots are, or, in other words, to "mulch" them. If the appearance of the manure is objected to, as it may be by many, it may be covered with an inch of soil, and on that some annual, like the aster, may be grown for the summer months. As regards training, they are best left alone in summer, at least till the shoots get very long indeed; but during the winter months they must be firmly tied or nailed over whatever surface they occupy, as the weight of flowers is considerable where they are properly grown, and by having the main shoots firmly secured, the rich mass of blooms, many of them as large and larger than tea-saucers, may be allowed to hang down in a graceful and natural manner, which much increases the beauty of the plants and whatever position they adorn. It is almost useless to enumerate any special kinds among those new hybrids and varieties sent out by Messrs. Jackman, as all are good, and it is only necessary to pick out the most diverse; and in many gardens where climbers are much valued, all the varieties will be acceptable. Where we write this is a splendid plant of *C. Jackmannii*, every shoot suspending a range of noble rich violet flowers, and several dozen other kinds, large and small, and all nearly

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equally beautiful and equally appreciated. The small kinds, like *C. viorna*, with its pale pink flowers; *C. Shillingii*, with its very delicate ones; *C. flammula*, with its mass of fragrant spray,—cover arches beautifully, and look effective in the mass; while here and there the splendid single flowers of such kinds as *C. rubro violacea* catch the eyes of many who hardly ever notice a flower. Those who plant clematises should never by any chance omit the beautiful large-flowered variety of *Clematis montana*, usually called *C. montana grandiflora*, as its beauty in the early part of the year, before any of the other kinds expand, is unsurpassed by that of any other hardy or tender climber. No one looks upon the clematis as a hedging plant, yet any of the more showy kinds would make magnificent hedges if allowed to ramble over a raised surface, in the same way as we have recommended the white everlasting pea to be grown. Whoever gives clematises a fair trial will not be disappointed.

LATE TULIPS.—Plain people, who do not intend to sacrifice their days and nights, and more money than they can afford, to the growing of late tulips, ought nevertheless to have them, because of their gorgeous beauty. It is easy enough. Good mixtures are quoted in catalogues at half-a-guinea a hundred. These will produce flowers as good for garden decoration as bulbs of Charles Williams, which are now selling at twenty-one pounds each. If you want names, precise markings, characters suitable for pedantic discussions, you must become a tulip grower, which in many cases means that you must rob your family, enjoy the headache, and become a slave to roots that would not nourish you a single hour if you and your tulips were together cast upon a desert island. But to have all their splendour at a trifling cost, prepare a four-foot bed, or even a narrow border—perhaps a border with some shrubs in the rear is the proper place for this business. Sandy loam, well manured, is all you want. In this plant your cheap mixtures, six inches apart, six inches deep, and leave them alone four years. Then take them up, separate, replant, give away the surplus, and go on as before. You will be a tulip-grower minus the madness: who can object to that?

DAFFODILS.—All the varieties of Polyanthus Narciss make beautiful subjects for pot culture. They require the same soil and treatment as hyacinths, and the number of bulbs put in a pot must be regulated by their size. A fine hurb of Grand Monarque will require a six-inch pot. The following are the most distinct and noble: *Bazelman Major*, *Gloriosa*, *Grand Monarque*, *Grand Prince*, *Soleil d'Or*, *States-General*, *Double Roman*, and *Paper White*. For open borders the following are beautiful: *Incomparable*, *Orange Phoenix*, *White Dutch*, *Van Sion*, *Common Daffodil*. The best way to deal with them is to plant them in clumps of half-a-dozen to a dozen bulbs in shady borders, and not to disturb them for the next seven years at least. The gardeners are so fond of digging borders, however, that you may think yourself fortunate if they are not all chopped into mince-meat within a year of being planted. It would do incalculable good if some lover of flowers would chop one of these border-diggers into mince-meat, as a caution to the rest!

THE ROMAN HYACINTH is a small white bulb, which produces small spikes of snow-white flowers, or small spikes of blue flowers. They are grown in vast quantities for Covent Garden Market, and may always be found in wedding bouquets during winter and spring. As trade articles they are scarce; the market growers usually monopolize the supplies. Pot them as soon as they can be obtained, plunge them with two inches of cocoa-nut fibre over their crowns, and, as soon as the green spikes peep through the material, take them out and put them in frames and green-houses. If a very early bloom is wanted, pot in August, and, when well rooted, put them in gentle heat, and they will bloom in November. As a border bulb, Roman hyacinths are most useful, and the way to treat them is to plant four inches deep, and leave them undisturbed for several years.

CROCUSES suffer much by being kept out of the ground till late in the season, and with being lifted before the leaves have died down. Plant them three inches deep in clumps or lines, and leave them untouched three years, then divide, manure the ground, and plant again. Nothing to surpass common white, yellow, and blue for the open ground, but the named varieties should be used for pots. Put five bulbs in a five or six-inch pot, using rich sandy soil, and treat the same as advised for hyacinths. If no room for them in the greenhouse, they can be flowered well in a frame. The following are splendid varieties: *La Majestueuse*, *Sir Walter Scott*, *David Rizzio*, *Mont Blanc*, *Cloth-of-Gold*, *No Plus Ultra*, and *Queen Victoria*. Any of these may be had in bulbs as large as walnuts—and the larger the better—at from 3s. to 6s. per hundred. The price of the common kinds is 1s. 6d. to 2s. 6d. per hundred.

Fruit Garden and Orchard House.

HARDY FRUIT to be gathered as soon as ripe, which may be known by the colour of the pips, and by the stalk parting readily from the tree. Gather with great care, and keep apart from the best all that fall in the process. Gather only during dry weather, and store at once; there is not the least need for the "sweating" process usually adopted. The fruit store should be in a dark place, capable of being freely ventilated, yet generally admitting but a trifling current of atmosphere; and it should be cool, and yet safe from frost.

WALL TREES only need such care as may be necessary to assist in the ripening of the wood. Where spray-like growth and rank shoots overlap and shade wood selected for bearing, remove it or cut it into reasonable bounds, for the wood laid in needs now all the sun it can get, and it is sure not to get too much. Train in regularly, and by all means avoid overcrowding.

Greenhouse and Conservatory.

FUCHSIAS that have gone out of bloom may be cut back to neat shapes, and put in bottom-heat till they break freely; thus treated they will flower finely during November and December in the greenhouse or conservatory, with the help of a little warmth.

Stove and Orchid House.

ORCHIDS ripening off must have as much air as possible, but with caution, as a chill at such a time is more likely to cause spore in the next growth than when the plants are full of vigour. In the same way the withholding of water must be by degrees, and not suddenly, and the cultivator must bear in mind that many orchids when in their native sites are never dry, except perhaps for an hour or two at midday; hence the reduction of atmospheric moisture must be carried only to a certain point.

WINTER FLOWERS.—Many subjects in the stove may be turned to account to supply winter flowers, if attention be paid to them in time,

Indeed, we look to the stove for the decoration of the dinner table, and for occasional embellishments of the conservatory, until the bulbs, cinerarias, primulas, and cyclamens come in once more.

ORCHIDS THAT MAY BE IN BLOOM IN SEPTEMBER.—*Aerides suavisimum*; *Angreum caudatum*; *Barkeria melanocaulon*, *Lindleyana*; *Bletia campanulata*; *Bolophyllum saltatorium*; *Brassavola acanthis*; *Cattleya bicolor*, *candida*, *granulosa*, *Harrisonia*, *Harrisonia violacea*, *Loddigesii*, *marginata*, *pumila*, *violacea*; *Cypripedium Farrisianum*; *Dendrobium Gibsoni*, *Heyneanum*, *sanguinolentum*; *Dendrochilum glumaceum*; *Epidendrum phoenicium*, *vitellinum majus*; *Huntleya Wailiesii*; *Laelia elegans Dayii*, *furfuracea*, *Perrini*; *Miltonia candida*, *Clowesii major*, *Morelli*, *Morelli atrorubens*, *Regnellii*; *Oncidium bicolor*, *crispum*; *Peristeria elata*, *guttata*; *Phalænopsis amabilis*; *Promenæa Rollinsonii*, *stapeloidea*; *Stanhopea aurea*, *insignis*, *Martiana*, *oculata*, *tigrina*, *tigrina lutescens*; *Trichopilia picta*; *Vanda Batemanni*, *Lovii*.

Forcing Pit.

STRAWBERRIES to be forced should now have well-formed plump crowns. If the crowns are thin and weak, put them under glass, and assist with weak liquid manure.

PINES.—Plants swelling their fruit will need a little clear liquid manure: nothing better than soot-water. Guard against any of the young plants fruiting prematurely; to prevent it, keep them liberally watered, and in a warm moist atmosphere.

VINES that have ripened their fruit to be kept well aired, cool, and dry.

HYACINTHS IN POTS.—One of the first steps to achieve success with these splendid subjects is to secure suitable bulbs. Some of the samples with which first prizes are taken at great meetings are so large that it is with difficulty they can be potted into 48-sized pots. Of course such bulbs fetch a long price, and very few private growers would purchase them. Such bulbs do not always, however, make a proper return for their extravagant cost, for instead of throwing up one huge spike, which is exactly what we want of them, they sometimes produce half a dozen medium spikes, and are then magnificent for decorative purposes, though not adapted for competitive exhibition. In selecting these extra large bulbs it is always preferable to take those with a distinct central neatly-finished point (or crown) to those that are rough or showing the slightest tendency to divide vertically. When the whole bulb has but one set of scales, and these come to a nice finish at the growing point, they usually produce only one spike, and of course that is a monster, and counts for one to show. But very fine exhibition spikes may be grown without extra-sized bulbs. Some good sorts never make large bulbs, and some never make handsome bulbs. We advise the grower who does not mind paying a little extra to give the dealer notice of his desire for picked samples for exhibition, and at some advance on the average rate. Grand specimens may be obtained, such as are never parted with at catalogue prices. This fact is not generally known, and exhibitors do not care to have it known too widely, because of the monopoly they enjoy of these "first selected" samples on the arrival of the bulbs from Holland. In selecting bulbs, size and shape are not all-important. Get large bulbs if you can; get them with one distinct and nicely-finished crown, but above all things be sure of this—that they are heavy. We weighed a lot of Koh-i-noor and Solfaterre bulbs last year, and made notes of them when in bloom. The heaviest gave the finest spikes and the richest colours. All the light ones were poor spikes, and some of them were quite washy in colour. We never knew Milton or Howard to come fine from any but heavy bulbs, and, indeed, the rule holds good throughout, but applies especially to high-priced sorts, because these the growers do their utmost to increase, and of necessity hard propagating results in the production of samples not quite up to the mark, for the prices they realize tempt the growers to send as many into the market as look fit for the purpose. Size and shape are not unimportant characters, but weight is the final and decisive test. As to the growing of them, the highest prizes in spirited competition, have been taken with bulbs potted as late as Christmas. Late potting, therefore, is not of necessity fatal to success. One thing is certain, if the bulbs are to be potted late, they must be preserved from contact with the atmosphere. Put them away in dry chaff, or any such preservative: the husky stuff they are packed in by the Dutch keeps them well; but whenever we have had to pack a large lot away in a fresh store we have used grass-seeds, which, of course, were just as good, after they had served this purpose, as before. Still, though keeping them out of the ground till the end of the year does not of necessity ruin them, we prefer to plant early, reserving a few to plant late, so as to secure a succession of flowers. Private growers are not generally aware that the proper stuff to use in potting hyacinths for exhibition is a mixture consisting of one-half fat dung and the other half good turfy loam, with a large admixture of sharp sand. The sweepings or scrapings of a much-frequented gravel road answer admirably to incorporate with the mixture to render it porous. To secure abundant root-room, use only one crock over the hole in the pot; then fill in and press moderately firm; then press the bulb down in the centre till it is more than half buried; then fill in round it with fat dung alone. If the soil is in a moderately moist condition, the potting may be performed with great rapidity, and the bulbs will hold well in their places; but if too wet or too dry when the potting takes place, they will be apt to tilt on one side as soon as the first roots push, and this will very much interfere with their beauty when in bloom, as the stems will be bent near the base. As an additional precaution against tilting over, do not pot them too firm—that is to say, do not press the bulb so hard that it will be bedded on a pavement when in its place, as the first roots, being unable to penetrate the hard soil, will lift the bulb up, and, once out of position, it can never be nicely put right again. All other details of cultivation are the same as have been described in this and other works again and again. The pots containing the bulbs should be packed close together in a well drained bed, and have one good watering. If small pots are plentiful, place one inverted over every bulb, to prevent the plunging material from touching the bulbs, and to preserve around each a film of dry air. This practice prevents mildew, and tends also to retard growth—two signal advantages. They should then be covered six inches deep with coal-ashes, or any other suitable material, the most clean and suitable being cocoa-nut fibre waste. They should never remain in this position beyond the 15th of February, but in mild winters will have to be removed at least a month earlier. Under any circumstances, they may be allowed to push three inches before being taken out, but after that it would harm them to remain. Place them for a week on the floor of a cool house to become green; then put them in a gentle heat, and according to the time when wanted in bloom force them fast or slow, always taking care to keep a few back in full daylight in a cool house, and

from frost, to furnish the latest display. Those expected to give extra fine spikes should be assisted by a top-dressing of sheep's dung from the time when the spike begins to rise freely. If there is no room to put this dressing on, remove a little of the stuff first used to fill up the pots with round the bulb, so as to introduce half an inch depth of the fresh dressing. Manure water we strongly object to, chiefly because of its liability to mis-use. When we have to trust much of our work to others, the more simple the routine the better, and by using top-dressings and pure soft water the plants are much more safe than when liquid manure is allowed; for one dose of it, if it is a little too strong, will ruin the hopes and labours of a season.

EARLY TULIPS.—This is a valuable section of bulbs for the decoration of the garden. Fortunately they are all good, so it scarcely matters what sorts people purchase. Early tulips may be flowered in beds and borders in time to be removed to make room for the ordinary summer hedges, but a better way is to plant them in such a manner that they may remain in the ground two or three years, the geraniums, verbenas, &c., &c., being planted between the rows of tulips, so as to avoid the necessity of disturbing them. What splendid things they are in pots is well known, such sorts as *Van Thol*, *Pottebakker*, *Rex Rubrorum*, *Trionon*, *Yellow Prince*, and *Froserpine* being grown in thousands for Covent Garden Market. And as telling secrets seems to be our province, this time we will tell you how the best market-growers manage them. You will observe that a market specimen of Van Thol consists of three bulbs in a five or six-inch pot, all the flowers in exactly the same degree of expansion, matching so well that a person uninitiated is sorely puzzled to know how the thing is done. In private greenhouses we see pots of tulips with the flowers in different stages of advance, some full out, others half out, and so on. The bulbs in a pot refusing to move precisely at the same pace. This would never do for market-growers, and so they accomplish by stratagem what skill is quite unequal to. They plant all their bulbs in beds of turfy loam in pits, greenhouses, and the open ground. When preparing to send to market they take up such as have the flowers half expanded—that is, when the flower is about the shape and size of a walnut, and not at all expanded to a cup. They pot these three in a pot to match exactly, and then go to market with them and astonish mankind with apparent evidence that the bulbs obey their bidding and flower to the very hour they are required.

AN INVALUABLE RECIPE.—If you have a screw rusted into wood, or a nut or bolt that will not readily turn, pour on a little kerosene and let it remain. In a little while it will penetrate the interstices, so that the screw may be easily started.—*Builder*.

THE GARDENER'S CONSCIENCE MONEY.—The Westmoreland Gardeners' Lodge, No. 142 (Kendal), held a meeting some time since for rather a novel purpose. Some 30 years ago, when the lodge did not muster so numerously, and was not so rich as at present, one of its members was entrusted with more than £30, for the purpose of purchasing regalia. The man was young and poor, the temptation strong, and neither man nor money was again heard of until lately. One day a person of respectable exterior and gentlemanly deportment, a stranger, waited upon the secretary and asked him to convene a special general meeting of the lodge. This was done, curiosity became excited, and a numerous attended gathering was the result. It then transpired that the stranger of respectable exterior and gentlemanly deportment was the missing "gardener" of 33 years of age, who had come all the way from America to repay in person, and with ample interest, the money which he had appropriated in his poorer days.

Correspondence.

FOXLEY'S BEADED BRICKS.—I am about to build a garden wall with east and south-east aspects, good therefore for peaches and nectarines. I meant to build it with the patent beaded bricks, but have been told that they have not been found to answer in and about London where they have been tried for several years, as the wood of peaches and nectarines does not ripen well on them. Is that the case? The bricks I get here stand the frost well, as a wall I have, with west aspect, built with them late last Autumn is not in the least damaged. A very good gardener near here has tried them three or four years and likes them, and does not find they hinder the wood from ripening. I know last winter destroyed the beads of numbers of bricks in the West of England, but that must have been a local defect of clay or making. The plan on which I built my wall last year was to have panels 6 or 7 feet wide of 4½ inch work, between 14 inch piers, 27 inches wide; the piers had two beaded bricks in every other row; and I planted a pear-tree on the quince stock against each. I should think that the pear-trees trained as semi-cylinders would help (even in winter) to break the sweep of the wind along the wall. The panels do well for pears, plums, &c., roots pruned or lifted biennially. I should be obliged by an answer in your Magazine. W. L.

[This is the first we have heard of Foxley's bricks being unsuited to the ripening of the wood, or liable to injury by frost. Can any of our readers throw light upon the subject?]

WELLS'S PORTABLE GROUND VINERIES.—I see in your Magazine of August 17th, one of your correspondents asks for information respecting Wells's Patent Portable Ground Vineries. Will you kindly inform him the Vineries at Southend are open for the inspection of horticulturists and amateurs daily, where some twenty vineries, with an average crop of grapes, may be seen; and, on any Monday, the Patentee will be most happy to afford the fullest information? CHAS. T. WELLS.

Pleasant Row, Southend.

EXPERIMENTAL CULTURE OF VARIEGATED ZONAL PELARGONIUMS.—A little error which occurs in your report of my experimental culture of zonal pelargoniums alters the conclusions to be drawn from it, which I should consequently like you, in an early number of the GARDENER'S MAGAZINE, to set right—viz., in No. 37 for "Seed Parent, Madame Vaucher," substitute "United Italy." I should also like to remark upon one or two points connected with the subject, and my experiment, so far as it has proceeded. In the first place, I wish especially to observe that the experiment was undertaken, not with the idea of obtaining

any really good or valuable addition to the already splendid army of tricolors, although, of course, I can have no objection to the appearance in my collection of seedlings of any number of varieties superior to such as are already in cultivation. The sole object of my endeavour has been to glean, if possible, some clue to the laws that govern the transmission of resemblances from the parents to their offspring, not only as regards colour, form of foliage, and constitution, but also as regards colour and form of flower.

With this object, as your readers have already learnt from your Geranium paper, No. XLIV., I crossed the most opposite varieties, both as regards habit of growth and form and colour of flower, as well as colour of foliage: for instance, *Lady Cullum* and *Stella Nosegays* with *Mrs. Pollock* and *United Italy*, &c., &c.

Your article, Mr. Editor, gives the result upon the foliage and constitution as appears in their early stage; for their complete development and for the result upon the flowers we must wait until next spring. But, so far as can be judged up to the present, my experiment tends to confirm the opinion that the colour, say of a tricolor crossed with a green zonal, is transmitted to a larger proportion of the offspring by the pollen of the tricolor being employed, rather than by making the tricolor the seed-parent, and the green zonal the pollen-parent. The constitution and form of foliage seems to me in the offspring to resemble in a large proportion the more vigorous of the two parents; and as constitution and form of foliage furnish the foundation of the future variety, it is desirable and advisable to order the system of breeding with a view to secure a vigorous race. This, apparently, can be most certainly secured by employing a robust constitution plant, with a perfectly formed foliage, for the seed-parent, and the pollen of any coloured foliage it may be desirable to transmit, or which you may consider calculated to produce a desired result. The Editor has put the case clearly where he says, "Select for the mother plant one possessing strength and form, and for the sire one possessing splendour of colour."

This brings us to the question, how far we can introduce or blend the colours of the foliage or flowers so as to obtain new and pleasing varieties, and the best method to adopt to accomplish any particular end we may have in view. Well, we are admonished to study not only how a plant grows, but how it dies. From observation of fading leaves, and carefully watching the breaking of my seedlings, I am convinced that the colours of the tricolors depend more, if not entirely, upon a change in the ground colour of the leaf than upon any mixing of colours in the zone. Mr. Grievess, if I understood his statement aright, succeeded in raising *Mrs. Pollock* by working upon the assumption that he should obtain what he did by blending brown and yellow in the zone; but I believe he has since acknowledged that his theory could not hold good, red being a primitive and not a compound colour, and therefore not producible by blending brown and yellow. In the fading of the leaf of all our dark zonals, when yellow takes the place of the green the zone becomes red. Madame Vaucher constantly shows this. If the leaf fades whitish, the zone becomes pink or carmine. The order of procedure in what, for the sake of a term, we may characterize as *transcoloration* is, in fact, precisely the same in the fading leaf as occurs in the seedling in process of development. Where they break in splashes, as they mostly do at first, for instance, the leaf will be green, with a dark zone, excepting where splashed with yellow or white; and where the yellow splash passes across the zone, it will be red; but where a white splash passes, the zone will be pink. This, I think, clearly indicates that to obtain either a golden or silver tricolor, the method to be adopted is to employ, for the first, the pollen of a yellow or golden-leaved variety; and, for the second, to select as near as possible a white, and to put the pollen of each upon as densely a zoned one as possible. One of my seedlings promises to be all but white, and another is decidedly a brighter yellow than anything else of the kind I have yet seen. If these live to flower, I shall try their pollen as above suggested, with a view to obtain their splendid colours in plants of good constitution.

Next, as to blending. Can we blend the colours so as to obtain any decided variation from what we already possess? It seems to me that the yellow with brown zones, such as are classed as bronze zonals, have originated from crossing the yellow upon the silver tricolors, or the reverse. Amongst my seedlings is one of that class, the result of a cross in which *Cloth-of-Gold* was the pollen-parent, and the *Countess of Warwick* the seed-parent.

We are all as yet but experimentalists in the art of breeding versicolored-foliaged geraniums; and who is to say that some one may not succeed in adding a streak of blue to the brilliant colours of *Mrs. Pollock*, or in obtaining some new admixture or combination which may take the floral world by surprise as completely as did the advent of the famous first of the series, for which we are indebted to Mr. Grievess? Let us labour systematically, and keep careful records of our work, and "knowledge will be widened by the progress of the suns." JOHN DENNY.

GROUND VINERIES.—I see you ask the opinion of grape-growers respecting the use of ground vinerias as applicable to the case of a correspondent who makes inquiries. Having seen them many times in use, and reported on the success attending their adoption by Mr. Rivers and other practitioners, I am in a position to discuss this subject with your correspondent without prejudice. My advice would be to let the vinery your correspondent now has, and which he admits his gardener manages so skilfully, remain as it is, and instead of purchasing twenty portable vinerias, to build a new greenhouse. My reason for giving this advice is, that I feel sure "Viteæ" will be disappointed with the result of ground vinerias after being so long accustomed to a good crop of large, well-coloured, and well-flavoured bunches. Not but good grapes can be grown in ground vinerias, and such too as would not disgrace any gentleman's table. But there is a vast difference between a beginner in grape culture and one who has for a long while enjoyed the luxury of grapes grown in a good house. A stranger to both systems would probably be very well satisfied with the result of portable vinerias, but I doubt if in this case it would be wise to expend more than £60 upon ground vinerias, when that sum would furnish a new house suitable to the wants of the place. It appears to me that this would be an unwise step, which to a certain extent would end in disappointment. But it must be understood that these remarks only apply to the case under notice, and not to ground vinerias generally. They are useful structures in small places where only a few grapes are required, and they are capable of producing them at a cheap rate and in very good condition. J. C. CLARKE.

SURPLUS PLANTS AND CUTTINGS FOR THE POOR.—Relative to the above subject, do the authorities connected with the public parks and gardens

intend to continue the practice lately adopted of giving away, instead of destroying, any surplus plants or cuttings. It is a great boon to the poor, and no doubt is a great means of diffusing a love of plants among our poorer classes, by placing within their reach the cultivation of a more valuable description of plants than they could possibly purchase.

WASTE NOT, WANT NOT.

[We understand that it is the intention of the Office of Public Works to sanction the free distribution of surplus plants from the London parks. We must confess we do not think so highly of the arrangement as our correspondent, for, as a rule, it requires better appliances and more skill than the poor usually possess to keep the plants through the winter. The very class intended to be benefited may indeed, through the temptation of a gift of this sort, find plant growing in dwelling rooms to be a wearisome and vexatious task. If any plan could be devised for a liberal gratuitous diffusion of nice young plants in spring, such as fuchsias, geraniums, heliotropes, stocks, balsams, herbaceous lobelias, &c., we would gladly assist and encourage, knowing that much delight would follow; but we never expected any good to result from the distribution of bedding plants in autumn. If any of our readers can furnish evidence of benefit in that way, we shall gladly give it publicity].

Replies to Queries.

Strawberry Plantations.—I planted a good breadth with strawberries last spring; I now find, according to the Magazine, that I have planted them too thick by half. I have a piece which I intend to plant this autumn. Would you advise taking every other plant of those planted last spring, or would you prefer this year's runners? C. J. H.

[We should prefer to make a new plantation by taking every alternate plant from the piece made last spring. If transplanted with care in the first showery weather that occurs, they will not feel the move at all. As to the runners, we should destroy them unless requiring them to extend operations. Next year, however, it would be advisable to make plants of a certain number of the first runners with a view to a new plantation. It is a good plan to plant a row or two of young plants from runners every year.]

Creeping Innocence.—Your *nom de plume* is tolerably appropriate to your query; the name of the plant is *Linaria cymbalaria*, the "ivy-leaved toad-flax" of the village botanist, and now the "creeping innocence" of a resident of Kensington. By the way, does innocence ever creep? does it not advance boldly, even in the face of danger, knowing neither suspicion nor fear?

J. B.—Your consignment was examined on the day it arrived, but nothing could be made of it. Nine-tenths of all the flowers that are sent for opinion are past judgment ere they reach us. It is just the same in other quarters, as may be learnt from replies to correspondents. Yet, strange to say, flowers may be sent hundreds of miles without any sensible deterioration of their freshness and beauty.

Walter S.—Your pelargonium, packed in cotton-wool, in a card-board box, was quite dried up when it came to hand. The dry petals are of good form, broad and thick, and a fine blackish maroon colour overlaid with crimson veins. No doubt you have something good, but we cannot commit ourselves to an opinion on this sample. Should you ever send again, let a note accompany the parcel, and pack the flowers according to the advice given at page 285 in the No. published June 29, 1867.

Trevelyan.—Apparently British Queen, but not easy to determine from one pod, and no particulars as to height, &c. Isolated reports on weather are of little practical value. It did not occur to us that there was any particular interest in your communication; if we come across it again, it shall have consideration.

Preserved Peaches.—Sibley.—We have several times tried the preserved peaches sold in London in sealed tin cans. Whether the Americans spoil them in the process of preserving, or whether the voyage spoils them afterwards, we do not know, but really we never met with a single fruit of this sort that was fit for any useful purpose. They look like balls of soap, and taste like sour bread dipped in dirty water.

Literature.

The Choral Cyclopædia, a collection of Hymns and Moral Songs, with Music—Watt's Psalms and Hymns, abridged for vocal use and adapted to Music. By JAMES BRABHAM, F. Pitman, Paternoster Row. These are cheap and good, and admirably adapted for promoting harmony in the family. All our music-loving readers, and especially those who have children, should look after these works; for possibly there is nothing else of the kind to be obtained equally good at so low a rate. Each number contains forty pages of music, well printed, for sixpence. Mr. Brabham's arrangements are excellent.

Country Life, a Journal of Rural Pursuits and Recreation.—This work is in some respects a rival of the GARDENER'S MAGAZINE; but we shall not follow the usual paltry course of ignoring it, for it is respectable in purpose, tone, and appearance, and instead of wishing it out of the way, we embrace this the first opportunity since its appearance of directing the attention of our readers to it as likely, in many instances, to meet their wants. It is projected with a view of promoting the love of rural pursuits of all kinds, and at present it appears to be strongest in the gardening and poultry departments. As there is nothing like leather, we cannot hesitate to say that for horticultural information there is nothing like the GARDENER'S MAGAZINE. But in "Country Life" Mr. Richard Dean does his best, and does it well, to make the garden a book, and make a good book on the garden. The poultry department is very promising, and as the only respectable journal devoted to poultry subjects, namely *The Field*, is higher priced than suits some thousands of persons interested in poultry, here is a good opportunity presented them for supporting a work immediately interested in and devoted to their welfare. As for other matters, there are capital papers on angling, wayside botany, and an article entitled "Our English Homes," will show that in the midst of stern practical matters some thought is spared for æsthetics. We were ourselves contemplating the production of a work of this kind, but with so promising a work as "Country Life" before us, we abandon the idea, and wish the new venture abundant success, freely forgiving its promoters for unintentionally forestalling us with spirit and with speed.

THE COLD PIT AS AN AID TO THE FLOWER-GARDENER.

During recent years some sagacious gardeners have been employing extensively what is called the "turf pit," and when well made and judiciously managed—both very simple affairs—nothing can be more useful, nothing more excellent for the garden. The pits are simply made of sods of turf cut rather thin. Some good gardeners, indeed, skin the turf of their pasture, and make the walls of their little pits with it, using merely the turf, a couple or three inches thick; and when it has acted as a wall for twelve months or more, they take it down, it being then nicely decomposed and aerated—in fact, in the best possible condition for potting. Now, whether this be the system adopted or not, it will be seen at a glance that building pits of this kind is a very cheap process. All that we want is some kind of turf, and then to have it cut neatly and made into little walls by a handy labourer. The sods may be cut from eight to ten inches wide, more or less, according to the height we require the pit. Generally it will be well to follow the plan of a little brick pit, or even of a frame, so far as the height of the sides is concerned. Usually a rough plate of wood is placed on the top of the little sod-walls, and on these the lights are placed. But a better way than that is to use nothing whatever except the wall of turf, leave the top sod with its level green side upwards, and on that rest cheap iron lights. Of course, wooden ones would be apt to rot quickly in such a case. The best possible arrangement, then, is to have little cheap iron lights, such as are used abundantly about Paris, say about four and a half feet wide. These are not expensive nor very heavy, and the sooner they are turned out in quantity by some of our horticultural builders the better. However, any kind of light may be adapted to the system. We advise the iron light, convinced that these turf pits are about as useful things as we can have in the garden, and likely to be always appreciated. Some use tarpaulin lights and boards and other opaque substances to cover such things; but we have no faith in such contrivances, and glass is cheap enough now to do away with the necessity of using opaque coverings in our very dull winters. The width that we should choose for such frames, if we were going to order lights for them, would be from four to five feet—say five feet as a rule. But of course, if we have any old lights, and wish to utilize them in this way, we must make the pits precisely to suit them. The appearance of neat turf pits is in no degree more objectionable than stone ones. Their proper place is an out-of-the-way nook, which we generally call the melon yard, or some equivalent to that department. In all cases they should be away from the ornamental parts of a garden, as all pits and frames generally are. They should have a free open position. Some people have a weakness for putting such things in dusty corners, under trees, &c. A well-drained position is of course best; and if we can place them on one of those beds of coal-ashes which often occur about a country place, so much the better. In most cases it would be better to have the bottom lowered a little, especially if the soil beneath were of a dry nature. In some pits beds of fine earth can be placed, on which to place cuttings in quantities. In others they will prove equally useful for storing plants in pots. In addition to bedding plants, pot roses, strawberries, and lots of other things, will be thankful for temporary shelter therein.

As for what may be grown and preserved in them with safety among bedding plants, there need be little doubt. The best of all places for the *calceolaria* is in such a pit. Cuttings put in in October and November will do finely indeed; it is the best and most successful of all ways of growing these. Then all half-hardy things may be tried in them with confidence, from cuttings and little divisions of our edging plants to the tall herbaceous lobelias, which are so very fine when in flower, but a little too tender to stand the open air in most parts of our climate. Perfectly hardy stuff, like the variegated arabis, &c., which it may sometimes be desirable to increase largely in the autumn, will succeed well, and be ready for turning out finely-developed plants for the next bedding season; while as for Neapolitan violets, and young, scarce, and delicate herbaceous plants, variegated plants, &c., which we much wish to increase, it is the very place for them. If verbenas were struck very early in the season, and, once rooted, allowed four or five weeks in the free open air before it became necessary to house them, they would thrive admirably in these pits. In consequence of gardeners generally striking verbenas too late, they are obliged to keep them in warmer or drier structures, or they would be sure to go off. The *Gazania* does capitally put in as cuttings in these pits; so does the *Nierembergia*. By the way, there is a fine new *Nierembergia* (*frutescens*), which will be found a capital bedding plant, and its best winter home will be in one of those pits; and so of all but the tenderest bedding plants.

Every year we have a greater variety of subjects introduced to our flower gardens; and, as most of them are of a half-hardy character, or even if hardy, such as will enjoy a little protection in winter when in a young state, the knowledge of the advantages of these cheap pits cannot be too widely diffused.—*The Field*.

CATALOGUES.

PAUL AND SON, "OLD" NURSERIES, CHESHUNT, HERTS.—*Descriptive Fruit Catalogue*. This is well adapted for persons who care only for good serviceable varieties, and who have no particular anxiety about novelties or curiosities. The lists are comparatively brief, but sound and good, and with sufficient description to be useful to the merest novice.

SUTTON AND SONS, READING.—*Catalogue of Bulbous Flower Roots, &c.* This, in addition to the usual well-arranged and well-selected lists of bulbs, contains also lists of British and exotic ferns, fruit trees, and flower seeds for autumn sowing. The name of the firm is sufficient guarantee of the genuineness of the catalogue and the stuff it represents.

JAMES VEITCH AND SONS, KING'S ROAD, CHELSEA.—*Descriptive Fruit Catalogue*, 1866-1867. Copious, well-arranged, with capital descriptive notes and suggestions to aid in the selection of varieties for various purposes.

B. S. WILLIAMS, UPPER HOLLOWAY, LONDON, N.—*General Bulb Catalogue and Catalogue of Fruit Trees*, 1867. One of the neatest and most useful trade publications of the season. In the fruit list there is a good selection of varieties of grapes. In the introduction to the list of hyacinths, it is remarked that "the new introductions are necessarily to be procured only at such a rate as to place them beyond the reach of many cultivators; but in most instances these novelties possess the novelty of name alone, for it has been proved that the finest shades of colour and richness of hue are still to be found in the old or parent kinds." This statement will not deter lovers of novelties from buying bulbs at a guinea or so each, but it must of necessity comfort those who cannot afford so much.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. tmp. avg. of 47 yrs.	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D	
			rises.	sets.	rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.						Rain
1867																		
15	S	13th Sunday after Trinity	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	1867
15			5 35	6 14	7 6	8 58	a. m.											15
16	M	Length of day 12h. 50m.	5 36	6 12	7 33	8 8												16
17	T	R. H. S. Exhibition of Zonal Pelargoniums.	5 38	6 10	8 3	9 20												17
18	W	Derbyshire Society's Exhibition, Derby.	5 40	6 7	8 37	10 32												18
19	Th	Cambridge Hort. Soc. Autumn Show.	5 42	6 5	9 10	11 45												19
20	F	Battle of the Alma, 1864.	5 43	6 2	10 6	p. m.												20
21	S	First day of Autumn.	5 45	6 0	11 4	1 53												21

The Gardener's Magazine.

SATURDAY, SEPTEMBER 14, 1867.

TO OBTAIN WATER QUICKLY AND CHEAPLY is one of the most important matters in the economy of country life. The townsman may fairly consider the good and abundant water supply with which as a rule he is favoured as a compensation for many of the evils of town life, and as a grand set-off against many of the troubles incidental to life in the country. During our recent visit to the Manchester exhibition we made acquaintance with an invention which we are desirous of directing attention to, as likely to prove incalculably beneficial in cases where a quick and cheap supply of water is a matter of any moment. We will briefly relate what we saw. Two men commenced boring the ground in the Botanic Garden at Old Trafford, with a pointed boring tube two inches in diameter, and in the course of about half an hour had driven it a depth of five feet. They then commenced to gauge the interior of the tube with a plumb-line; and finding that the plumb came up wet, they at once attached to the upper end of the tube a pump, into which water was poured to wet the sucker, and quite fill the tube. In the course of a few minutes there was a constant stream of pure water drawn from the soil beneath the grass turf, without any well, with an amount of expense and labour of the most trifling description, and to be counted in pence rather than pounds or shillings. A more simple, expeditious, or effectual method of tapping the soil is, we suppose, neither to be found nor desired, and we can well believe that in many instances such a tapping would be preferable to well sinking, because surface drainage into the source of supply is impossible. A well of this sort cannot be poisoned by the percolation into it of the filth from drains.

In case this brief description is not fully intelligible, it may be well to add that the boring rod or tube is made in the fashion of a handspike, and the driving end is brought to a point to facilitate its descent. Where the point of the tube terminates, the tube is suddenly thickened, and beyond this point it contracts to a regular diameter, which is less than that of the thickened base of the point. About one foot length of the tube nearest the base is pierced with small holes to admit the water from the soil to the interior; and the object of thickening the tube immediately below these holes is to cause the formation of a hole slightly larger than the tube, and thus prevent the orifices being choked up. No doubt they do get choked in time, but that only necessitates drawing the tube and driving again in another spot close by. We were assured that the tube could be driven twenty or thirty feet if surface water were not obtainable. What we saw was the instantaneous abstraction of water in a plentiful stream from a depth of five feet, and we consider the matter far too important to be withheld from our readers, or presented to them in other than a prominent manner. The invention bears the name of the "The New Patent American Tube Well." The agent for it is Mr. Alfred Giles, who can be heard of at Norton's Machinery Office, Blackfriars Street, Manchester.

Dr. J. D. Hooker, the learned Director of the Royal Gardens at Kew, is to be President of the British Association in 1868, when the general meeting of members will be held at Norwich.

VEGETABLE HAIR.—Californian papers state that there is now dug out of the mountains of the Sierra Nevada range a better material for beds than has been hitherto available in the markets of the world. It is the soap-root, which grows in unlimited quantities in that region. It is a bulbous root, enveloped in a very tough and supple fibre, resembling somewhat the husk of cocoa-nut in colour and appearance, but nearly as tough as whalebone. The roots are dug chiefly by Chinamen, bound in bundles of 100lb. each and brought on poles to the factory. The first work is to put the roots through a picker similar to a thrashing-machine, which is run by horse-power. This separates the fibre into a bair of eight or ten inches long, which is placed in a large vat or steamer till it becomes flexible, and is free from all gummy or glutinous matter. It is then dried on flats in the sun, put through another fine picker turned by a Chinaman, then taken and twisted into ropes at a common rope-walk, then steamed again, which sets the curl. The ropes are then bound in bales, and are ready for the market. The natural colour is brown, but it is often coloured black, and an expert would find it hard to tell it from curled hair.

No. 124, NEW SERIES.—VOL. X.

HALF-A-YEAR'S RAIN.—The variation in the quantity of rain in different parts of the kingdom is shown in the returns just published by the Registrar-General. In the first half of the year 1867, 20.5 inches of rain fell at Bristol, 20.1 at Glasgow, 18.2 at Sheffield, 15.5 at Birmingham, 15.4 at Salford, 15.1 at Manchester, 14 at Edinburgh, 13.1 at Dublin, 13 at Leeds, 12.6 at London, 10.1 at Liverpool, and only 8 at Newcastle.

AN INTERESTING EXAMPLE OF SPECIES-MAKING is presented in the September number of the *Journal of Botany*. Mr. Andrew Murray finds a variety of *Abies alba* with short cones, rounded scales, and triangular bracts, and he proceeds to name it *Abies arctica*. There are not greater differences between the typical *A. alba* and this variety of it than may be found amongst plants of the same species of coniferous trees in seed-beds in every great nursery in the country. Species-making is possibly amusing; but how strange that botanists so rarely find amusement in the application to useful purposes of what they know of the affinities, relations, and habitudes of plants!

GRASSHOPPERS IN AMERICA.—The ravages of these little pests seem to have begun in earnest. The hemp crop of the county has been almost entirely destroyed. A few crops may escape them. One day suffices for them to clean off a hemp field as bare as before the sowing. The blue grass is in many places destroyed, and has suffered much wherever they have gone. Timothy and clover have also been very greatly damaged. The oat crop, it is thought, will be utterly ruined, as they prefer that to wheat, which they have so far only slightly damaged. The corn is not exempt, but has been injured less than any other crop except wheat. The gardens have suffered terribly, nearly all early vegetables having been eaten up by them. They swept a garden bare in a few hours. A lady informs us that in the morning she had as fine a garden as she ever saw, and in the evening scarcely a vestige of it was left. It is consoling to know that the weeds also suffered.

SEWAGE-GROWN GRASS.—The Rivers Commissioners, in their third report, discuss the assertion which is sometimes made, that sewage-grown grass is unwholesome, and will not make good hay. The commissioners consider it proved that the grass is not only wholesome, but that cows fed upon it give richer milk, from which first-class butter may be made. The chemist proves by careful analysis that both milk and butter are better than samples produced from the same land in its ordinary state of meadow. Hay made from sewage-grown grass is also sweet and nutritious if properly got, but there is great difficulty in fully drying it during ordinary seasons. When a limited quantity of sewage or other water containing manure soaks into a fertile soil, the first effect is to displace part of the water already contained in the soil, occupying its place in the interstices, whence the organic matter it contains is held in temporary union with the active soil, to be afterwards absorbed by the roots of plants or decomposed by the air, so that in a short time, varying according to the activity of vegetation and of decomposition, no impurity whatever remains. If then the sewage which has soaked into the soil is not displaced by other water until a sufficient time for it to be purified has elapsed, it will when displaced be as pure as ordinary shallow spring water. If it be found that the depth of the active soil effecting this change is about half-a-yard, and that it contains about one-fifth of its weight of water, a quantity of sewage may sink into it equal to about 500 tons or a depth of five inches, before the water previously in the soil within eighteen inches of the surface is all displaced; and if considerably less than this proportion of sewage, say one to two inches in depth, be put on rich soil at once, though the drains from it will run freely, as they do after heavy rain, they will be carrying away the water previously in the soil, and not, as is often supposed, that just poured upon it, which may with good management be retained in the soil until in its turn becomes completely purified; and the water passing from the deep drains of irrigated land not over-manured may be as pure as that from the shallow springs of such land, all that is necessary for this result being that considerably less water be added to the soil at once than it previously contains, and that excessive manuring be avoided. During rapid vegetation an additional purification of the sewage matter takes place from actual contact with the growing plants on the surface.

LEYTON, WALTHAMSTOW, WOODFORD, AND WANSTEAD FLORICULTURAL SOCIETY.

The exhibition of the present season took place on the 4th ult., in the Drill Room, Marsh Street, Walthamstow, a place, we regret to say, quite unfit for the purpose, by reason of the insufficiency of light. Many good things, indeed, were scarcely visible, and such as could be seen were seen at a great disadvantage. It was, as respects contributions, an excellent gathering, not wanting in variety, and comprising many first-class subjects.

In the class for six stove and greenhouse plants, first and second, J. G. Wilkins, Esq. (gardener, Mr. John Ward). In the class for four ditto, first, J. G. Wilkins, Esq.; second, J. Carey, Esq. (gardener, James Dover). Zonal geraniums were admirably shown by Mr. Ward for J. G. Wilkins, Esq.; in the first six from this cultivator were Julius Cæsar, Lord of the Isles, and Emily Licau, beautifully grown and in perfect condition of flower. Second, Mr. Dover's lot, from the garden of J. Carey, Esq. Six fuchsias, first, S. Millington, Esq. (gardener, R. Dorling); second, J. Carey, Esq.; third, E. Venables, Esq. (gardener, James Freeman). Six ferns, first, G. Wilkins, Esq.; second, J. G. Barclay, Esq.; third, T. Thomasset, Esq. (gardener, Mr. Sandford); fourth, A. Booty, Esq. (gardener, G. Walsey). Six fine-foliaged plants, first, J. G. Barclay, Esq.; second, J. Phillipot, Esq., of Stamford Hill (gardener, J. Wheeler). Single plant in flower, first, G. Wilkins, Esq., with *Allamanda Hendersonii*, showing the very skilful treatment of Mr. Ward, who handles such subjects admirably; second, J. G. Barclay, Esq., of Leyton (gardener, D. Donald) with a fine *Statice imbricata*; third, S. Millington, Esq., with a specimen fuchsia. Twelve spikes gladioli, first, G. Whitbourn, Esq.

of Ilford (gardener, James Douglas); a fine lot. Six caladiums, first, — Fowler, Esq., of Woodford (gardener, S. Chambers); neat, small specimens. Six cockscombs, first, G. Whitbourn, Esq.; fine heads. The best four ditto from the same; second, A. Booty, Esq.; third, S. Millington, Esq. All the cockscombs shown were good. Six miscellaneous plants in flower, first, G. Wilkins, Esq.; second, C. Fowler, Esq., of Woodford (gardener, S. Chambers); third, J. Carey, Esq., Wanstead. Twelve varieties of verbenas, first, Miss Turner, of Leyton (gardener, Mr. Murray); second, H. Hughes, Esq. (gardener, B. Porter); third, T. Thomasset, Esq., Walthamstow. The best asters came from Mr. Thomasset's garden; the next best from Mr. Fowler's. Twelve varieties roses, first, H. P. Hughes, Esq., with a very superior lot for the time of year; second, J. G. Barclay, Esq.; third, A. Borwick, Esq.

Cut Flowers were shown by Messrs. Wilkins, Thomasset, Fowler, Phillipot, Millington, Carey, and others, and obtained for their gardeners the praise due to work well done, for this was a particularly attractive and interesting part of the exhibition. Dahlias were scarcely equal in point of merit to many other subjects; the best were from Miss Turner's garden; second, Mr. Fowler; third, Mr. Barclay. Designs for gardens were few, but there was one from Mr. Sandford, gardener to T. Thomasset, Esq., which well merited the first prize awarded it; the design being good, and capable of practical application, and the mechanical part of the work well done. Dinner-table decorations were few. The best came from Mr. Sandford, gardener to T. Thomasset, Esq.; second, Mr. Dover, for G. Carey, Esq.

Fruits were abundant and fine. Three bunches black grapes, first, F. Whitbourn, Esq., Ilford (gardener, James Douglas); second, T. Thomasset, Esq.; third, Miss Turner. Three bunches Muscats, first, T. Thomasset, Esq. Three bunches white, first, T. Thomasset, Esq.; second, — Simmonds, Esq.; third, H. P. Hughes, Esq. Melons, cherries, peaches, nectarines, plums, &c., were shown in variety, and in fine condition, by the respective gardeners to Messrs. Barclay, Carey, Thomasset, Whitbourn, Borwick, Booty, and others. The best mixed collection came from Mr. Barclay's garden, and comprised three fine bunches of grapes, two dishes of plums, and a fine dish of pears; second, T. Thomasset, Esq., who had cherries and peaches in extra fine condition. These two lots were highly creditable to their producers, Mr. D. Donald and Mr. Sandford. Cucumbers were not so good as we expect to see in a competition where gentlemen's gardeners are conspicuous. The best came from F. Whitbourn, Esq., the variety Dale's Conqueror, a smallish but very neat and good variety. Vegetables were in no respect remarkable for either variety or quality. Amateurs and cottagers exhibited some attractive and well-grown plants in flower, besides fruits, vegetables, and miscellanies.

KINGSTON AND SURBITON HORTICULTURAL SOCIETY.

This society's second exhibition for this year was held on the 4th instant, in the spacious Drill Hall of the 12th Surrey Rifles, through the liberality of the commanding officer, Col. Cochrane, a kindness which cannot be over-estimated, for a better-adapted place for holding autumnal shows is not in existence, and it is far preferable to canvas at this time of the year, when heavy dews and showers hang about and do not dry up so quickly as they do in the summer. Most of the classes were well represented by cottagers, amateurs, and gentlemen's gardeners. Those for amateurs and gardeners were confined to cut-flowers, fruit, and vegetables, while for cottagers were added prizes for window-plants in addition to those for flowers, fruit, and vegetables. Before going through the different subjects staged for competition, it will be as well to notice two banks of plants kindly contributed, not for competition, by Messrs. Thomas Jackson and Sons, and which contained some of the choicest specimens for which their nursery is justly celebrated. Amongst them were a remarkably fine plant of *Alocasia metallica*, some immense masses of *Aspidistras* and *Dieffenbachias*, good plants of *Dracæna australis* and *D. Cooperii*, a very handsome kind with beautifully recurved leaves of greater breadth than *D. terminalis*, besides several large ferns and other specimens. The beautiful *Yucca aloifolia variegata*, and an immense *Dasyliion acrotrichum*, one of the finest in this country, were conspicuous amongst a host of kindred subjects, palms and ferns too numerous to mention with a few fine specimen heaths. The best were *E. Austini*, *E. Marnockii*, and *E. Douglasii*. The same firm also sent a lot of the different varieties of Japanese Lilies and the Variegated Maize, which set off and gave the tables a very beautiful appearance. A very beautiful group of ferns and foliage plants came from the gardens of the President, and one from W. Harman, Esq., Norbiton Place. For twelve cut roses, Mr. Richardson (gardener to G. Beard, Esq., Long Ditton), first, with as fine a lot as could be shown at this time of the year; the sorts were *Gloire de Santenay*, *John Hopper*, *Sénéateur Vaisse*, *Charles Lefebvre*, *La Reine*, *Gloire de Dijon*, *Lerd Raglan*, *Madame Vidot*, *Louis XIV.*, *Madame Charles Wood*, and *Maréchal Neil*; second, Mr. Parsons (gardener to W. Odams, Esq., Isleworth), with good blooms of *Victor Verdier*, *Alfred de Rougemont*, and *Charles Lefebvre*; third, Mr. Lowman (gardener to W. Harman, Esq., Norbiton Place). Dahlias were not so good as might have been expected; first for twelve, Mr. Parker (gardener to F. Hammersley, Esq., Coombe Wood); second, Mr. Lowman, and third, Mr. Parsons. Messrs. Jackson and Son, sent several stands of magnificent blooms, and some filled with fine asters. First for twelve Asters, Mr. Parker; second, Mr. Lowman; equal third, Mr. Parsons and Mr. Batty (gardener to W. Baynes, Esq., Surbiton House).

The class for twenty-four kinds of cut flowers brought out some capital stands, which added very considerably to the beauty of the show: Mr. Parsons first, with a distinct lot, amongst them were some fine blooms of *Lilium auratum* and white Water Lilies; second, Mr. Ireland, with a grand boxful: prominent were fine spikes of *Gladioli*, *Lilium lancifolium rubrum* and album, and some fine bunches of *Roses* and *Gloxinias*. Messrs. Jackson sent a box containing thirty or forty kinds very tastefully arranged; amongst them were three spikes of *Eucomis japonicus*, which filled the air for some distance with its rich perfume.

Fruit was remarkably good, and the competition for six dishes was more spirited than for any other class in the hall. Equal first, Mr. Gray (gardener to W. Harman, Esq., Norbiton Hall), and Mr. Bailey (gardener to Rev. E. Phillips, Surbiton). Mr. Gray had a noble Queen pine, which must have weighed close upon five pounds, and some good dishes of peaches and nectarines. Mr. Bailey's chief strength was in his grapes, both black and white, which were first-rate. The collection also contained the best peaches in the show, and a very fine dish of Pitmaston Orange nectarines, wrongly named *Violette Hative*. For Melons, first, Mr. Mill, with *Trentham Hybrid*; second, Mr. Leo (gardener to J. W. Sandilands, Esq., Surbiton Hill).

For the best twelve vegetables, first, Mr. Lowman, with good onions, beans, tomatoes, celery, and endive; second, Mr. Richardson, with a splendid lot, his beetroot and savoy being particularly fine.

The fruit, flowers, and vegetables exhibited by the cottagers reflected the highest credit upon them, particularly when the amount of garden-ground attached to the cottages in the neighbourhood is taken into consideration, thus showing that when proper encouragement is held out to them for bringing forward the produce of their skill in horticultural affairs, they deserve better consideration at the hands of managers of Horticultural Societies than that which is usually accorded to them. The worthy president, W. Harman, Esq., offered liberal prizes for the best-kept cottage garden; and the neatness, order, and good management of the gardens in the possession of the four prize-takers were all that could be desired.

First-class certificates were awarded to Messrs. Jackson and Son for *Aerides Warneri*, which they staged with a group of other orchidaceous plants, though not for competition; and to Mr. Breach (gardener to W. Horne, Esq., Berrylands), for a very fine seedling pear, *Lord Suffield*.

The judges of the different departments were, Mr. McWilliam, Kingston; Mr. Wiggins, of Isleworth; Mr. Rowe, Surbiton Hill; Mr. Gray, Mr. Parker, Kingston Hill, and Mr. George Gordon, Hampton Wick.

LEA BRIDGE HORTICULTURAL SOCIETY.

The third exhibition by the Lea Bridge Society was held in a tent beside the railway station, on the 2nd ult. It was highly attractive, and was visited by a large number of persons. On entering the tent the attention was arrested by a large and beautiful bank of fine-foliaged plants, such as palms, ferns, begonias, &c., supplied by Mr. Prestoe, of Victoria Park. At the further end of the tent was a group of similar plants from Mr. Donald, gardener to R. Barclay, Esq., of Leyton. Another beautiful group was supplied by Mr. Forsyth, of Brunswick Nursery, Stoke Newington; also from the same a stand of twenty-four varieties of verbenas.

In the class for twelve dahlias, first, Mr. Matthews, who had good blooms of *Leah*, *Miss Henshaw*, *Andrew Dodds*, *Chelsea Hero*, *Donald Beaton*, *Norfolk Hero*, *Lady M. Herbert*, *Bob Ridley*, *Etonia*, *Stella Colas*, *Juno*, *Golden Admirer*. Second, Mr. B. Dent, with *Mrs. C. Waters*, *Helen Potter*, *Triomphe de Peq*, *Leah*, *Stella Colas*, *Ne Plus Ultra*, *General Jackson*, *Scarlet Gem*, *Lord Derby*, *G. Brown*, *Favourite*, *Bullion*. Third, Mr. Fenn, with *Miss Henshaw*, *Lord Derby*, *Andrew Dodds*, *Miss Roberts*, *Norfolk Hero*, *Juno*, *Triomphe de Peq*, *Miss Butler*, *Lord Palmerston*, *Chancellor*, *Charles Turner*, *Etonia*. In the class for six, first, Mr. Bent, with *Leah*, *Lord Derby*, *Helen Potter*, *G. Brown*, *Favourite*, *Scarlet Gem*. Second, Mr. Matthews, with *Bob Ridley*, *Lady M. Herbert*, *Andrew Dodds*, *Charles Turner*, *Lady Elcho*, *Fanny Purchase*. Third, Mr. Fenn, with *Lord Derby*, *Miss Butler*, *Miss Roberts*, *Juno*, *Andrew Dodds*, *Favourite*.

The display of asters was good. In the class for twelve, first, Mr. Matthews; second, Mr. Higgins; third, Mr. Fenn; fourth, Mr. Stillwell. In the class for six, first, Mr. W. Stillwell; second, Mr. R. Stillwell; third, Mr. G. Carr. In the class for three, first, Mr. C. Matthews; second, Mr. Ruse; third, Mr. Summers. The pot asters were, generally speaking, well grown; we hope always to find plants encouraged as well as cut flowers of this useful autumnal subject. Six varieties of verbenas, first, Mr. Barrington; second, Mr. W. Stillwell; third, Mr. C. Tyler. Six varieties zonal geraniums, first, Mr. G. Matthews, with a very fine lot; second, no name attached; third, Mr. Summers. Twelve bunches cut flowers, first, Mr. C. Tyler; second, Mr. R. Stillwell; third, Mr. Silverlock. Six gladioli, first, Mr. Matthews. Three fuchsias, first, Mr. Matthews; second, Mr. Ruse; third, Mr. Fenn. In the first prize lot a plant of *Queen of Beauty* worth making note of as particularly good. Single standard fuchsia, first, Mr. Tyler; second, Mr. Spillua; third, Mr. Ruse. Three balsams, first, Mr. Ruse; second, Mr. Matthews. Mr. Summers took first place in the class for six *calceolarias*. In the class for twelve miscellaneous plants, first, Mr. Tyler; second, Mr. Barrington; third, Mr. Summers. Three ditto, first, Mr. C. Matthews; second, Mr. Tyler; third, Mr. Barrington. Six roses, first, Mr. Higgins; second, Mr. Barrington; third, Mr. Silverlock.

Designs for gardens were good, Mr. Powell taking first place for one on a large scale; second, Mr. G. Carr; third, Mr. Gillard. In a room apart from the general exhibition was a display of floral decorations for the dinner table. Mrs. R. J. Hendrie presented a silver cup for the best display of this kind. This was won by Mr. Matthews; second, Mr. Spillua; third, Mr. Bishop. The usual fault of too much colour was largely prevalent in this competition. There were also some good collections of fruits and vegetables, Mr. Ruse taking first place with a pretty display.

WOLVERHAMPTON HORTICULTURAL SOCIETY.

The second show of the season was held on Tuesday, August 27th, in the grounds attached to the residence of G. L. Underhill, Esq., at New-bridge. There were three tents, the first, a very extensive one, being devoted to gentlemen's gardeners, who exhibited a miscellaneous collection of stove and greenhouse plants, which, however, were scarcely up to the mark. The best things we noticed in this tent were some noble pots of *Lilium*, exhibited by R. S. Walker, Esq. (Mr. Johnson, gardener). Fine-foliage plants by J. S. Rutter's gardener. Some handsome zonals and some good greenhouse plants by Mr. W. Allsop, gardener to G. H. Perry, Esq. There was a keen competition for the grape prizes, which, however, resulted in each case in favour of Mr. Fellows's gardener, Mr. Langley's gardener being second. The black grapes were not, however, up to the mark in colour. There were a few boxes of cut flowers that were pretty good; but the vegetables were very poor, and were very decidedly inferior to the amateurs' collection. The second tent contained the amateurs' productions, and was well filled, and far superior to any previous show, the improvement being very marked. Mr. W. A. Green had a very pretty collection of stove and greenhouse plants, ferns, and begonias, and Mr. Forsyth some handsome fuchsias, roses, and zonals. There was a large quantity of cut flowers, bouquets, and vegetables of good quality. A stand for table decoration, exhibited by Mr. Green, was awarded an extra prize, and was much noticed. It consisted of a circular dish of about 13 inches diameter, surmounted by a smaller one, the support being in the form of an elegant spiral; the whole was made of some kind of metal and grained dark walnut. The third tent was filled by the contributions of Messrs. Lowe, nurserymen, consisting of a fine selection of all the most useful varieties of stove and greenhouse plants, with several of the choice novelties of the day.

THE ST. NEOT'S AMATEUR AND COTTAGE HORTICULTURAL SOCIETY.

The third annual show of the above society was held on Wednesday and Thursday, the 28th and 29th ult., in the beautiful grounds of Samuel Day, Esq., adjoining the spacious nurseries of Messrs. Wood and Ingram, which, having undergone a marked improvement since last year, and being in the very height of their floral beauty, afforded a very pleasant promenade for visitors. The Llynbury brass band was in attendance each day. The weather on Wednesday was everything that could be wished for, and crowds of rank and beauty assembled to view the flowers, fruit, and vegetables, which were arranged in three spacious marquees, two of which were kindly lent by Potts Brown, Esq., of Houghton, and one by F. Welstead, Esq., of Stonely; but on Thursday the rain during the day prevented many from paying a visit to the show. Nevertheless the receipts at the gate were very satisfactory.

We are glad to say that this society is steadily advancing; the increased number of exhibitors and the improvement in quality of the productions exhibited upon that of last year, especially amongst the cottagers, testify that the society is doing some good towards the advancement of the labouring classes.

It may be interesting to some of the readers of this Magazine (especially to those concerned in the management of such societies), to know how this society is carried on; it being supported by annual subscribers of from 2s. 6d. to £1 1s., thus affording the means for all classes to further the object of the society, namely, the improvement of cottage gardening. Its officers consist of a president, treasurer, two secretaries, and a committee of twenty-seven members, out of which are chosen a sub-committee of five to manage the show. The society gives an opportunity to exhibitors of all classes to compete. It offers upwards of 400 prizes, out of which number 230 are devoted to cottagers, whose productions are admitted free. The schedule is formed into seven divisions, viz.: Division A, for amateurs who have greenhouses or hothouses; B, for amateurs not possessing either of such houses; C, for cottagers employed as gardeners, assistant gardeners, or gardeners' labourers, and who occupy more than a rood of land; D, for cottagers who do not occupy more than a rood of land; E, window gardening for cottagers, gardeners' labourers, and artisans; F, for ladies; G, fruit and vegetables for divisions A and B. By this method all exhibitors are set upon an equality.

In passing a few remarks upon the productions exhibited, it would be well to take them as they stood. In the first tent were arranged divisions A, B, and E. Division A was well represented; the plants shown were a decided improvement upon those of last year, especially the ferns. Five sets were put up for competition, all well-grown plants. Mr. W. Rachelous, gardener to G. W. Rowley, Esq., gained first prize; W. Medland, Esq., second. J. J. Evans, Esq., put up a collection of twenty-four ferns, small plants, but in good condition, which were highly commended. Two seedling variegated primulas, exhibited by Mr. W. Rachelous, were the admiration of all who saw them, and richly deserved the extra prize awarded them. The flowering and foliage plants were well competed for: Mr. Thomas, gardener to G. O. Newton, Esq., gained first prize in each. Exhibitors of balsams, cockscombs, fuchsias, and zonal geraniums came forward in great variety, which rendered a lively and pleasing appearance to the show. The cut flowers were excellent: Mr. J. Pell, gardener to Rev. J. R. Moorson, of Southoe, took the first prize for twelve dahlias; second, Mr. Rachelous. Asters were exhibited in great quantity: Mr. Last, gardener to Sir William Booth, Bart., gained first prize in each class. Roses were also good, Mr. W. Rachelous having obtained the first prize for twelve, and Mr. D. Sewell the first prize for six blooms of great merit. The varieties of cut flowers in bunches were good, and assisted greatly towards enhancing the beauty of the show.

The amateurs in division B came forward with their usual spirit; the plants and cut flowers exhibited by them showed that they all worked hard to gain a prize, the competition being so close, which reflected great credit upon the exhibitors. The prizes offered for window gardening were well competed for, and showed a steady increase upon that of last year.

In a second tent was arranged the fruit, which for quantity and quality has not been surpassed by former years. The arrangements of the table were highly creditable to the committee. The dinner vases, bouquets, fern-cases, and aquariums were arranged down the centre of the table, and the fruit each side, which gave a very pleasing effect. The grapes shown by T. H. Murfin, Esq., were well deserving the first prize awarded to them. Mr. Last, gardener to Sir W. Booth, Bart., put up two nice bunches of Black Hambro grapes, as did also W. W. Abbott, Esq. W. Medland, Esq., gained first for white grapes. Messrs. Wood and Ingram exhibited two handsome bunches of Black Hambro' and one of the Canon Hall Muscat (not for competition). W. W. Abbott, Esq., put up a dish of very fine Goliath plums, which gained the first prize. Mr. Last also put up a handsome basket of fruit, six varieties, for which he gained the first prize; W. W. Abbott, Esq., second. Mr. T. Plum, fruiterer and confectioner, exhibited a splendid basket of fruit, not for competition, the arrangement of which reflected great credit upon the exhibitor. The ladies' dinner vases and bouquets were the admiration of all, and were well competed for. Mrs. W. Atkinson gained first for hand bouquets; Miss Medland, second prize. Mrs. Atkinson, first, for bouquet for vase; Mrs. D. Sewell, second. Mrs. Sprugg, first, for dinner vase, flowers only; Mrs. Joyce, second. Mrs. Joyce, first, for dinner vase, fruit, and flowers. Round the outside tables were arranged the vegetables; the potatoes were very fine. W. W. Abbott, Esq., exhibited a nice basket of vegetables. In the C and D divisions the show of vegetables was excellent. James Taylor put up a well-arranged basket of vegetables. The cut flowers were good in this division. One of the most attractive features of the show were the nose-gays of garden and wild flowers exhibited by school-girls, for which the society offers ten prizes, and five for dishes of wild fruit, for school-boys. The duties of judges were most ably discharged by Mr. Petfield, gardener to G. Thornhill, Esq., of Diddington, and Mr. Cooper, gardener to D. Veasey, Esq., of Huntingdon.

The great success which has attended the exhibition, and the admirable arrangements made by the committee for the carrying out of the show, are matters agreeable to remember, and we trust that each year their efforts will be crowned with the same brilliant success. W. F.

NOTES ON HOLLYHOCKS AND ASTERS.

I hope they of the cloth will pardon an amateur if he gives a few ideas which have floated confusedly in his brain for the last few weeks. I wish to speak on the desirable properties of one or two good old flowers, and to point out a few particulars in which our accepted standard might, I think, be improved.

The HOLLYHOCK is a very good old flower, and, as all will admit, an indispensable. Now, what is a perfect hollyhock? Many, nay most, would say that which is most double, and that which carries the best guard-petals, and so on. All this is very well; but I have got to consider that, for general garden decoration, another quality must stand first. I had a respectable batch of seedlings in bloom myself this year, and I chose one, a white flower with purple bases to the petals, and said that for its colour it must be perfect, so beautifully was the perfectly solid and hemispherical centre set on the flat disc-like circle of guard-petals; but I found it had a bad fault still, namely, a crowding of the flowers on the spike, which had three bad results—first, that they injured each other; second, there were never more than three or four out at once; third, now the first bloom is gone, there are no more.

What I feel to be of most importance in general decoration is this last quality; for next to this plant is another, inferior in the individual flower, but on which, before the first blush of bloom is anywhere near spent, a second lot is opening equal in every respect to the first, and I shall hope for a third yet. Surely, then, this is a quality which for garden decoration ought to stand at a high value. This result will only follow if the first thing mentioned is avoided, so that we have a thinly-furnished spike, which will leave the blooms at the right distance at once; and while this can be got, how foolish it is to have to thin your blooms! In this spike you will always observe a number of smaller buds, which will open after the others are gone. And this spike is always better furnished with open blooms than any other, for the strength which merely went to produce a solid bunch of indistinguishable half-rotten blooms is nicely distributed over a foot and a half or more of the spike. But you say, "Oh, that is nothing; why, only let me have a bit of good well-manured land, and thin the blooms properly, and give liquid manure and shade" (and I know not what else), "then you shall see a yard of spike all in its prime at once." Yes, but what is the worth of this when we want that which is easily grown, and is little trouble, instead of a thing which, with *trouble enough*, will do for exhibition? For the general use of the garden, then, we want, as well as good form and colour, a continuous bloom and a spike no more than properly furnished. It is worth observation that the blooms on these spikes are not generally of that excessive solidity that others are, but are nice and hemispherical, with the guard-circle well developed, which is altogether an advantage.

THE ASTER.—I feel that in this there is considerable room for improvement yet, and I shall try myself to get such improvements as seem most desirable. Firstly, and above all, we want all our blooms to be incurved, not only moderately, but entirely. There are some colours which I have seen in this form to perfection,—mostly, however, as far as I can remember, they are either tipped or striped, light blue and white, darker blue and white, white more or less tipped with blue, pink and white striped. The tipped ones are perfect miracles, too good for vulgar eyes to look at, and I think I am nearly right when I say that nine out of ten of real florists would cease to have any interest in the reflexed forms if they could get the incurved as perfectly as it is to be had in the above colours. We only want the soft rose-colours, dark blues, pinks, and whites of this form, and then we may rest.

Now I do not know whether I am quite right, but, as far as I have seen, there is a tolerably distinct relation between colour and habit. Thus I have seen pink incurves; they were very coarse every way, double the proper height, the petals thin and shining, the margins reflexed, and altogether not the thing. There is also one fault in the incurved ones, as far as I have seen: they are too narrow and upright. We want a good sturdy, bushy growth, about one foot to fifteen inches high. I have a fine white, neither incurved nor reflexed; but its fault is its height, running two feet to two feet six. They are indeed noble bushes to call asters at all; but it will not do if we have to put sticks to them. On the other hand, they should not be so dwarf as some are, for then the rain spoils them so, unless you wish to pot them. These, then, are some of the defects which I shall try in my own little way to remedy, and I hope the weather will be fine and let the pollen well out.

I will close with a few notes on my way of growing asters, which may be useful to some; and first as to saving seed. In a fine autumn this will be produced from one to three or four dozen in each flower, however double it is; and this seed should

not produce one plant sensibly worse than the parent. I sow in pots, about the usual time in April, and when they are big enough plant them out in the kitchen garden, about eight inches in the rows by fifteen inches between the rows. Here they stand until the bloom-buds are on the point of showing colour, when they may be taken up with good balls, and be planted where wanted. It generally becomes desirable to remove a few choico geraniums, &c., about this time, and the asters take their place very well. They must then have one watering, and in a day or two they will forget all about the moving, and bloom on as well as they would have done if they had been left alone. I have not said anything of saving seed in a bad season. There are three ways: first, to take up the best and lay them by the heels in a pit, then draw the light down, and let them alone to seed. Second, pot a lot early, say about the end of July; the pots will be full of root before they bloom; then put them in the driest, lightest, hottest place you have, say under a south wall; when they are in full bloom, leave off watering, and they will in due season produce seed. Third, plant a lot in a similar situation about the end of July, and let them take their chance. I believe the second mode is the best, and is similar to that whereby the best foreign seed is produced.

Finally, I would say to every one, grow your own seed. You have no idea of the different feeling there is in knowing what you sow, compared with that of having to trust to foreigners for it. Of course, whenever you see something superior advertised, make use of it, and see if it is worth keeping. I feel that if the aster is a good and well-appreciated thing now, it would soon be very much more so if a little care of this sort were given to it. A. DAWSON.

THE BEDDING DISPLAY IN BATTERSEA PARK.

Though we have already agreed that 1867 is to be counted with the bad seasons, it must be said in respect of the sub-tropical movement that the experiences of the present season detract nothing from its splendour, add nothing to its difficulties, or furnish a single argument against its adoption, where circumstances permit of its being carried out in its integrity. The present season's display is in many respects more complete and splendid than any that have preceded it. Yet there are exceptions to the completeness and general splendour of the scene, for some few subjects have been slow to grow and shy to flower, and in these cases a far less satisfactory result has been attained than in former experiments in sub-tropical gardening. Perhaps permission should be asked for speaking of Battersea Park in this way; but it is certain that Mr. Gibson's spirited development of new ideas in out-door decorations so far transcends the customary routine of bedding display that we can only think of the sub-tropical movement while here; it is the peculiar attraction of the place, the special glory and joy of the presiding genius.

I landed on the steamboat pier from one of the Citizen boats, and took my way directly up the drive from the river. For visitors from London the Thames is the best highway; the voyage is a pleasant one, with small risk of sea-sickness, and the series of new bridges with which the Thames is spanned, at the distance of only a furlong or two apart, all the way, afford abundant entertainment, and ought, I think, to make every Cockney proud of the river. It is not quite a prepossessing entry to Battersea Park, but it is a convenient one; for the drive directly up from the river soon brings us to a little temple of fancy iron-work at a point whence several roads diverge, and there we can at once strike into the avenue, and, while enjoying the shade and the beauty of the shrubberies, make our way by a quick route to the sub-tropical garden. I noticed many examples of the beautiful *Althea frutex*, with white, crimson, rosy, and purple flowers, and I was lamenting the deficiency of such things as *Cratægus*, *Sorbus*, *Pyrus*, *Malus*, and others that at this time of year are glistening with brilliantly-coloured fruits, when I met Mr. Gibson, and began to unfold my mind to him on the subject. He at once lamented with me that he had no Siberian crabs, no gaudy clouds of barberries, no great sheets of cotoneaster, dotted with scarlet on a ground of darkest green; "for," said he, "if we had them there would be perpetual depredations, and boys, intending only to take a twig with a few bright berries, would, in the hurry to tear them away without being caught, tear the trees themselves to pieces, and we keep such things out of sight because we will not lead them into temptation." So we learn from such a remark—the fruit of experience—that when we criticise a public place we must take into account many matters that are not advertised to us in its appearance ere we can attain to the full scope and purpose of the designer, planter, and manager, and that public morals have a direct relation to the status of art and the range of knowledge. Very soon afterwards we met M. Barillet, the Emperor's head-gardener, who was accompanied by two ladies, and we now made a large party of inspection, and went into the matter earnestly, discussing many points of taste and culture; and M. Barillet was every moment loud in his praise of the beauties of this place. He pronounced it better in many respects than some of the best bits of sub-tropical gardening in Paris, and was especially charmed with the groups of palms, tree-ferns, *Philodendrons*, and *Aralias*, which are indeed wondrous to look upon, not only because of the beauty and great size of many of the plants, but because of their extreme naturalness, for in truth they spring out of the ground as freely and happily as if to the manner born, natives of the place. The perfection of art has been attained in the concealment of art; and we do not think to look for the rim of the pot amongst the grass while admiring a *Phoenix* or a *Sabal* or a *Latania*, so appropriate do they appear to the spots they occupy, and so healthy and fresh, as if the out-door atmosphere of England were sufficient both in heat and moisture for them.

Having roamed about in various ways, we came into the sub-tropical by way of the drive nearest to Surrey Lane. I think the gate on this side is called the "South-west Gate." At all events, we came into the sub-tropical garden by way of a walk past a new series of earth-works now in

course of formation, and which are intended to serve the twofold purpose of a walk *above* the garden, to afford a bird's-eye view of it, and also shelter to the tender plants which are usually put out in the borders here. To enter the garden by this same walk is to experience a sensation; for you come direct upon a great bed of *Ferdinandia eminens*, which is one of the finest spectacles in the way of foliage in the place. The plants may be some ten feet high or less; the leaves are immense, the colour a peculiar grayish green; and the habit of the plant altogether as distinct from everything commonly met with in English gardens as can well be. Turning to the left from this point, we may very conveniently and agreeably traverse the whole of the garden by the winding walk which surrounds it. The plan of the garden will be found, drawn to scale, at page 382 of the GARDENER'S MAGAZINE for the year before last (December 23rd, 1865), and by reference to that any particular bed or group may be easily found. On the way round we meet with groups of *Cannas* everywhere. The *Canna* is the leading plant in this sort of work, as the geranium is the leading plant for flat bedding where colour alone is aimed at. On the way we meet with a long bed of *Wigandia caracasana*, edged with the blotched-leaved Irish ivy, a rich display of leafage. On the left a bed of *Erythrina* in flower, the best sorts in the bed being *ruberrima* and *ornata*; this bed is edged with variegated geranium. Presently a group of gigantic tobacco plants attracts attention; this is *Nicotiana Wigandoides*, and well named, for the leaves are *Wigandia*-like, and for that reason the species is one of the most valuable of the family of tobaccos for ornamental purposes. On the right a bed of *Luna*-like zonals, the leaf large, green, with cinnamon zone, the flowers scarlet; the name is *President Lincoln*. It is coarse, and may be put down as undesirable. Presently we come upon one of the best bits of colour in the place; it is *Geranium Crystal Palace Gem*, which has been much recommended in our *Geranium Papers*: the leaf is splendidly golden, and the flowers are soft cerise; there can be nothing fresher, purer, or more pleasing of its kind. The geranium is edged with a beautiful dwarf *Lobelia* called *Pumila elegans*, the habit of which is dwarf and compact, the flowers light blue, one of the best varieties of blue *Lobelias* known. The margin to this bed is *Alternanthera spathulata*, which has been good, but is now passing away. Presently, on the left a remarkable bed of *Amaranthus bicolor*, which undoubtedly surpasses in splendour all known varieties of foliage bedders; the plant grows a foot or more high, makes plenty of largish leaves, the colour a blackish crimson, but the young growth is of the most intense carmine colour, and transparent and lustrous like coloured glass. *Amaranthus tricolor* has been given up in favour of this splendid species, and if it should ever again appear as good as it is this season, *A. bicolor* will be in demand beyond possibly the means of supply, for of course the stock must be made mostly, if not entirely, from seeds.* On the right, a long bed of *Mrs. Pollock*, edged with *Viola cornuta*, which has been good. Unfortunately Mr. Gibson selected *Bennett's variety*, which is a fine thing where it does well, but in so many places it has the bad habit of dying off, that it must soon give place to the paler flower, but safer and healthier variety introduced to cultivation by Mr. Wills. Here it will be found to be patchy, owing to the deaths that have occurred. The margin to this bed is the beautiful *Echeveria secunda*, one of the most artistic marginal plants in cultivation. A few paces farther on is the most curious and perhaps the most interesting bed in the garden. It consists of large plants of the curious *Echeveria metallica* and *Sempervivum arboreum*, surfaced with that pretty *Sedum glaucum* which Mr. Salter distributed a few years ago. The edging consists of *Sempervivum montanum*, beyond which is a margin of the pretty crustaceous-leaved *Saxifraga pectinata*. Farther on is a composite bed comprising blocks of *Rollisson's Unique* and *Paul's Fairy Queen* geraniums, with dividing lines of *Veronica incana*, one of the most peculiar and distinct of all cold silvery-leaved plants, the colour a bluish gray. Here too are lines of the *Golden Feather Pyrethrum*, which is now acquiring too green a hue to be desirable, but which all through the season, here as elsewhere, has been good.

Somewhere about this point we find ourselves in the midst of tropical plants of all kinds, and conspicuous amongst them is a bed of *Musas*. Yes, a bed of *Musas*; planted out, growing freely, actually making fruit and less torn than usually seen in their native soil, as avowed by Mr. Gibson, who is familiar with their appearance in their proper tropical homes. The tallest and handsomest plants are those of *Musa rosea*, which are ten feet high, with abundance of fresh bright leaves, very few of which are torn, and many spikes of bright rosy flowers. On one of these plants I saw and pointed out to our friends a bunch of real bananas an inch or more long, the first ever grown in the open air of this country no doubt, but a *bona fide* out-door growth so far; of course nobody expects them to finish and become eatable. In the same bed are plants of *M. Cavendishii* two to three feet high, which have scarcely flowered. All these *Musas* are making suckers freely, and in some cases the suckers of the season have flowered; this is the case with several of the *M. rosea*: it proves that the plants of the tropics are accommodating, and that our climate is not so bad as it seems. The surfacing of the bed is the elegant grass *Elymus glauca*.

From one surprise to another. Go and see, if it be possible, the bed which occurs next beyond the *Musas* on the left hand. It consists of *Coleus Veitchii* edged with *Golden Feather Pyrethrum*, and is indeed a remarkable piece of colouring. Close beside it, a similar sensational affair, is a bed of *Colous Verschaffeltii* edged with *Centraea gymnocarpa*. These combinations are extremely simple, but they are so rich that nothing can surpass them. Immediately after seeing such colouring, geraniums look tame and weak, and it is not desirable therefore to have any such in the immediate vicinity of these beds. A pretty circle on the left next takes our notice. It contains a great Maltese cross of *Amaranthus molancholiosus* filled in with *Centaurea ragusina*; the cross is enclosed in a ring of *Lobelia pumila elegans*, and the margin of the bed is *Saxifraga setacea*. Another charming bed, consisting of *Duchess of Sutherland* nosogay for centre, then a ring of *Pink Stella*, and *Lobelia pumila elegans* to finish off with.

We are again in something like a tropical jungle, banks of *Cannas* everywhere, clumps of *Wigandias*, *Nicotianas*, and other stately plants. Particularly noticeable are three beds near the walk, consisting of a small circular bed, with oblong beds on each side of it. These beds are worth finding by connoisseurs in bedding, and may be found by taking up the thread of this narrative from the earth-work and the bed of *Ferdinandias*. Here is *Lo Grand nosogay* put to the final test as a bodder, and wearing

* I say "mostly" advisedly, because all those coloured-leaved annuals may be increased by cuttings after the seedling plants are sufficiently advanced to allow of their being topped by the propagator; and when *Perilla* and *Amaranthus melancholicus* are required late in the season, cuttings make plants much quicker than seeds.

well, and justifying the high character it has enjoyed from the first. It is, however, rather weedy-looking now, owing to the excess of humidity lately. It is enclosed with a belt of Golden Vase, and edged with *Sempervivum*. In the centre bed is a clump of *Souvenir de Sir Joseph Paxton*, a most beautiful variety, with a ring of *Euonymus radicans*, and an edging of *Sempervivum Californicum*. A little further on in the same direction a splendid bed of *Dracona terminalis*, edged with *Centaurea gymnocarpa*, and close to this a good bed of *Caladium esculentum*, which has this season made a far less satisfactory growth than last year. On the left a great clump of *Cassia floribunda*, rather weedy-looking, but flowering freely. This is not to be recommended as a bedder; a better place for it is next a hot wall. *C. corymbosa* is perhaps better, and the more so because in a dry border in a sheltered place it may be left out all winter. Next noticeable feature a bed of mixed *Hibiscus*. Somewhere near a clump of *Nierembergia frutescens*, which M. Barillet informs me is much used in Paris, and is quite hardy there, and he is sure will be hardy here too. Observe now a great scroll of *Lucina*, edged with the variegated *Euonymus radicans*. With very little searching you may now find a peculiar and very handsome large-leaved, light green shrub, the name of which is *Grislinia macrophylla*, a relative of that *Grislinia litoralis* which has been so often recommended in these pages as a hardy evergreen shrub for warm sheltered gardens. Not far away another bed of *Draconas* of the red-leaved section, the ground-work variegated *Dactylis*, the edge *Sensation Chrysanthemum*. A bed of *Caladium Javanicum*, which is less showy than *C. esculentum*. Next a cross of *Centaurea gymnocarpa*, filled in with *Golden Fleece*, and edged with *Alternanthera spathulata*. Another surprise is a bed of *Coleus Verschaffeltii*, edged with *Centaurea ragusina*,—nothing richer in the garden. Presently a clump of *Geranium Galety*, one of the bronze zonal section; it is superb in its gold and bronze colouring, the flowers are scarlet; no fear of a failure in growing this, and hard to beat it in the class. A clump of *Caladium esculentum*. A clump of *Canna purpurea spectabilis*, which I mention more particularly to call attention to the outer band of *Solanum macrocarpum*, which is the best for blue flowers; the leaves are green and deeply lobed. Observe beside the scroll a bed of *Aralia papyrifera*, with a ground-work of *Canna expansa*, edged with *Centaurea ragusina*. Here a lesson in acclimatizing. A bed of *Centaurea plumosa* which has stood out all the winter, and is in splendid condition. We see in this the virtue of raised beds on brick foundations: extra warmth all summer, extra dryness with extra warmth all winter, and a dryness of that peculiar kind that during a summer drought the plants do not suffer, for bricks covered with soil are never quite dry. Somewhere here a margin of *Lobelia Miss Murphy*, a complete failure; kick it out. Clumps of *Monstera deliciosa*, a very peculiar and grand subtropical. A little way off from the walk across the grass you may see on the left a belt of a very much variegated plant; it is *Epilobium parviflorum*, the plant you may have read of in a report lately made on the plunging system. It is not so good here planted out as we do it in pots, but as it is there are not many hardy plants that can compete with it. Any one in want of this plant only need to wake up Mr. Salter. A nook filled with tree-ferns, a sort of dell, a bit snatched by art from the shady valleys of New Zealand. We shall surely have all the vegetation of the globe in Battersea Park soon, for *Musas* do well planted out, and tree-ferns are none the worse for plunging. At this point I began to sing a snatch of a teetotal hymn—

Glorious light has busted round us
Happy day,

but checked myself by remembering it would be a difficult one to translate to M. Barillet; the elegant "busted" might perplex us both. By a short turn aside from the regular walk round, a bank of *Neottopteris australis* in pots plunged, a sort of hart's-tongue valley for an impossible fairy-land. Oh, go and see it, go and see it; not a frond discoloured, all green as emerald, shining as varnish, elegant in a measure that makes a mere joke of any attempt at description. We all know it as a pot plant; know it! bah, we know nothing of it until we have seen this bank in a shady nook where the plant is a sort of naturalized weed, as our own lovely hart's-tongues are in the hedge-rows of our native land. *Pothos acaulis* five and a half feet in length of leaf, grand. A panel-bed of *Sunaet*, with divisions of *Blue King Lobelia*, and *Antennaria tomentosa* forming a pavement of silver to the blue, gold, and red, the margin *Echeveria secunda glauca*, the last a better variety for bedding than the common form of the plant.

Let us go on again by the path we left to look at the ferns and the *Pothos*. A circular bed of *Salmon Nosegay*, ring of *Princess Lichtenstein*, edge *Lady Plymouth*, margin of *Viola cornuta*; a splendid bed, and one that may be copied anywhere for a good feature. Presently a bed of *Coleus marmorata* and *Coleus aurea marginata*; neither of these very good. One of the grandest beds here of *Canna Limbata*, the plants twelve feet high and quite rich with flowers. Next a long bed of *Ferdinandia eminens*, with *Solanum marginatum*, filled in with *Tagetes signata pumila*, the margin *Plumbago capensis*. The last-named plant deserves more attention than it obtains from bedding people; we intend to try it for the plunging system from spring cuttings.

At this point we are so near the refreshment room that we go up that way to have a look. And well worth the journey it is. Here we have a bit of bedding of the customary pattern, colour being the principal element. The beds are set out on a semicircle of grass, and in the rear is a border of mixed shrubs, with a facing of colour. The facing of the enclosing border is in festoons; for the back row *cannas*, next *Lucius geranium*, which very deservedly is a favourite here; next *Stella*; next crescents of *Golden Fleece*—this is marked out distinctly with lines of *Viola cornuta* and lines of *Stachys lanata*; in front crescents of *Harry Hieover* and *Mrs. Pollock* alternately: an elaborate and most tasteful piece of colouring. The scheme of beds is divided in the centre by a walk, and the beds on one side of the walk are counterparts, or nearly so, of those on the other side; therefore the description of one half the scheme will suffice. No. 1 is an oblong, with a centre of *Madame Vaucher*, next to it *Waltham Lilac*, then a band of *Golden Fleece*, margin of *Cerastium*. As all the beds are edged with *Cerastium*, we will not again mention it. No. 2 is a circle of *Beauty of Oulton* and *Blue Lobelia*, mixed; this is first-rate. No. 3 is *Rebecca*, edged with *Golden Fleece*. No. 4, *St. George and Cirelet*; the last named is a good bronze zonal. No. 5, an oblong of *Sir Joseph Paxton* and *Golden Fleece*. No. 6, a circle of *Golden Fleece* and *Lobelia Blue King*. No. 7, an oblong of *Serena*, a good pink geranium, with outside band of *Golden Fleece* (on the opposite side the counterpart is *Eve*, one of Mr. Bull's good pink varieties).

We now make a sharp turn, and are in the drive which leads to the

celebrated "coffins." Now we have a boundary ribbon, consisting of front line *Stachys lanata*, the poor man's permanent silvery edging plant; next line *Lobelia Blue King*; next *Christine*; next *Gaines's Yellow Calceolaria*, which is the favourite variety here, doing better than any other on this soil; next *Stella*; next *Dahlia Napoleon*, a fine purple. In the bay formed by this waving ribbon, a bed of six whirling spokes or eccentric rays of *Coleus Verschaffeltii* and *Golden Fleece*, edged with *Centaurea gymnocarpa*, and margined with *Echeveria secunda*. I remember something of *Viola cornuta* in this affair; surely it must be between the *Centaurea* and the *Echeveria*, to separate the two grays, but I cannot say for certain. Now for the coffins. They are not so good as in former seasons. In each there is a central line of *Amaranthus melancholicus*; next a band of *Gnaphalium* or silvery *Artemisia* alternately; next *Mrs. Pollock*; next *Lobelia pumila elegans* or *Lobelia speciosa* alternating, margin of *Euonymus radicans*. The centre bed to this scheme is *Sensation Chrysanthemum*, *Centaurea gymnocarpa*, *Viola cornuta*, *Alternanthera spathulata* and *Alternanthera paronychoides*, with the *Echeveria* for edging. Here we may suppose we have finished the principal groups and beds, and there are all the *Cannas*, which abound like weeds in plenty, but not like weeds to look at. Well, this is a long story; suppose we leave the *Cannas* till next week? We will do so; the subject is too big to furnish a tag to this story; and, trusting to the indulgence of all our readers, the *Cannas* shall stand over for the present. But in the mean time, friends, one and all, see Battersea Park before the season is quite gone. Just now it is in perfection, though some things here and there may be a bit seedy. Never mind; the great and grand things are all perfect, and, while mild weather lasts, will continue so for the delight of the British public. S. H.

CUCUMBERS FOR THE WINTER.

It is somewhat singular that I should close my last article on this subject with a strict injunction to the reader to work out a thorough system of air-giving at this season of the year, in growing cucumber plants to fruit through the winter; for want of proper attention to the very same rule nearly proved fatal to some plants I had myself obtained for the same purpose, since the article above alluded to appeared. But I must tell you how this happened, and then probably all interested will say it has proved a useful lesson, as well as justified the concluding remarks of my last paper. It occurred in this way: a few days after the cucumber plants were put in, we commenced a rather heavy job in making an addition to the pleasure grounds, which quite occupied my time out of the garden; consequently the houses were left in the charge of one of my assistants, who instead of following my instructions to keep up a current of air through the cucumber house at least ten hours each day, had omitted to give any front air at all, and not much more than half enough at the back; at the same time he had kept the atmosphere of the house heavily charged with moisture, and the consequence was that in a few days a heavy attack of mildew followed, brought on by a close confined atmosphere which was superabundantly charged with water, and in which there was not sufficient movement to promote a healthy growth.

I have related this circumstance just as it occurred in practice, and from it every grower of winter cucumbers may deduce a useful lesson; for probably there is no plant which delights more in a warm humid atmosphere, providing it is sweet and pure; but as soon as the air of the house becomes stagnant with humidity for any length of time, I know of no plant that will sooner resent the injury. The importance of atmospheric moisture, as applied to growing cucumbers in houses in the winter, is amongst the principal secrets of success; for if you get the air of the house too dry, a host of red spider immediately follows, and the edges of the leaves turn yellow and are withered up, and if too moist and confined, mildew will be sure to set in, and the young fruits will damp off and fall.

Willing as I am to tell all I know about the cultivation of cucumbers in houses for the winter, after many years' experience, I cannot lay down any specific rules of management as regards the amount of air and moisture to be given, as the cultivator must be guided solely by the condition of the elements; and it is in this part of the business where the skill of the gardener is most peculiarly called into active requisition. This we know, that the greater the heat the more active will evaporation be going on from the leaves. Now there are only two agencies which supply us with heat—the sun, and that generated from the pipes, which are under command. Knowing this, the cultivator can ascertain from observation from which source the heat is derived; if from the sun, and it is possible to admit a current of air through the house, no amount of moisture in the atmosphere will ever do any harm. In fact, at such times it should be abundantly supplied; but it should not be so when we are dependent upon artificial heat to keep up a high temperature, as then we may conclude that the weather does not admit of much air being given, consequently it is not changed so rapidly, and a less amount of moisture will suffice.

From the foregoing remarks the reader will understand the importance of the advice previously given, that a thorough and efficient system of air-giving should be worked out, taking

for our chief guide the condition of the external atmosphere. As to the application of atmospheric moisture, that must also depend in a measure upon the outward elements. While clear open weather prevails during winter, air may be liberally supplied; but very much will depend in this matter upon the conveniences of the house. If a tank is in use for bottom heat, the air of that house will be less dry than the one furnished with only rubble, consequently less syringing and sprinkling of the floor will be required. As regards this point of management one thing is certain, the more heat there is given the more moisture in the air will be required, and it does not matter from which source the heat is obtained, as evaporation is nearly as great (although not quite) from one as the other.

In the application of heat which is at the command of the cultivator, there are one or two important points of management which it may be well to mention, as if this part of the business is not conducted with some amount of skill, the plants soon become weakly and unfruitful. I would particularly call the attention of inexperienced cultivators to the necessity of reducing the temperature of the house during dull, snowy, or wet weather; as when a high temperature is maintained when there is a deficiency in the usual amount of daylight, a weak and sickly growth is created, which cannot be recovered until there is a sufficiency of light to properly mature the growth. And I might specially note the importance of reducing the temperature during a continuance of frost. From November to the middle of March, a temperature of 60° by night and 70° by day, rising 5° during sunny open weather in the day, are the highest registers of the thermometer that ought to be maintained, with the most essential feature strictly carried out, to give air early in the day that the plants may enjoy a sweet agreeable atmosphere to breathe in.

I now close this short treatise with a brief reference to the young plants, taking up at the close instead of the beginning the thread of my last paper. To all young growing plants give plenty of moisture and an abundance of air, in bright mild weather, until the middle of October, when fire-heat must be given at night and during cold damp weather. Train the young plants to neat sticks until they reach the wires, and as soon as they have made three leaves above them pinch off the top, and train out the laterals neatly over the wires, pinching off all young fruit and the male blossoms as they show; but guard and protect every leaf, as winter cucumbers never make more leaves than they require: nor must they be stopped more than twice or thrice, for they make such little growth that they will not endure it. The picking off of the fruit and male flowers must continue until they are required to bear fruit. When they are in bearing give water copiously twice a week, of the same temperature as the house.

A KENTISH GARDENER.

LOBELIA SPECOSIA FROM SEED.

I don't know whether I am singular in having a great difficulty to obtain plenty of good cuttings of this useful plant, without the necessity of planting a clump on purpose to cut down to furnish a supply now, and also to take up a lot to cut from in the spring, with the risk of two-thirds of the old plants going off long before there is any possibility of turning them to any account. Such, however, is the case with me sometimes, and therefore I am not in love with lobelia cuttings. Against all the risk we must set the time spent in putting in the cuttings, tending them through the rooting process, hardening off, and other operations that cause an amount of labour which just at the time it is required can be but ill afforded. For years past I have raised the whole of my stock from seed, for I find it costs a vast deal less time, trouble, and anxiety, and for all practical purposes the plants are equally as good as they would be if raised from cuttings. Certainly I get a few with flowers a shade lighter than the bulk, and a few with a more straggling habit than plants from cuttings. To give a rough guess, and I have not had time to count them, I should say there are half a dozen of each sort to every five hundred, a number that is not worth a moment's consideration, and the plants are not at all conspicuous by the paleness of the flower or rambling growth, not being sufficiently distinct from the others to render them so. The most important point, and one which I cannot too earnestly urge, is the seed harvesting, for too great carefulness cannot be bestowed on the work. A good strain from which the seed is to be saved must be obtained, for if it is chosen from a bad one the whole affair will end in disappointment, and represent so much time and labour wasted, for the colour of the flowers will vary from the brightest shade of blue imaginable to the deepest indigo; moreover, the plants will be straggling habited. Like results will

happen, though in a lesser degree, if the seed is saved indiscriminately from the whole collection without reference to the colour of the flower and habit of the plant, even if the cultivator has the best strain in existence; for the Lobelia, like other cultivated plants, will soon run back to the normal type unless it is guarded against that by careful selection. I always save my own Lobelia seed, for I find I cannot obtain it so good and true from the trade. Mind, I do not attach the least blame to the seedsmen, for the price usually charged will not admit of their being more particular; they have to pursue the same course as the grower of turnip seeds, &c., namely, select the best types from the whole batch, and save the seed from them for sowing themselves the following season. From such sowings they produce the stock of seed which they distribute to their customers. It follows, as a matter of course, they are bound to keep back the very best, and sell the other; so that the buyer gets a similar quality to what he would do if he carefully selected the seed one year, and the next saved from the whole lot. I do not for a moment wish to be understood to say that the trade Lobelia seed is rubbish, or that it does not produce tolerably good plants of average quality; but it cannot compete with seed annually selected. I go over the whole of the plants on the place, and pick out a dozen of the best, and save from them only, and my plants cannot be readily recognized from plants produced from cuttings.

I think enough has been said about saving the seed, therefore we will direct our attention to raising the plants in as brief a manner as can be consistently adopted. I have found, after several years' observation, that the end of September is the best time for sowing the seed. Plants from spring-sown seed do not get so stout and strong, or flower so early as those raised in the autumn. The seed is sown in pans in a cold frame, and as soon as the young plants are large enough to handle, they are pricked off into other pans or boxes an inch apart, in which they remain until February or March, when they are potted off into small sixties, kept rather warm until the roots begin to touch the sides of the pots, and thenceforward are treated exactly the same as plants from cuttings.

GEORGE GORDON.

VALLOTA PURPUREA, OR SCARBOROUGH LILY.

It is not an uncommon circumstance at this period of the year to find many greenhouses, especially those belonging to villa residences, almost denuded of plants. Why it should be so, when we have numerous beautiful plants that are well adapted for supplying the vacancies, is almost a wonder. It surely must be the result of sheer supineness. These plants are wholly neglected because we do not trouble ourselves to inquire after them, relying, as we do too much, on our stereotyped practice of allowing things to remain as they are because we never saw things different. *Lilium lancifolium* and its varieties may be considered amongst the most valuable additions to our conservatories. At this season they are both grand and interesting to behold. But *Vallota purpurea* is still more striking in character and colour. The flowers of this noble plant sparkle as you behold them in the distance, being of a very bright scarlet. Why it should be named "purpurea" puzzles me, as there is not a tinge of purple about it that I can discern, unless it is when the beauty of the flower is fast fading, and then it acquires a kind of purple hue. At the present time I have several pots of this bright flower in full bloom, and I should like to know that thousands of our readers have them equally good and in sufficient plenty. I will just detail the mode of culture adopted by me, not that there is anything mysterious or difficult about it, for of all bulbs the *Vallota* is the most easy to cultivate. Some growers maintain that with these, as with the *Cyclamen*, they must not be allowed to remain dormant at any time, but kept continually growing, being an evergreen bulb. However, my system somewhat differs from that. When I undertook my present charge late last autumn, I found a great number of these bulbs potted singly either in 60 or 48 sized pots. My first treatment of them was to pack them away on their sides under the stage. In this state, without a drop of water, they remained for several weeks. I then prepared some good stiff loam, mixing with it a little leaf-mould and silver-sand. In potting I selected three of the largest bulbs; these I planted firmly in a 24 or 8-inch pot; the others were planted in lesser-sized pots according to their respective qualities. Scarcely a bulb has failed to produce flowers except a few that are very weak. Of those in 8-inch pots, each truss of bloom contains not less than five flowers, others more; some are throwing up two trusses of flowers; so that some of the pots will produce not less than two dozen blooms; so you may imagine the splendid effect they have produced.

JOHN F. McEROY.

PLANTS FOR BOWERS, TRELLISES, RAILINGS, OLD TREES, STUMPS, ROOT-WORK, &c.

To have suitable well-made bowers in a garden, and to cover trellises well, are matters of importance. Frequently the plants are badly selected; subjects are used that are disagreeable from some causes or other, and therefore we rather take an interest in gathering together those really suitable, and which in most cases merely require planting. It should be remarked that many of the plants suited for bowers, &c., are equally well suited for trailing over stumpy places, rough banks, rough rockeries, &c.; notably, the vines with which we begin our selection. The following kinds of vine are simply useful for their trailing power, so to speak: *Vitis aestivalis*, *V. Amooriensis*, *V. cordifolia*, *V. heterophylla variegata*, *V. Iaabella*, *V. labrusca*, *V. laciniosa*, *V. riparia*, *V. Sieboldii*, *V. vinifera apiifolia*, *V. vulpina*; useful for falling over rocks, for low trellises, and even for bedding out.

We ought, perhaps, to commence with the *Ivies*; for this purpose certainly nothing can equal them as evergreen coverings for bowers, &c. One of the prettiest bowers (for winter) that we have seen was covered densely with the Irish ivy. It was simply like a great isolated niche, not deep, and with no side, so that the light could play on the inside nearly as well as on the outside; the glistening verdure of the ivy was as pretty inside as outside, as the thing was placed in a position where it caught every ray of sun. It formed a most agreeable bower at a season when such things are rarely resorted to. The French make most tasteful bowers of the common ivy, even often where there is no soil to plant it. It is used very extensively to make rather wide and neat edgings to the borders, &c., in the gardens round the Louvre and many others, and also in several other ways, notably to cover with dense green sheets the iron railings. Thus, about Passy and in other neighbourhoods, some of the iron railings in front of houses and gardens are closely but densely sheeted over with ivy, except the tops of the spikes, and this forms an agreeable wall of verdure along the boulevards where it occurs, while it may also be useful in keeping out the heavier rushes of dust in summer to some extent; and, altogether, I think it is a custom which might be well adopted in suburban gardens about London, for trailing up the railings by which they are usually faced. A specimen, showing one of the many ways in which the French use the Irish ivy, was shown at the Paris Exhibition. It was a temporary plant for removal, but made to form an elegant little summer-house, about ten feet wide, a single plant of ivy being trained on what may be described as a large umbrella frame, the handle being supported by stakes, and the tub containing and feeding the roots being covered with boards, so as to form a seat. Thus a passing or even a sitting observer would not know it was grown in a tub or pot. In England we make but little use of the ivy, and for any beauty it displays with us we have to thank its own rambling disposition; but any person who looks along the railings in the Avenue d'Eylau, outside the Jardin Fleuriste de la Ville de Paris, or in many other places where tasteful houses occur, and sees how beautiful it looks covering iron railings with a dense sheet from top to bottom, as well as its many other tasteful uses which may be seen about Paris, will agree that we might make a very tasteful use of it in English gardens, and particularly in English town and villa gardens. We have, in fact, never been tired of admiring it as employed about Paris, and hope to soon see it receive equal attention from us, as our climate is even more suited to produce it in perfection. Of course, many of the beautifully marked kinds may be trained in like manner. Indeed, the various variegated ivies will soon become indispensable to the good garden of hardy plants; they are so nice for walls, trellises, or even for edgings in not a few cases. But however pretty the marked kinds may be, they can in no degree compete with the common Irish ivy as a rich green covering. Our true plan of dealing with them will be found to be in employing the best forms sparsely among the green kinds, or among other green plants. To meet with a good variegated form now and then amidst glistening green is charming; to plant a great number of them together for the mere sake of the collection is a mistake. To allow the ivy to trail over rough mounds, &c., is a favourite plan of ours, and we have even found it desirable to make mounds for this purpose in a picturesque pleasure-ground—planting specimens of *Yucca* over the ground-work of ivy, and allowing a nice tuft of a variegated sort to fall here and there over a stone, or near the edge, so that it might be well seen amongst the mass. The following kinds are amongst the best of those readily procurable in our gardens: *Hedera helix* (common ivy), *H. Algeriensis*, *H. arboreacens*, *H. argentea maculata*, *H. canariensis*, *H. chrysocarpa*, *H. digitata* (palmata), *H. donerailiensis*, *H. Hibernica*, and its variegated varieties; *H. lati-maculata*, *H. poetica*, *H. romana*, *H. variegata argentea*, *H. variegata aurea*, *H. variegata elegans*, *H. variegata tricolor*, *H. Roegneriana*. For a small but select lot of ivies, you cannot do better than take the following: Of green kinds, *Hedera donerailiensis minor*, *H. poetica*, *H. digitata*, *H. palmata*, *H. sagittifolia*; of variegated ones, *H. canariensis aureo-maculata*, *H. marginata argentea*, *H. minor marmorata*, *H. latifolia maculata*, *H. helix foliis aureis*, *H. rhombea*, *H. algeriensis variegata*, and *H. japonica*.

The next plants to which we have to call attention are the two hardy climbing *Aristolochias*, *sipho* and *tomentosa*. Here are two capital plants for bowers, or for covering any surface with fine and distinct leaves, which nobody is taking any notice of, compared to what they are worth. What is so fine for covering a bower, and running up a stake so as to form a pyramid of distinct foliage? One of the prettiest things we have ever seen was a tent or wigwam formed of *Aristolochia sipho*. In the first case, a number of long but useless branches were placed so as to form a framework, meeting at the top of course. Then *Aristolochia sipho* was planted all round, and soon it ran up to the top and formed a capital roof—a pleasanter wigwam you could scarcely see. *A. tomentosa* is quite a distinct species, and equally desirable with our old friend. Its leaves are of a yellowish tone, and slightly tomentose. It will prove capital as a deciduous covering for a bower of any kind, for forming pyramids in a varied garden, and for many other uses which will readily suggest themselves to the gardener who has once secured possession of this distinct plant.

There are some kinds of *Clematis* capital for bowers; notably the beautiful white *C. montana*, and the fragrant *C. flammula*. The last is a splendid thing to grow wild over old stumps, or on wild banks, &c., as it diffuses a most delicious odour over the garden in the late autumn; in fact, it is as valuable for this purpose at the end of the flowering season as the hawthorn is in May, or more so, for it flowers a long time. The common *Clematis*,

C. vitalba, often forms picturesque sheets of vegetation, drooping from trees, &c.; but it should, as a rule, be confined to the rougher parts of the garden. We have seen one or two very charming natural arbours formed from this, where it grew up oak or other trees, and then fell down in a mass. All that had to be done was to make an opening, and perhaps cut away a bit here and there. The new varieties of *Clematis* raised by Mr. Jackman are of course capital for the trellis; but they must not be associated with such things as *montana* or *flammula*, which would run over them; but, on the other hand, be reserved for the smaller and more select kind of trellis. On such they will prove very beautiful. The following is a list of kinds to be obtained in British nurseries, most of them worthy of a trial. Wirlings of some kind are so often desirable in gardens nowadays, that they will be found most acceptable to many. If instead of employing hedges, which require clipping often, we employed a covered trellis, how much more tasteful it would look, at least for the minor divisions of a garden!

Clematis azurea grandiflora, *C. campaniflora*, *C. elliptica*, *C. florida*, *C. f. flore-pleno* (warm wall), *C. f. Standishii*, *C. Francofurtensis*, *C. Fortunii*, *C. Hendersonii*, *C. insulensis*, *C. Jackmanii*, *C. lanuginosa*, *C. montana*, *C. nivea*, *C. patens Amelia*, *C. p. Helena*, *C. p. insignis*, *C. p. Louisa*, *C. p. monstrosa*, *C. p. Sophia*, *C. p. violacea*, *C. pubescens*, *C. rubro-violacea*, *C. Shillingii*, *C. Sieboldii*, *C. tubulosa*, *C. viticella*, *C. v. fl. alba*, *C. v. venosa*, *C. glauca*.

In covering bowers, it should be considered whether we wish them to be deciduous or not. Possibly, if they be near the house, it may be disagreeable to have them covered in winter. By using herbaceous plants which grow strongly in summer, and entirely sink under ground in winter, we may have pleasant shade and flowers in the summer, and not a vestige of naked or ragged vegetation in the winter; in fact, none at all. One of the best plants in existence for bowers of this class is *Convolvulus dahuricus*, a pink species, something like the common *convolvulus*—so much so, that many say it is the same—but it is larger and finer. There is also a white form of the same plant. They run up houses when trellised or trained, up railings, &c., beautifully. It is much better to put this plant in a position where it cannot ramble about, and become a weed. *Calystegia pubescens fl. pl.* may also be used in the same way. We know of nothing prettier on a railing than *Convolvulus dahuricus*. To leave the *Wiataria* to near the end of an article on bower plants, &c., is scarcely fair play. It is more often seen as a bower than as a wall plant; but may be used in almost any way. We have seen it trained to run from the ground up to trees on strong wires, but perhaps a more graceful use could not be made of it than to train it over a slender arch over a garden walk. So planted, it would flower later than the plants on the walls—an advantage. We cannot have this fine thing too long in bloom. The Scarlet Runner is also a wall as a bower plant. It is particularly useful, and so are other things we are now naming. It may in many cases be desirable to have a trellis-work covered way in a garden, this trellis-work to be covered with plants, and shady in summer, and quite bare and clear in winter. The Scarlet Runner is the very thing for all such positions; so too is *Asparagus Broussonetii*, a magnificent species not yet in cultivation. It runs about ten feet high, and dies quite down in summer. It would make a fine pillar plant. The following are also useful for the same purpose: *Cynanchum acutum* and *monspeliacum*, *Marsdenia erecta*; *Apocynum tuberosum*, *Tamus communis*, *Dioscorea batatas*, *Periploca græca*, *Hablitzia tannoides*, *Boussingaultia baselloides*, *Heladianthia dubia*, a quick-growing, pretty, climbing, cucurbitaceous plant, with an abundance of yellow flowers; and various annual plants, to be mentioned by and by. *Menispermum canadense* and *virginicum*, very good, they shine like ivy.

One magnificent set of climbing bower and wall plants are the *Cissuses*, near relatives of the Virginian Creeper. The following are the best, and these are of great merit: *Cissus orientalis*, *C. pubescens*, *Ampelopsis bipinnata*, *Bridgeaia spicata*.

Again we may begin a selection with *Jasminum revolutum* and common one, *Lonicera confusa*, *L. flava*, *L. japonica*, and *L. periclymenum*: warm wall for most of these. The common honeysuckle, one of the best plants in existence, *Roses* of many kinds, *Lycium europæum*.

Annual plants for trellis-work, &c., a selection: *Abronia umbellata*, *Adlumia cirrosa*, *Cobea acandens*, *Coloquinte vivace*, &c., *Cyclanthera pedata*, *Sweet Peas*, *Tropæolum* of kinds, *Maurandias* in varieties, *Loasa* in varieties, *Lophospermum*, *Petunias* for very dwarf trellises against walls, &c., *Scyphanthus elegans*, *Thunbergias* in warm parts only, *Gourds* and *Scarlet Runners*, and lastly, the best of all, the beautiful varied flowers of the new varieties of *Convolvulus major*, than which there is nothing better for a low trellis.

FORWARD HO!

REPORTS OF PROVINCIAL EXHIBITIONS.

We commonly receive during the summer and autumn a sufficient number of reports of exhibitions, cut from newspapers, to make two full numbers of the Magazine weekly without a line of original matter. To publish all that are sent is impossible, but our rule has always been not to publish any. The objections of greatest weight against transferring these reports to our columns are the following:—1. Having appeared already in the districts where alone they can be of any interest, it would be a misuse of our pages to give them place there. Local interest having been gratified, it would be absurd for us to repeat what everybody in the least degree interested has already become familiar with. 2. Newspaper reports on horticultural affairs are, as a rule, so badly done that we should commit ourselves to innumerable absurdities, untruths, and misrepresentations, were we to accept the favours and comply with the requests of our friends in respect of this matter. 3. Ninety-nine out of a hundred of all the reports of horticultural exhibitions that are published every season are to be relied upon for accuracy only so far as the secretaries have supplied to the reporters the names of the persons who have taken prizes. Now there can be no doubt that the names of prize-takers are proper to report, but in these pages something more is required, for our first business and bounden duty is to give the public information about plants, flowers, fruits, implements, and other matters of scientific importance, to which matters personal must have a secondary place.

It will be observed that our own reports invariably afford more or less information of a kind consistent with the primary objects of the Magazine. It is scarcely possible to overdo reporting when its legitimate objects are kept steadily in view. Through the reports published from time to time in these pages our readers are kept informed of the best species and varieties of

cultivated plants of all kinds, from the forest tree to the humblest fern, and every kind of climate, every variety of taste, every local necessity, contributes to our stock of useful knowledge. When original reports of provincial shows, prepared for the purpose and with a view to render them useful to horticulturists generally, when such reports as these reach us, they are always appropriated, and we are indebted to many good friends for assistance of this kind, and trust that the publication of what they send is evidence of its appreciation. Where there is loud profession of anxiety in behalf of a local exhibition, there might be, one would think, a little earnestness of work also. But, to speak plain, we really do not experience any startling sensation when we open a letter and find that the writer—all for the good of mankind—is burning with zeal in the interests of a provincial horticultural society, and offers no higher proof of it than a wearisome, dreariness, dull-drum report, half a dozen columns in length, cut from the "Mercury" or "Trumpet-blast" or "Slashing Independent" of the district. At all events, we follow a uniform rule with all such, and that is to drop them tenderly into the waste-basket; to do aught else with them is impossible, save and except that by reproducing them we might speedily make an end of the Magazine, for the public would never stand such an imposition. Anxious as ever to promote the interests of provincial exhibitions, convinced as ever that they are of far more importance to the life of the nation than all the great London exhibitions put together, well assured that they tend to the promotion of kindly feelings, and the removal of class prejudices in their several districts, and that they lead to an increase of the earth's best productions, and expand the mind of man to a better understanding of the ways of nature, we must nevertheless, and indeed for these very reasons, exercise some degree of circumspection as to reporting, and we are quite convinced that the systematic rejection of newspaper cuttings is absolutely essential, so long as we pretend to supply the public with original and useful information. Exceptions will of course occur. Not long since we appropriated instantly upon its receipt a newspaper report which possessed a value and interest rarely occurring; it had, in fact, by some strange and rare decree of fate, been prepared by a person who understood what he had to report upon. But in this case the correspondent who forwarded it took the pains to correct and improve it: the names of the plants were put right, a few particulars were added to adapt it to the pages of a work where it would remain for reference for an indefinite time to come, and it was as good as the best original report could be; and, in fact, if fifty competent persons had reported simultaneously the result in every case must have been nearly the same. It needs discretion to determine when this may be done and how it should be done. Our business more especially is to thank hundreds of good friends for what they send us, and to explain, as we have done, how it is that the endeavours of some appear not to be duly valued.

S. H.

Calendar.

WORK FOR WEEK COMMENCING SEPTEMBER 14.

Kitchen Garden and Frame Ground.

LETTUCES required for use in winter to be planted out, a portion in frames, and another portion on a warm sloping border. The cabbage kinds will bear frost with the least injury. Some forward plants of cosp put out now on a rich warm border will come into use late in the autumn.

ONIONS to be taken up when the weather is dry, and well ripened for storing. Those from autumn sowing will now want thinning, and the thinnings may be planted on a warm rich border to make large bulbs next season, or for use during winter.

PARSLEY sown in July to be thinned, and the thinnings planted if needful. Remove all the plants that show single leaves, and in transplanting save only those that show handsomely-curved leaves.

CAPSICUMS and TOMATOES may be gathered before they are ripe if needful, and ripened by laying them on a shelf in a warm greenhouse.

Flower Garden

ROSES budded this season require now to be looked over, the wild growth cut in slightly, the ties loosened, and any wild buds starting below the work to be rubbed off. Roses struck from cuttings to be potted off as soon as rooted, into 60-sized pots, and to be put on a gentle dung heat, to promote the filling of the pots with roots. Roses layered in the open ground may be removed and potted; in fact, it is better to winter all roses on their own roots in pots the first season after striking them, if there are conveniences for doing so.

BEDDING PLANTS struck in the open ground must be potted forthwith; in all cases a poor sandy soil and plenty of drainage must be used, especially if the plants are to be kept in pits or other places where they will be exposed to a low temperature during hard weather. Take up all choice plants now that it is intended to keep through the winter, and pot them; if left in the ground any longer they will be likely to die after potting.

BULBS of all kinds which it is inconvenient to plant early because of the ground being occupied, may be started in a mixture of leaf-mould and old dung, or in cocoa-nut waste, so as to be lifted in clumps with good roots to the positions in which they are to flower as soon as those positions are ready for them. When an early bloom of Snowdrops and Crocuses is required, and the ground cannot be made ready for the bulbs, this plan answers the purpose to perfection.

FLOWERING SHRUBS to be forced for the conservatory should now be thought of, to get them potted up and plunged ready to be taken in to force. Plants that have made good growth in the open ground are best for this work, such as Lilacs, Kalmias, Daphnes, Andromedas, Polygala chamæbuxus, Ledum latifolium, Rhodora canadense, double-flowering plums and cherries, Azaleas of the nudiflora section, Weigelas, &c. Get them into as small pots as possible without doing any serious harm to their roots, and plunge in a bed of cocoa-nut waste, in a sheltered position, till required to go to the forcing-house.

PLANTING may be proceeded with from this time to the end of November, beginning with evergreens, and getting them into their places, and meanwhile preparing the stations for deciduous trees, fruits, &c. Whenever it is possible to prepare the ground some time before planting, it should be done; and where orchards and shrubberies are to be planted in November the soil should now be trenched up and made ready, even to manuring if required. It is much against the prosperity of the trees to be planted in soil only recently turned over, and before there has been time for the atmosphere and sunshine to act upon it.

RANUNCULUSES ALL THE YEAR ROUND.—It is pretty well known that a deep moist loam, annually enriched with manure, and an open sunny position, are requisites in the culture of the ranunculus. Into such particulars we shall not now enter, but shall occupy a small space to say what perhaps has never been said before, that ranunculus may be had in bloom all the year round. It has often been observed that the roots may be kept in the drawer for two years, and then if planted will grow well. Reflecting upon this, and being admirers of these splendid flowers, we some years ago devised an experiment. We planted out of doors in October, February, March, April, May, June, July, August, and September. Unvarying success was not attained, but neither did we have any serious failure. Those planted in October and February bloomed in May and June; those planted in March and April bloomed in June and July; those planted in May and June bloomed in August and September; and those planted in July bloomed in October. There the out-door flowers ceased. But the succession was kept going by the use of frames and pits in this wise. Some roots were preserved in silver sand beyond the season of planting a year and a half; that is to say, fresh roots now on sale should be kept till 1868. A few of course will die, but that is no matter, they are cheap, and we can afford to lose them. In the month of August pot a large lot, and another lot plant in a bed in a frame. Keep the potted roots in frames until they have begun to grow freely, then remove them to the greenhouse a few at a time, and they will bloom beautifully in October and November; those in the frame coming in during December, January, and February. Beds of ranunculus are not usually planted till February, but there are many skillful growers who plant in autumn.

IXIA and SPARAXIS.—These have of late years become general favourites, and deservedly, for their graceful outlines and lovely colours are scarcely surpassed by any other class of flowers. They are nearly hardy, and will do well in a warm, sheltered, well-drained border, consisting of equal parts sandy peat, sandy loam, and leaf-mould, if planted six inches deep. When grown in pots, the protection of a frame is all they require, with abundance of water when growing freely. Greenhouse treatment is scarcely good for them; they become infested with vermin if kept too warm, but, on the other hand, they cannot endure much frost. Put three to five bulbs in a five or six inch pot, and let them be covered one inch with soil, so as to have as great a depth as possible for rooting. The following are lovely—IXIAS: *Bucephalus*, *Crateroides*, *Elvira*, *Golden Drop*, *Lady Slade*, *Pallas*, *Plantus*, *Titus*, *Brutus*, *Wonder*. SPARAXIS: *Emilius*, *Grandiflorus*, *Leopard*, *Maculata*, *Napoleon III.*, *Tricolor*, *Victor Emmanuel*. When planted in open borders in cold districts, it would be well to cover the beds with straw, or boughs of spruce, during frosty weather. In Jersey and the West of England they grow with great luxuriance in the open ground.

SIBERIAN SQUILL.—This lovely subject is well adapted for small beds and margins of large beds in the parterre. It is amenable to pot culture, but does not make much show unless seen in large mass. Any tolerably good sandy loam will suit it admirably, and, if planted among herbaceous plants, and left untouched for several years, it will contribute wonderfully to the beauty of the garden in the season of spring. The most distinct and beautiful varieties are *biflorus*, *siberica*, *campanulata*, *campanulata alba*, and *Belgica*.

BULBS FOR CHOICE BORDERS.—*Triteleja uniflora* is a lovely gem, quite hardy; it blooms in April, the flowers are white, with a band of pale blue on each segment, and emit an agreeable perfume. As it is a native of South America, the patches should be marked to facilitate the placing of some slight protection over them during very severe weather; or, better still, put a cone of coal-ashes over each clump when planted, and remove this in February. *Bulbocodium vernum*, planted on the margins of beds, between rows of crocuses, produces a charming display of rosy pink flowers early in the year. It is as hardy as chickweed. *Colchicum autumnale* ought to be in every garden, in spots not likely to be disturbed, as its lovely flowers appear in the decline of the season, when dark days and long nights begin to make an end of most other flowers. The winter aconite, *Eranthis hyemalis*, is an exquisite gem for beds and borders, producing pale yellow flowers, close to the ground, in January and February. A good clump of it gives the idea of a golden pavement such as Dick Whittington dreamt about.

Fruit Garden and Orchard House.

ORCHARD HOUSE TREES to have small supplies of water, and full exposure to the sun, near a wall or fence facing south, where the heat will be reflected on them, and they will ripen their wood well. Any trees that are in a green and sappy state may be laid on their sides and be sprinkled over their tops every morning. This will check growth without distressing them, and help to coax them into rest. Get ready for repotting, planting out any that are to be turned out of the house, &c., as when November comes there will be extra pressure of work, and many important jobs of planting and potting may be delayed to the injury of next season's produce, unless pots, compost, &c., are got ready in good time. All fruit-trees that were forced, especially cherries, peaches, and nectarines, should now be quite at rest, and leafless. To make an end of their season, shake the remaining leaves off, and give them their winter pruning, and repot any that require it. Those not repotted to have the top soil of the pots removed, and its place supplied with fresh turfy soil and rotten dung heaped up round the stem of the tree.

Greenhouse and Conservatory.

CINERARIAS, PRIMULAS, CALCEOLARIAS of the herbaceous class, and other soft-wooded plants now growing freely, should be carefully looked over to see that they are in a fit state for housing as required. Some will want a shift; some will be found infested with fly, &c. None of these things should suffer for want of water, as it will spoil their looks by causing the leaves to turn yellow.

FUCHSIAS may be kept in bloom late by the aid of weak manure-water and a close warm house. The shading may be removed and the pots have a sprinkling of fresh sheep or deer dung as a top dressing. Gather ripe berries of any varieties from which seed is required; bruise the berries with sand, and expose the mixture of pulp and sand to the sun till quite dry; then store it in chip boxes till spring, when sow said and seeds together. Raisers of seedlings who can keep the young plants in the stove all winter may sow at once in a mixture of three parts leaf and one of sandy loam, and start in a gentle heat.

HARD-WOODED PLANTS must be kept well aired, and in full sunshine, to ripen the wood and give them full strength to pass the winter in an ordinary greenhouse temperature. Heath, Epacris, Pimelia, &c., to have free ventilation, and the rank shoots pinched in, to preserve uniformity of growth.

Stove and Orchid House.

Orchids generally should have less moisture as the days shorten. The majority of growers keep them too damp and too warm all winter, but they should now be prepared to pass the winter at as low a temperature as will be safe, and in as dormant a state as possible. Fires will be useful now on dull days to dry the house, and allow of the admission of air. Young plants of *Aeides*, *Dendrobium*, *Vanda*, *Cattleya*, and *Saccolabium* to be kept growing in the warmest compartment.

ORCHID-GROWING MADE EASY.—It is now generally understood that large and expensive houses are not required for the cultivation of orchids. Even in the midst of densely-crowded cities, men who take an interest in their growth have found that they could be grown in little glass houses thrown out from the second floor over passages, or any similarly unlikely places. In Wardian cases, on a scale slightly enlarged, these plants have found a genial home. They require hardly more attention than that required to keep a collection of ferns in good health. A little heat, derived from a diverted kitchen flue or a hot-water pipe, will supply all they require in this way. Moisture is always at command; and, as regards the general treatment, the cultivator who can grow ferns to his own satisfaction would succeed equally well with regard to orchids. First of all, we ought to say a few words about the buying of the plants. As their price will in a great measure depend upon their size, we would recommend that little bits, well established, be first purchased. It is better to have little pieces of two or three species rather than a large specimen of one. The pleasure of watching their growth is thus increased. At the same time it would be advisable to ascertain what kind of treatment the plants purchased have been previously subjected to; if they have been grown in a stove, be careful that they get "hardened" gradually before being placed in a greenhouse. Sudden changes of temperature and of treatment are dangerous for any plants, but orchids more particularly. As to the house, if a new one is to be built, let it be small, span-roofed, and sunk below ground. Plants never succeed so well as in houses of this description. Our idea of a perfect house for orchids would be one in order to enter which it would be necessary to descend some four or five steps below the level of the ground. In such a place less heat is necessary to keep out the frost, moisture in the atmosphere can be more easily secured, the expense of building is much less, and the plants succeed much more to one's satisfaction; they seem to be more at home in such a place. With a little practice, it is easy to see if a plant feels itself "at home," though it is very difficult to convey one's meaning in words. The yellowish tint or the turned point of a leaf are sufficient to point out to the attentive eye the fact that something is wrong; and more trivial points than these attract his attention—he can hardly tell how or why. It must not be supposed, from what we have said, that a house built on this plan is the only place in which orchids can be grown. If your little house be facing the north, so much the better; if not, you must shade it well, and the best way of doing this is by tacking tiffany or some thin material on the outside of the lights and roof, so that it may remain during summer without the constant attention required by a movable shade. There is yet another point we would urge, not only upon amateurs, but also upon professional gardeners. Plants do not like bare surfaces of whitewashed wall or carefully cleaned shelves of wood or stone. They have a perfect abhorrence of light and heat-reflecting surfaces behind or beneath their foliage. Cover your walls with some close-growing climber, and for this purpose nothing is better than the neat *Ficus repens*; and *Selaginella denticulata* may be grown in very shallow soil, sand, cocoa-nut fibre, or any other substance upon which the pots may be placed; it will look pleasant, may be kept within bounds by clipping, which it will bear to any extent, and will be much more beneficial for the plants than any plain surface. Orchids may be naturally divided into two sections, the terrestrial and the epiphytal, or, in other words, those which naturally grow in soil and those which grow upon the branches of trees. But the latter as well as the former may, as a rule, be grown in pots. Still, as is the case with all other rules, there are exceptions to this; but those exceptions will hardly fall in the way of beginners. In horticulture it is a mistake to think that we may always succeed by following nature—we are obliged to follow her under such artificial circumstances. The pots should always be well drained; one-third, or even half, the pot should be filled with broken potsherds. Why not use shallower pots and less drainage? you may naturally ask. The reason is this, that the roots seem to enjoy getting down into the spaces between the corks, and obtain all they require there for the sustenance of the plant. The soil should consist of chopped sphagnum (previously soaked in boiling water, to destroy insects, and then partially dried again) and the fibrous part of good peat, which has been so well beaten that the earthy part has been sifted out. Be careful not to retain any half-dead rhizomes of the common brake, so common in peat, or they may lead to the growth of fungi injurious to the orchid. With this compost mix a little good gritty white sand. In potting your plants, cover the drainage with the mixture above mentioned, and nearly up to the level of the rim of the pot; then spread out the roots of the plant which you have carefully removed from its old home, put a little more of the soil about them, and make all firm. This latter is a very important point; if the plant be loose, and able to shake about, you may be certain it will not succeed. This can be obviated by a stick or two, or a few pegs; but be careful in the use of these not to injure the roots. In the absence of, or as a substitute for, peat, cocoa-nut fibre has been recommended for orchid culture, and in cases where a nourishing soil is not absolutely necessary it answers perfectly. A warm greenhouse is rather a vague term to use; we had better say that the temperature in winter might, during daytime, rise to 55° or 60°, and should not drop much below 50° at night, though a few degrees colder would probably do no harm. In summer, guard against too great heat. Shading we have already recommended. Moisture must be attended to all the year round; the atmosphere of the house must not be allowed to become quite dry, even in winter; while during the season of growth the air should be kept very moist. This may be done by wetting the walls, paths, and stages of the house. This is a much safer plan for the beginner than syringing the plants themselves, which we should not recommend when they are making their young growth. Water should never be allowed to fall upon the flowers; it is sure to make them decay prematurely. Several kinds may with perfect safety be removed to the dwelling-room while in flower, and would remain longer in bloom than in a moist and warm house. With the good drainage we have recommended, they may be watered freely during the season of growth, and as the newly-formed bulbs attain their full size the supply should be gradually reduced. When perfectly at rest, they should not be allowed to become quite dry, but very

nearly so; or, to put it in plainer words, the hand should be able to detect a slight moisture if laid upon the soil. As the soil will be above the level of the rim of the pot, the plants should be slowly watered, and care should be taken that all parts of the soil are moistened. Although the soil will be porous, yet in careless hands one side of the plant may be kept moist while the back is dry, and of course this injures a part of the roots. The orchid-house is not without its pests. Slugs are a great nuisance, for they are very fond of the young roots. These as well as woodlice are easily entrapped. Cockroaches in some localities abound, but phosphor-paste, or Chace's beetle-poison (which should be used with care) will keep them in check. After putting it down for a few nights, it should be discontinued for a time, and then put down once more—a little piece about the size of a bean being put in the several places where they have been noticed. Put it on a piece of crock, which can be put out of the way in the morning. Thrips and green-fly may make their appearance occasionally. Keep a sharp look-out for them, and as soon as an infested plant is noticed, turn it on its side on a mat or the turf, and syringe it. This will, as a general rule, be sufficient; but if not, fumigating with tobacco must be resorted to. Woodlice and shell-snails may be trapped by putting turnips or potatoes in halves, and scooping out the insides. Place these, hollow side downwards, in spots near where the vermin harbour and examine them every morning, and destroy the victims caught. The following list of plants, which may be obtained at very moderate prices, and are suitable for the amateur who is commencing their cultivation, may be found useful: *Anguloa Clovesiana*, *Acrides Lindleyana*, *A. Warneri*, *Barkeria Skinnerii*, *B. spectabilis*, *Brassavola glauca*, *Cattleya labiata*, *C. Mossii*, *C. Skinneri*, *Chysis bracteata*, *Cypripedium insigne*, *C. barbatum*, *Cælogyne cristata*, *C. flaccida*, and any other species; *Dendrobium chrysanthemum*, *D. Kingianum*, *D. speciosum*, *D. nobile*, and others; *Disa grandiflora*, *Epidendrum macrochilum*, *E. Stamfordianum*, *E. vitellinum*, *Leptotes bicolor*, *Lælia superbiens*, *L. anceps*, *L. purpurata*, *Lycaste Skinneri*, *L. aromatica*, *L. Deppei*, *Miltonia spectabilis*, *M. candida*, *M. Moreletiana*, *Odontoglossum grande*, *O. Uroskinneri*, and many other kinds; *Oncidium Papilio*, *O. ampliatum*, and varieties; *Pleione lagenaria*, *P. maculata*, *P. Wallichii*, *Trichopilia tortilis*.

Forcing Pit.

PINES.—Repot the young stock struck during the summer, and plunge in a brisk heat; suckers on old stools to be taken off and potted singly, and plunged at once; they will root immediately. Give as much air as possible during fine weather.

NOTES ON STRAWBERRIES, NEW AND OLD.

Although strawberries have been cultivated for the London market for many centuries, the greatest impetus to an advancement of the type dates from the beginning of the present century—may, it might even be confined to the boyhood of men who are now in the prime of life. To show, however, that both strawberries and cherries were a marketable commodity so far back as 1480, we give one of Lidgate's stanzas of a poem called the "London Lyckpenny"—

Then unto London I dyde me hye,
Of all the land it bearyeth the pryse;
"Gode pescode," one began to cry,
"Strawberry rype, and cherrys in the ryse."

The common wood strawberry (*Fragaria vesca*) is, in the opinion of some, one of the parents of the now numerous race. An interfusion of blood of the alpine variety, of the Cbill and Hautbois of Bohemia, together with the "old scarlet" of North America, and their combined progeny has almost set at defiance the classification given, we think, by Mr. Keen, of Isleworth, in the "Horticultural Transactions," and generally adopted at the time. The division was "scarlet, black, pine, hautbois, green, alpine, and wood." That same Mr. Keen was the raiser of many admirable varieties, which took and maintained a leading position up to almost the present day. His "Keer's Seedling" is probably more grown now than any other, and is looked to as a good palatable free-bearing sort, which serves the double purpose of dessert and preserving. We owe, probably, more, however, to the pine strawberry of Louisiana and Virginia than to any other for that briskness of aroma, which, withal, is so delightful and stimulating, and without which no fruit is held in high estimation.

In classifying a list now, we would look more to the prolonging of the season, the quality and size of berry, to the habit and hardness of the plant, to its flowering properties, and how they would be affected by sudden vicissitudes, than to the mere colour of the berry. In endeavouring to cater towards that end cross-breeders have sunk that little bit of technical colour distinction, and if black and red and white get mixed together by natural interfusion, like so many colours on the palette of an artist, no matter. It is no advantage to an amateur grower, and very little indeed to our great gardeners, to grow a numerous family. Numbers of varieties are often tantalizing, being of little practical use to most growers, and only admissible where a thorough system of testing is organized. To test strawberries well, they should be grown on an exposed quarter of ground well trenched and manured, and not on those little narrow wall borders, which often neither present surface nor subsoil sufficient for a fair test to be taken; and yet we often hear both amateurs and gardeners, upon the faith of incomplete, partial, and therefore anything but satisfactory evidence, calling out loudly either for this or against that sort. No plant repays first-rate cultivation better than the strawberry, and if any of our readers doubt it, pray, first opportunity, ask any of the great market gardeners around London, and they will tell them of the advantage of deep tillage and good manure.

All things considered, we must still give place to two of our oldest favourites, Keen's Seedling and British Queen. The former is invaluable as a grower, a bearer, and a general fruit for the great list of those who possess cottage and villa gardens. The latter is a little more tender, requires a good climate, and, if it can be had, a better loamy soil, incorporated with grit. If that be come-at-able, it is a noble sort, having all the qualities to be desired in this kind of fruit but colour. Under the best culture it is deficient in this point, and although it now has a few rivals, such for example as John Powell and Crimson Queen, we would not displace it from its high position. In some localities this latter may be had equal in flavour to British Queen, but not generally so; it undoubtedly is its equal in size, and its superior in point of colour.

President is a noble fruit, free in form, excellent in colour, very free and hardy, and will always rank high in point of appearance. It does not

possess the flavour of Osear or Sir Harry, but it is one, notwithstanding, that ought to be generally grown. Sir Harry has been much abused, and Mr. Underhill, if he sent out a spurious variety along with it, has something to answer for. The true variety is of very hardy constitution, withstanding the cold of May better than most of its compeers, and is a good average cropper, with berries of fully average size and of very good flavour. The Lady has not been sufficiently tried, but we doubt, from our experience of it, if it is a match for Sir Harry. Marguerite is a very desirable sort—a very excellent forcer and a good free bearer; when dished looks tempting, and when tried is not disappointing to even critical palates. Sir Joseph Paxton is also first-rate, somewhat after the character of President, but not so large. Dr. Hogg is very much allied to Crimson Queen, possessing a most excellent flavour. If there be a sufficient distinction, which another year's growth will sufficiently prove, it will be one of the best of modern introductions. La Constante comes generally good, is a very late sort, and yet offers to be a good forcer. Its habit is one of the best, and might be looked upon as a model in that respect, being bushy and dwarf, yielding large, fine coloured, and finely formed fruit in abundance. In some of the colder localities the bloom was partially destroyed under the influence of a by no means auspicious spring and opening summer; but we look upon this in an ordinary season with great confidence.

As a preserving strawberry, Black Prince has been often used; but we have now a far better one in Ingram's Prince of Wales. It shows a moderately sized berry of the best colour, and possesses a fine piquant flavour. It is an object with those well up in preserving this fine fruit to keep the berries entire, and if they can be had as nearly uniform in size as possible so much the better. No preserve is more difficult to make to satisfy the eye and the palate than this, and the first-class housekeeper prides herself in these two things—preserving them to appear whole, and of a rich ruby transparent colour.—*The Farmer.*

Replies to Queries.

Diseased Vines.—I beg to enclose for your inspection a sample of my grapes in their present state, asking your advice and counsel, so as, if possible, to remedy the state of things at present existing. It may be well to state that the vines are planted on a border turfed over; they are six years old, and this is the second year of bearing; they have this year an average crop. The house in which they are fruiting is surrounded by trees, so that the sun does not get at them till the middle of the day; and there is a thorough draught through the house, but no upward ventilation. A moat surrounds the grounds at a short distance from the house. If you can possibly advise me what to do—whether to cut down the trees, or alter the draught through the house, or remove the turf from the border, for it seems a pity to lose an otherwise good crop of grapes. E. H. A.

[This is a case of shanking, and we can hold out no hopes at all that the crop can be saved, nor can much be done just now for the benefit of the vines. It is simply a marvellous thing that any one should expect ripe grapes under such circumstances as detailed above, and we print the letter, not to vex the writer (for we have suppressed the name) but as a warning to all whom it may concern. The vines are injured at the roots by the grass-turf, which screens off rain and sun; injured above by cold draughts and shade; all the elements of success are absent, therefore it is simply a marvel that they produce grapes at all. It follows, however, from the fact that there is a crop to care about, that these vines may be made healthy and fruitful with but little trouble. Two things are essential to their future well-doing—the trees must be cut down sufficiently to admit the sun freely to the house and to the border, the whole of the time it is above the horizon, and the turf must be removed from the border to give the roots the benefit of sun and air. These two improvements might suffice, but we would suggest two more. Let the border be lightly forked over to break the surface, but with care not to injure the roots, and then lay on it six inches depth of long dung in a rather green state, say half rotten. During the winter this will rot down to a kindly mulch. But four inches of quite rotten manure will do. Next check the draught through the house, and make a top ventilator, or leave all alone till the middle of May next, and then break a few squares of glass in the roof. Vines require regular and moderate ventilation; a rush of air is bad principally because it reduces the temperature, and to be quite closely shut up is equally injurious.]

Acer negundo variegata.—Having noticed lately several allusions to this shrub as a decorative object, I should like to know whether you consider it to be hardy? I have made two attempts to transplant standards obtained from a nursery in the autumn and spring, both of which proved unsuccessful; perhaps they succeed better as dwarf shrubs. Will you give me the benefit of your advice on the matter? I may observe that the soil is sandy with a sub-soil of chalk; so there is no lack of drainage. The situation open to north and west. BIRD'S EYE MAPLE.

Old Charlton.
[The variegated *Acer negundo* is hardy in the most proper acceptation of the term, yet in certain positions and climates it may be susceptible of injury by frost. In a country where hollies, pinuses, cedars, bays, laurels, and araucarias are sometimes destroyed by frost, we may expect any variegated-leaved tree to suffer occasionally. We can point to one fine standard of this variety which for seven years has stood all the assaults of hard weather, on a spot where deodaras have been twice nearly destroyed, and where last winter a fine tree of *Abies morinda*, standing within a few yards only of the acer, was killed root and branch. Have any of our readers anywhere found this tree other than hardy?]

T. R.—Chate's book on Cannas is published by E. Donnaud, 9, Rue Casette, Paris; the price 1½ fr. The subject you refer to will have attention in due time; the writer to whom you refer is not now in this country.

Messrs. Barr and Sugden.—The cucumber is a handsome white-spined variety, beautiful to look at, and the flesh finely textured. The sample sent measured exactly 25 inches, exceedingly short in the neck, quite regular in diameter throughout; a finer fruit could not be desired.

Messrs. Dillistone and Woodthorpe.—The herbaceous *Lobelia* is a noble spike of brilliant scarlet-crimson flowers; the petals wider than the average of the best varieties in cultivation. The stem is a deep purple colour, and the leaves a bronzy tone of dark green. Decidedly an acquisition, and well adapted to revive a taste for this easily-grown and effective race of garden flowers.

C. W.—What they say about the authority you quote may serve for the moment some trade purpose, but it raises the question about amateur *versus* practical; and it may happen sometimes that the first is the best practical of the two. We should like to communicate with you on this subject privately, and with a view to gratify your desire. If the proposal suits you, send your name and address. The general question shall have attention soon.

Propagating Variegated Arabis.—Short and Sweet.—Now is the best time in the whole year to propagate all kinds of dwarf tufted herbaceous plants that may be parted at the roots, such as arabis, polyanthus, primroses, &c. Take them up, divide into as many pieces or tufts as can be conveniently done, with a bit of root to each, and plant again. On all comparatively dry soils, in nearly every part of Great Britain, the variegated arabis is quite hardy, and never need be wintered under glass at all. But in some damp soils, especially in humid valleys, it is apt to die off in winter. In such a case, the best way to increase the stock would be to take up the plant at once, divide freely, and plant the pieces pretty thick in pots or boxes, with plenty of drainage and poor sandy soil, and winter in frames, pits, or airy greenhouses, giving very little water all through the winter. Very much of this plant is propagated at nurseries in a brisk heat in spring, when the little tufts may be seen rooting and flowering at the same time, and every mit with a bit of stem and a tuft of leaves soon makes a plant in a soil consisting almost wholly of sand, and with a very small allowance of water. But the easiest method is to do it now, as the tufts will make new roots long before frosty weather occurs. Hundreds of hardy plants of the borders may be treated in the same way, and where the roots cannot be parted, cuttings will do as well.

Roses out of Health.—Rose Lover.—From the size of the leaves, we conclude that your soil is good, and that you are in a fair way to do well with roses. The sample of leaves sent is almost entirely eaten up by an insect pest, the thrip (*Thrips adonidum*), a small insect with dirty white wings and rust-coloured body. This insect attacks plants out of doors only during hot dry weather, and the best preventive against it is water in some form or other. The free use of the garden engine or a "Niagara" hand-pump as soon as dry weather sets in, with occasional liberal waterings of the roses at the roots (the more needful, possibly, as yours is a limestone soil), would probably prevent this pest making any head-way. Water is the more needful in this case, too, to wash off the black deposit which the thrip makes, and with which the leaves sent are thickly covered. Should the thrip ever again get ahead of you, in spite of the frequent wetting or the leaves by the water engine, try Scotch snuff, powdered by means of a dredger on the under sides of the leaves. This is a tedious but effectual process, as the thrip cannot feed where the snuff adheres. Equally simple and effective, and costing less time in use, is the "Aphis wash" of the City Soap Company. This has to be diluted with water, and applied either by dipping the shoots in the solution, or by means of the syringe; we prefer to dip, so far as that is possible.

CATALOGUES.

WILLIAM PAUL, WALTHAM CROSS.—*Select List of Hyacinths, Early Tulips, &c.* On the usual plan and in the lists of hyacinths comprising several important novelties.

SMITH AND SIMONS, BUCHANAN STREET, GLASGOW.—*Dutch Root List, 1867.* This contains, in addition to the usual lists of hyacinths, tulips, crocuses, &c., a capital selection of gladioli.

Correspondence.

AERIAL ROOTS ON A GERANIUM.—Perhaps the enclosed may interest some of your readers. I have a geranium (*Rose Rendatler*) which threw a side shoot from the main stem, which, apparently not getting sufficient to



live on, determined to seek for itself (what a glorious lesson for a young beginner!) in the following manner. If the above is a common occurrence, of course you will not lose any time about it, but commit it to the waste basket. J. P.

[Not at all common.]

A VEGETABLE POEM.—A poetical young gardener, somewhere in the South, while despondent from the effects of the late unseasonable weather, gets off the following mellifluous strains:—

Onion garden bed reclining,
Beets a youth his aching head;
"Cauliflowers be! weeds confront me;
Lettuce hence," he sadly said.
"Carrots out the stoutest manhood,
Peas my weary soul doth need;
Bean O! strife for me hereafter,
Else my art will go to seed."

Pronounced thus:—

On yon garden bed reclining,
Beets a youth his aching head;
"Oull I flowers, low weeds confront me;
Let us hence," he sadly said.
"Carrots out the stoutest manhood,
Pease my weary soul doth need;
Be no strife for me hereafter,
Else my heart will go to seed."

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				WEATHER NEAR LONDON, 1860.			M. temp. avg of 43 yrs. Grwth	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D			
			rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain						
1867			b. m.	h. m.	h. m.	h. m.	29.34	29.17	55	39	47.0	10	53.8	Peristeria guttata, M ... ..S. America	1807
22	S	14th Sunday after Trinity.	5 40	5 58	a. m.	2 47 p. m.	29.46	29.34	61	37	49.0	0.0	53.5	Oncidium bicolor, M ... ..Guatemala.	22
23	M	Belgian Revolution, 1830.	5 48	5 56	0 7	3 32	29.55	29.51	61	32	46.5	.05	53.4	" cri-pum, M ... ..Oregon M	23
24	T	Viscount Hardinge died, 1856.	5 49	5 51	1 19	4 12	29.95	29.89	64	45	51.5	.02	53.1	" grandiflorum, M	24
25	W	Mrs. Hemans born, 1794.	5 51	5 52	2 33	4 46	29.93	29.89	64	47	55.0	.16	53.0	" leuc-chilum, M ... ..Mexico	25
26	Th	Marquis Wollseley died, 1812. [Fruits.	5 53	5 50	3 48	5 16	29.99	29.89	68	43	55.5	.04	52.8	Stanhopea oculata, M	26
27	F	Paris Universal Exposition Special Show of	5 55	5 47	5 1	5 44	29.84	29.68	71	48	59.5	.00	52.5	Zygopetalum intermedium ..Brazil	27
28	S	New Moon, 27th, at 11h. 42m. p.m.	5 56	5 45	6 17	6 11									28

The Gardener's Magazine.

SATURDAY, SEPTEMBER 21, 1867.

THE CORDON SYSTEM OF TRAINING FRUIT-TREES is at once the most artistic in appearance and the most certainly fruitful of any method known, when it is carried out in its integrity. One of its special advantages is that the trees assume any form desired by the cultivator, quite covering, by the most severe symmetry, a breadth of wall, or trellis, forming, if needful, single lines dotted with tufts of leaves and fruits when trained on wires, or presenting goblet-shaped trees in the open quarters, the form of the goblet being indicated by a series of rods beset with leaves and fruit, without a single side branch or lateral. This system is very much practised in France, where, indeed, every possible system of training fruit-trees is carried to the utmost possible perfection; and it has been much recommended of late for adoption in English gardens, the advocates of its adoption averring that the deficiencies of our home supplies of fruit may be amended by the practice of the cordon system. Many of our readers have asked for some information on the cordon system and its claims to the favour of English fruit-growers, and we gladly embrace the present opportunity of offering a few general observations, premising that very much more may be said upon the subject than we have any idea of saying now. What is a cordon? It is in this connexion a tree trained so that its branches shall bear

examples of simple cordon peach-trees, with the mode of filling up at each end, to occupy profitably the whole space of the wall. In the case of the peach, a succession of fruit-branches is kept up to replace those that have fruited by a process analogous to the long-rod system of grape-growing, but which has the advantage of greater certainty.

The question arises, Shall we encourage the cordon system in English gardens? It is not without deliberation that we answer "No." There are many things that are good in France that it is not desirable for us to imitate. Undoubtedly the cordon system is sound, and when fairly carried out satisfactory. There are miles of good walls in this country on which cordon trees might be trained with advantage. Nevertheless, we feel satisfied that this system will never become popular in this country, and, moreover, we venture to say that it is by no means desirable to press it over-earnestly upon the attention of English cultivators, for it is certain that in many instances it must lead to disappointment. There is one good reason for objecting to it here, that our autumns are not ordinarily of a sufficiently decisive character, and, as a rule, are too moist and too cold for it. A tree that has had a series of checks all the summer will be, even if pinching be discontinued at the proper time, in a soft condition, and inclined to grow when it should be inclined to rest. The system of "long-pruning," described in the GARDENER'S MAGAZINE of October 14, 1865, is far more likely to result in a plentiful production of fruit in a precarious climate than any kind of pinching; and, at all events, if we cannot make pretty sure of good

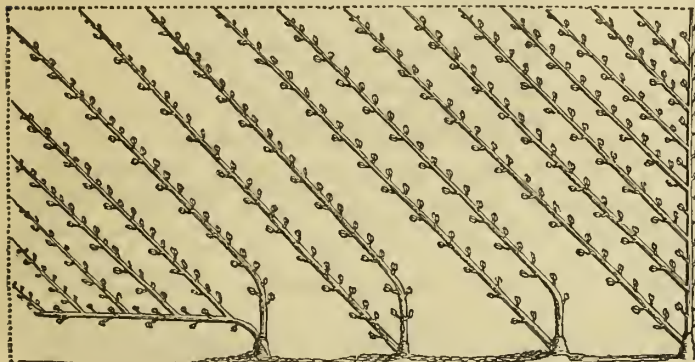


Fig. 1.

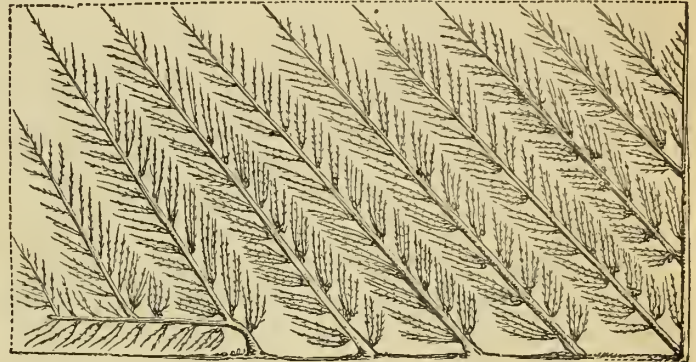


Fig. 2.

some resemblance to a knotted rope. Two things amongst many are essential to the production of a cordon—a free growth of the shoot or rod to augment its length as needful, and a constant pinching in of all side branches, so as to convert them into short fruit-spurs. The most favourite form of cordon is the one represented in the annexed figures. This is called the "oblique cordon," and is applicable to every kind of fruit that can be grown on a wall, but is most especially adapted for peaches and pears. In forming such cordons the young trees are planted about three feet apart, and are from the first inclined at an angle of 60°. They are cut down to within two or three buds of the base, and the shoots from these buds are trained as required, and encouraged to attain the utmost length. No lateral shoots are allowed; to prevent them, disbudding, green pruning, and pinching are regularly performed, and if the wood ripens well in the autumn clusters of fruit-buds are formed the whole length, or greater part of the whole length, of the rod. At the next pruning about a third of the length of every rod is cut away, and again the terminal bud is encouraged to grow freely. Thus the wall or trellis is quickly covered with fruitful wood, and every fruit is in its proper place, every leaf is developed according to system. The trees are brought so completely under the control of the cultivator, that they may be said to be, in more than an ordinary sense, of the term, the creations of his own mind. In figure 1 we have the winter aspect of a series of oblique cordon pears. A tree at each end is shown with several branches to indicate the mode of filling up the angles of walls devoted to trees of this kind. The two trees in the centre are kept to two rods each, being grafted low, and in the first instance closely cut back for the purpose. In figure 2 we have

ripening weather for the much pinched, pruned, and disbudded tree, it is preferable to allow it to grow freely in the early part of the season, with a view to affording it a long term for maturation of the season's growth. This climate is certainly not well adapted for cordon training of fruit-trees, and we advise such of our readers as may have been influenced by the articles in advocacy of the system which have lately appeared in the *Times*, to enter upon the experiment with caution, and not to invest in it to any great extent until they have acquired some experience.

But there is another reason why this system is never likely to gain favour here. There are very few Englishmen to be found who will follow with mechanical and unwearied pertinacity the tedious operations necessary to its full development. A French amateur will bestow as much time daily on one tree as would suffice an English amateur to take moderate care of fifty. We appeal to our Gallic as to our English readers, that this is the case; we have not the patience, the delicacy of manipulation, the love of minutiae of our neighbours. Here and there, in remote parts of the country, we may find a few clergymen, retired military and naval officers, and other gentlemen who live at home at ease, for whom the cordon system may have many attractions; but the thousands of busy men who turn to their gardens for recreation in the intervals of commercial hurry and anxiety, would soon be sickened by the exigent demands of cordon trees, if they once began their cultivation, and our advice to all such is, Do not begin; leave our brave allies to the enjoyment of such fancy work, and be assured that though they succeed in it, nine-tenths of all English practitioners would fail.

We are glad to see that, in the midst of much that was un-

intelligible in the *Times* discussion, Mr. J. R. Scott, who knows as much about practical fruit-growing as any other amateur in the country, has directed attention to the superior claims of dwarf pyramid and bush fruit-trees for English gardens, a subject on which we have expressed ourselves so freely and frequently that we have nothing more now to say than to express our belief that grafting low down, and as near to the roots as possible, and subsequent periodical lifting and careful root-pruning will promote early fruitfulness with free stocks, and that therefore there is not so much need for the quince, the doucin, and the mahaleb stocks, as many have been led to believe by a superfluity of persuasions. Whatever tends to promote an increased production of wholesome fruits in English gardens is to be accepted with gladness by wise men, and a discussion about first principles now and then may be good. But what we have heard respecting the cordon system lately has inclined us the more strongly to reject it, except under such peculiar circumstances as we have suggested as favourable for its adoption and final success.

THE minor daily papers are imitating the leading journal in getting up discussions on rural affairs. The *Daily Telegraph* reveals to us the fact that the walnut-tree produces valuable timber, and occasionally large supplies of marketable fruit, and suggests the planting of orchard-trees in hedge-rows everywhere. It would be very nice, no doubt, to inhale the perfume which would fill a country lane for hours after a wain had passed and brushed against the leaves of the walnut-trees, and agreeable to reflect upon the price of the ripe nuts coming down from its present average of a shilling to a penny for ten. But would there not be considerable risk of the village boys forsaking blackberries to climb for walnuts, and the occasional and accidental tearing down of branches for the fruit? The fact is, any better fruit than crabs and blackberries in English hedge-rows would do incalculable mischief, and whoever knows anything at all of the country would deplore seeing fruit-trees of any value planted there at present.

WORKING MEN'S FLOWER SHOW, STRATFORD.

The exhibition held by the working men of Stratford last year having proved eminently successful, the committee of the Working Men's Hall determined to venture on another, with a view of stirring up the floral enthusiasm of the working men of the district, and at the same time possibly realizing some profit by the undertaking for the benefit of the building fund. The exhibition took place at the hall on Wednesday and Thursday, the 11th and 12th inst. Plants were contributed scantily, but there was an abundance of fruits and cut flowers. Strange to say, dahlias were scarce. Some good groups of plants were put up by Mr. J. Harbott, of Chapel Street. Another and very fine group of plants was supplied by Messrs. Bunney, nurserymen, of Stratford. In this group we noticed fine examples of *Adiantum euneatum*, *A. trapeziforme*, *Cycas revoluta*, several *Caladiums*, a collection of *Amaryllis* in bloom, several *Yuccas*, &c., &c. The first prize for a collection of plants in the competitive classes was awarded to T. F. Buxton, Esq. (gardener, Mr. Marsden). In this group there were beautiful specimens of *Begonias*, *Ferns*, *Dracenas*, and other effective subjects. Second, J. Evans, Esq. (gardener, Mr. Edwards). In this collection some fine plants of *Haresfoot fern*, *Davallia canariensis*, growing on blocks of mulberry-tree wood. First for plants in bloom, Mr. Shipman, of West Ham. No second prize awarded. Third, Mr. Shippert, of West Ham. Twelve *verbenas*, first, S. Seadbrook, Esq. (gardener, Mr. Pool). From the same the best French and German *Asters*. Mr. Shipman presented a pretty group of *pompon Dahlias*. Mr. D. Western and Mr. J. Harbott contributed the best miscellaneous plants. Good *Fuchsias* from Mr. Wheeler, florist, Mr. T. Norton, and S. Seadbrook, Esq. An interesting novelty was contributed by Mr. Edwards, gardener to J. Evans, Esq.; this was a union *fuchsia* with a straight stem, on which were grafted three different varieties, namely, *Queen Elizabeth*, *Sir Colin Campbell*, and *Princess of Prussia*, the grafts being about a foot apart. The whole plant was well in flower, and was highly commended as a novelty.

Fruits were plentiful, and the collections shown by amateurs were highly creditable to them. The best general collection came from Mr. Winter, nurseryman, of West Ham; second, Mr. Hicks, gardener to — Loughton, Esq.; third, Mr. Shipman. In these collections there were good peaches, pears, apples, &c. Grapes and gourds were admirably shown by J. Evans, Esq., S. Seadbrook, Esq., and — Wagner, Esq. Mr. Evans contributed two brace of Stratford Hero cucumber; they were large and coarse.

TOWER HAMLETS FLORICULTURAL SOCIETY.

The autumn exhibition of this society was held at the "Royal Victor," Old Ford Road, on the 9th and 10th ult. Dahlias and *asters* were abundant and fine, and many miscellaneous subjects of high character were brought forward. In the open class for cut blooms of *asters*, a silver cup was offered in addition to other prizes. The cup was won by Mr. J. Fenn; second, Mr. Capps; third, Mr. F. Smith; fourth, Mr. Dracey. In the class for 12 cut blooms of *asters* there was a capital display; the names of the winners and the order in which they were placed were as follows: Messrs. J. Fenn, Capps, Cousins, Viles, Bangs, R. Fisher, Ball. In the class for 12 dahlias, first, Mr. J. Fenn, with *Lord Derby*, *Scarlet Gem*, *Miss Roberts*, and others; second, Mr. Walker, sen., with a very fine lot for a second place; third, Mr. T. Walker; fourth, Mr. W. Walker, jun.; fifth, Mr. Viles; sixth, Mr. Treadall; seventh, Mr. R. Fisher; eighth, Mr. Cormick. In the class for 6 the flowers were more uniformly good than in the foregoing; the successful exhibitors were Messrs. J. Fenn, R. Fisher, Walker, jun., T. Walker, Ball, Cormick.

Collections of plants were contributed by several persons. Mr. Capps took a first place for a collection of 100, comprising examples of *cactus*, *aloes*, *yuccas*, *sedums*, &c.; second, Mr. Viles; third, Mr. Warren; fourth, Mr. W. Hall. A fine collection, not for competition, was presented by Mr. Baynter. Mr. Capps took first place again in the class for three miscellaneous; in this group were beautiful examples of *Aloe frutescens* and

Opuntia leucotriche; second, Mr. Spillman; third, Mr. Viles; fourth, Mr. J. Fenn. The best *fuchsias* of any age came from Mr. Spillman; second, Mr. Ball. Spring-struck *fuchsias* were best shown by Mr. J. Fenn and Mr. Viles. These were all admirably bloomed. There was a spirited competition in designs for gardens, and Mr. J. Hall carried off the silver cup for a very tasteful work, comprising a geometric garden and fountain very neatly finished; second, Mr. Spillman; third, Mr. T. Walker; fourth, Mr. Ball. A splendid lot of fine foliaged plants were kindly supplied by Mr. Prestoe, of Victoria Park, which added greatly to the attractions of the exhibition.

A generous and laudable step was taken by the committee to render the exhibition a means of enjoyment to a class of persons not overmuch blessed with recreations. All the aged men and women of Bethnal Green work-house were admitted free of charge, and each was presented with a bunch of flowers and a penny. The men were admitted on Monday, the women on Tuesday; the total number being 298.

MESSRS. LANE AND SON'S NURSERIES, BERKHAMSTEAD.

When we speak of Messrs. Lane and Son's "nurseries," we use the plural number with some degree of propriety, for the operations at Berkhamstead extend over several large tracts of land, and things elsewhere grown by hundreds are here to be found in thousands, and the whole scheme of operations is of princely dimensions. Should the term "princely" appear improper, we may call to mind that "merchant princes" are recognized as such, and there can be no reason therefore why we should not speak of nurserymen princes, and, as a corollary, of "princely" nurseries. The ride of twenty miles to Berkhamstead by the North-Western Railway is about as pretty a trip as one can make for a small change out of dusty London, and the scenery of Hertfordshire is always pretty; there are few great levels, the chalk constitutes the basis of a considerable portion of the country, and wherever we find chalk we have healthful breezes, and if there is any depth of loam upon it, the country is sure to be rich and green. Indeed, we expected something of a treat in another way, but was disappointed, for we remembered at starting that the poet Cowper was born in the parsonage-house at Berkhamstead, and that it is the subject of an allusion in his exquisite lines, "On the receipt of my mother's picture":—

'Tis now become a history little known,
That once we call'd the pastoral house our own.
Short-lived possession! but the record fair,
That memory keeps of all thy kindness there,
Still outlives many a storm, that has effaced
A thousand other themes less deeply traced.
Thy nightly visits to my chamber made,
That thou might'st know me safe and warmly laid;
Thy morning hounties ere I left my home,
The hyscut, or confectionary plum;
The fragrant waters on my cheeks bestowed
By thine own hand, till fresh they shone and glowed:
All this, and more endearing still than all,
Thy constant flow of love, that knew no fall,
Ne'er roughened by those cataracts and breaks
That humour interposed too often makes;
Adds joy to duty, makes me glad to pay
Such honours to thee as my numbers may;
Perhaps a frail memorial, but sincere,
Not scorned in heaven, though little noticed here.

I thought to see the house, perhaps to enter it, perhaps to touch the walls of the chamber in which the weakly child, born alike to misery and to fame, had experienced the tenderness of parental care that never passed from his memory, and which it was his consolation in after life to make the theme of one of the most tender, truthful, and touching of domestic poems in the English language. But, no, "time rolls his ceaseless course," and the noblest landmarks and the most sacred shrines are swept away in a torrent that commingles old and new, good and bad, and hurries all, except truth and virtue and the memory of good deeds, into the ocean of forgetfulness. The pastoral house has been rebuilt, not a scrap of the original edifice remains; nothing that can truly speak of Cowper remains on the spot, except the old well which is romantically clad with ivy, and appears a fitting memorial of the poet in its loneliness and simplicity, and a reminder that from the well of truth he dipped for treasures and drew them forth plentifully for the blessing of mankind. Talking of this matter with Mr. Lane, he told me with a touch of humour that the vicar who rebuilt the house wished to move the well, in order to have it nearer to the domestic offices, but found the task impracticable. But Berkhamstead is just the sort of place for the introduction of a poet to the world. Few such have been born in great cities. The beautiful hills and woods around are visible from almost every window in the place. The town itself is clean, prosperous, quiet, and in no respect deficient of public spirit. There is good cheer of every kind and mighty strong ale at the King's Arms, and for those who love *al fresco* delicacies, the fried sausages sold in the market on Saturday night, and to regale on which the farming men come into the town in companies, may be worth consideration. The only reason I abstained from tasting them, when I had a look round with Mr. Lane, was that they were too much like old curl-papers, and I have seen old curl-papers that with a little simmering in hair-oil would possibly turn out as nice-looking. As for other matters, the church is a most respectable structure with a heavy Norman tower, and in the town there are some old houses of very quaint character, dating from somewhere about the time of the Conquest, and which, except for their picturesqueness, would as well be obliterated by the conquest of modern improvements. And talking of improvements, there is a tremendously tall house here, a house that may be seen from all the hills around, and is more conspicuous, though far less agreeable to look at, than the church itself. It is a flat-faced, fanciful, red brick affair, a rectangular Tower of Babel, built by a thriving pork butcher who aspires to be nearer heaven than anybody else in the place, and so has capped his edifice with a miniature parade enclosed in fanciful railings, from whence he may behold the stars and antedate the time when he shall wing his flight through the midst of them. So much for Berkhamstead for the present; if I should live to write its history, I shall begin by saying, "This is a pleasant little town in Hertfordshire, wherein the stranger may find much to amuse him during a short stay, and be alike pleased with the civility and intelligence of the inhabitants and the capabilities of the best hotel to make him thoroughly comfortable."

Messrs. Lane and Son's home nursery may be reached in about five minutes by a slow pedestrian from the railway station. It is not of great extent, yet equal in that respect to any of the largest of the nurseries nearest to London, and it is interesting to a visitor of the horticultural stamp because here are all the glass houses and all the choice plants. After traversing a few quarters of variegated yews, *Wellingtonias*, *Thuas*, and

other useful trees, I made my way to the range of vineries, and learnt something of the secret of the great fame Messrs. Lane have acquired and long enjoyed as amongst the most successful grapo-growers in the world. These vineries extend across one end of the home nursery on a very gentle slope; they are all spacious span-roofed houses, in great part filled with young pot vines ready for planting out and immediate fruiting. There must be thousands of fine canes of all the best sorts known; not a spot to be seen on a leaf anywhere, the houses all kept as cool as possible with abundant ventilation, and great care taken to allow abundance of light for the finishing of wood. I shall not weary the reader with detailed descriptions of all the houses or all the plants I saw; but just come with me into the principal fruiting vinery, which is one of the many houses that constitute this range. The house is 126 feet in length, 24 feet wide, and 13 feet from the sill to the ridge. The vines are all planted in an outside border on one side only, and are trained up to the ridge and then down again to the other side. There are twenty-four vines in all, and the bunches hanging (many had been already cut) on the day of which I made note thereof numbered 996. The Black Hamburgh is the leading variety, but there are a few others, such as Black Prince, Lady Downes, Bowwood Muscat (which ripens with Hamburgs here), Muscat Hamburgh, and Trebbiano. The vines are all trained on the single-rod and close-spurring system, save one, and that is a Black Hamburgh, which carries a rod of its own and a rod each of Bowwood Muscat and Muscat Hamburgh. In this particular case of "extension," the one set of roots supports twenty-one bunches of Bowwood and eleven of Muscat Hamburgh, besides twenty of its own Black Hamburghs, a total weight of about 100 lbs. of grapes on three rods, and these trained as close as will allow without overlapping of the leaves. All through the house the grapes are fine, and there are many huge exhibition bunches of five or six or more pounds each; the Muscats are full ripe and splendidly finished; the bunches of Black Prince are remarkable for their colour and bloom, and the perspective is as charming as can be imagined of such an arcade of great green leaves and hanging grapes. It is worthy of remark that though Muscats ripen here perfectly, the amount of firing used is only just sufficient to give a little extra help to the vines in May; thereforeward King Sol is the stoker, and the necessary heat is obtained free of cost. Nor is the border unworthy of notice. It is rather narrow, and only so much raised above the level as results from the occasional mulching of the surface, but of course the roots go beyond it into the adjoining nursery quarters. Moreover, close beside the doorway of one of the houses in this range is a tank for dipping, and that shows the state of the substratum, proving that at five feet from the surface there is water.

It is from this house, as a rule, that Messrs. Lane cut all their exhibition bunches, and it is from this house, too, those huge pot vines are brought for the embellishment of exhibitions with the best pot vines ever shown. I saw the group of pot vines being prepared for the last Crystal Palace exhibition; there was a Buckland Sweetwater with wood as thick as any man's thumb, with abundance of fresh leaves and with twenty-one large bunches of ripe fruit; the other vines in this group were a Foster's Seedling covered with beautiful bunches, a magnificent Alicante with berries and bunches large enough to cut for show, and a pair of Black Hamburghs with twenty-one and twenty-three bunches each. When these had been cleaned up and were stowed in the van for transit to Sydenham, there remained many more such in the house, and a very large stock indeed of vines grown and trained in the same barrel style, all in fit condition for fruiting next year. I was told that of the many thousands of pot vines of all kinds and sizes I saw, very few would be left at the end of the season, and that a great many half specimen pot vines were sold, such as required only one season's good management in the hands of the purchaser to render them fit for exhibition. The pot vines are all plunged in sawdust, and there is just a plank laid down for a causeway through them. I had a lot of the pots turned over out of the holes, and looked at the bottoms of the pots of the vines that were packed for the Crystal Palace. Not one had been allowed to root through; the crock lay clean and close over the centre hole, they were as *bona fide* at the foundation as they were splendid in the superstructure; nothing in all England to surpass them. By the way, it would be good fun to see Mr. Meredith and Messrs. Lane show pot vines in the same class somewhere; let us hope for it.

From the vineries I went over to the pits, on the opposite side of the road, to see the pot roses. Here I found several thousands of roses of all sizes and all sorts, from little bits just filling small pots with roots to half specimens ready for forcing, or for any purpose to which pot roses from two to five feet high and of breadth in proportion can be adapted. All their own exhibition roses were grouped together out of doors, and had nearly shaken off their leaves, so as to present a rather unattractive spectacle of bare sticks; but it was agreeable to notice that they had made a good growth this season in spite of much travel and many hardships. Good news for lovers of roses and a great blow to those jackasses in the trade who tell my readers that "own roots" are impossible. Save and except when making standards, for which of course briars are used, Messrs. Lane have given up all the various stocks that have been competing for favour lately, and they have now ready for sale some *ten thousand roses on their own roots*, all in the most healthy condition, and they can be selected for any purpose, some being large and well hardened bushes fit for planting out this autumn, others neat little pot plants well adapted for shifting on to flower as miniature bushes in the greenhouse early in the spring. I have just heard that Messrs. Paul and Son, of Cheshunt, have ten thousand own-root roses to offer this season. So my doctrine will prevail at last, and those miserable pretenders who think because they are in the trade that they are "practical" men, and upon the strength of that "shibboleth" have taken pains to traduce me for my long and constant advocacy of own roots,—those miserable pretenders will go to the wall, and meet the fate they deserve for attempting to stop the march of science by putting their little shops in the way. If the opposition to my doctrine had continued much longer, I would myself have raised a million own-root roses, and have offered them to a few of the principal houses, in refutation of the detractors whose ignorance has made them vicious. But I am relieved of that task by the spirit of the two largest rose-growers in the country, and now all England may put the matter to the test of experiment.

The day following my exploration of the home nursery, Mr. Lane drove me to the nursery on the common, where Mr. Henry Lane is the resident manager. This is the most beautiful of the three nurseries belonging to the firm, as it is devoted to the growth of the choicest conifers, and all the great specimen trees are here. Rarely have I seen such a display of Araucarias; they were quite a reminder of Bicton. Besides these, there are immense stocks of *Picea nobilis* and *P. Nordmanniana*, Wellingtonias, yews, and many other subjects. Moreover, there are good stocks of every coniferous tree that is of the slightest use in gardens. I was particularly interested here in the rhododendrons and the kalmias, which are grown in the staple without peat, and cannot be beaten in respect of health and vigour by peat-grown plants anywhere. The loam of the common is of a soft silky texture, very deep, very

strong, decidedly dry, as it lies over a bed of gravel. The Araucarias and other robust-habited conifers make very stout wood and large deep green leaves in this soil, which proves it to be fertile, and whatever is taken out of it has an abundance of fibrous roots. I do not think it equal to the mellow hazely loam we obtain from Wanstead, but neither is it desirable for nursery purposes that the soil should be so rich as is commonly found in gardens. Trees transferred to a good soil from a comparatively poor one make a more satisfactory progress than trees taken from a rich to a poor soil; and therefore the most fertile spot should never be selected for a nursery, though it is to the interest of the nurseryman to obtain as rapid a growth as possible of whatever he commits to the ground. Wherever a pulverulent stony or sandy loam is met with—a loam that may be crushed between the fingers when damp without soiling them, or, at the most, leaving only a slight tawny stain—American shrubs may undoubtedly be grown without the aid of peat; but on the sticky black soils, or the adhesive brown loams and clays found in many of the best gardens, these plants will not last long. The only safe way to deal with them is to excavate and remove the soil to a depth of two feet at least, and in its place lay down good peat or silky loam, or a mixture of top-slicings of turf from a common with sharp siliceous grit, such as the drift from a gravel road.

My next day's rustication comprised a visit to Wiggington. Here is another great nursery, the management of which is chiefly in the hands of Mr. Frederick Lane. Here the soil is decidedly poor and of a gravelly texture, but the trees are remarkably healthy, and many kinds of conifers do well here, particularly Jnnipers, of which there is a vast collection of all the best kinds known. This ground also suits hollies well, and there are thousands of all sorts and sizes. In the hedge-rows round about Wiggington are very many hollies of great size, many of them twenty feet high and as much through; they are huge bushes of a lustrous deep green colour, and the leaves are prickly and smooth in patches all over them, so that twigs bearing smooth leaves only and twigs bearing prickly leaves only can be cut from almost any part of them. But in some places prickly and smooth leaves grow on the same twigs, and the grades of transition from one form to the other can be traced minutely. There are 57,000 fruit-trees here fit for sale, and they are trained and pruned in every conceivable manner. As to conscientious modes of doing things, I learnt here that it may be carried a trifle too far. On going through a great quarter of pyramid pears, I found the walks obstructed by great heaps of dead trees, and was told that these were thrown out because they could not be formed into symmetrical pyramids; many a poor man would be glad of such trees at a few shillings each, and I saw as many lying about as would fetch twenty pounds if sold extra cheap, because they had refused to make a few shoots exactly where required for perfect pyramids. However, I did not go there to play the censor, but to pick up a few matters of interest and usefulness for our readers, so I will direct attention to a few more agreeable subjects.

The Lanes are stubborn advocates of free stocks for all kinds of fruit-trees. They abhor the paradise stock for apples, the quince stock for pears, and the mahaleb stock for cherries. They say that starving stocks promote early fruitfulness at the expense of health and longevity; and being desirous that trees purchased of them shall be ever a credit to them, they proceed to lay a good foundation in every tree they grow for sale, and are content to lose the applause which may be secured by selling dwarfed trees precociously fruitful. Another point in the practice here that deserves remark is that whatever can be grown on own roots is so grown; in other words, grafting is resorted to only when it is found to be the best mode. Thus the new Japanese shrubs, which elsewhere are in almost every case grafted, are here grown largely on their own roots; a most decided advantage to the ultimate possessors of them. I shall now make note of a few special subjects that are likely to interest our readers.

CONIFERS IN CRATES.—A number of the best specimen Wellingtonias and other large trees are grown in crates, to facilitate lifting them with good balls of earth, so that when transplanted they shall produce an effect at once, without the risk of their being brown and bare for two or three seasons. These crates are made of rough rods braced round with galvanized wire; the trees root within and beyond them, so that there is none of the cramping that results from pot culture, and when they are taken up the whole ball and roots within the crate are preserved intact, and in the subsequent planting all that is necessary is to lower the tree into its place, and then, after loosening the wires, the wooden bars of the cage or crate can be removed, and the earth filled in to the ball.

CRYPTOMERIA ELEGANS is one of the most elegant trees in the nursery, but at present scarce and costly. The growth is naturally pyramidal, and in the style of a dense glaucous juniper. The tree is covered all over with blotches of dull red where the points of the young growth are; by this sign, irrespective of others, it becomes a very distinctive feature in a plantation.

CRYPTOMERIA LOBBII.—This is a pretty plume-like tree of a fine glaucous hue, worth a place anywhere in a garden. *C. Japonica* is scarcely grown here; it is almost universally a failure.

KOELREUTERIA PANICULATA.—A beautiful example of this handsome garden tree growing on a wall at the home nursery. It was richly adorned with racemes of yellow flowers two or more feet in length. Pity it is not better known, for it is one of the most elegant trees both in leafage and flowers, ever introduced to our gardens. For good figures of it see *Gardener's Magazine*, 1865, pp. 348, 349.

CASTANEA CHRYSOPHYLLA.—This is a charming miniature species of chestnut, with glossy myrtle-like leaves and small fruit that resemble the galls of the cymips found at this time of year on the wild-rose trees. It is of close twiggy habit; a very desirable tree for choice collections.

CUPRESSUS LAWSONIANA COMPACTA.—A very compact freely branching variety, of which many thousands are grown; it is no doubt the best form of this fine tree for general planting, and especially for lawns and shrubberies.

LIGUSTRUM CORIACEUM.—This will be one of the grandest of all the privet tribe, and a fine companion to the dark twisted-leaved holly. Large quantities are being raised on their own roots; hitherto, with this exception, I have always seen it grafted on the common privet.

CEPHALOTAXUS DRUPACEA.—This is here called *Taxus coriacea*; it is a very peculiar habit of very rigid upright growth, and dark solemn tint of green. The leaves are stiff, leathery, and slightly curled, and average an inch and a half in length. One of the finest trees possible for the terrace or geometric garden.

DUPLEX YEW.—They play some strange freaks here in grafting various kinds of yews upon each other. There is a large quarter of duplex yews of the most comical kind at the nursery on the common. They are Irish yews of about 6 feet in height; on the top of each a tuft of the golden Irish or the bright-coloured elegantissima is grafted; the result is a tall dark column surmounted with a golden brush. They dimly remind one of the monument

on Fish-Street Hill, the summit of which is crowned with a great golden flame, to commemorate the outbreak upon that spot of the Fire of London. These might indeed, for the sake of distinction, be called "monument yews;" and as they are so distinctive and curious, they would be well adapted to plant for commemorative purposes, for in private gardens the Wellingtonia is scarcely the proper tree for the purpose, because of the likelihood of its soon attaining to dimensions which might render its removal or destruction desirable. I have seen several mistakes of this sort,—the selection of a tree for a particular spot for which it must inevitably become in time as disproportionate as a giant in a doll's house. Another kind of union or duplex yew is made by grafting adpressa upon five or six feet standards of Irish yews and keeping the stems clothed with short twigs, like a green felt, while the head spreads out in the form of a huge table.

STANDARD PORTUGAL LAURELS.—A number of these on stems six feet high have been in training five-and-twenty years, and for a grand terrace garden are now in perfection.

RETINOSPORAS are plentiful of course, and they have all the species and varieties that have been introduced. They are all hardy at Berkhamstead. One of the most beautiful of them all is *R. pisifera aurea*, which is richly coloured and extremely elegant in proportions.

A BEDDING ROSE.—In passing through the rose quarters I was struck with the brilliant appearance of a mass of a well-known China rose, *Belle de Florence*, which was smothered with flowers of the liveliest cherry-pink colour. This is the best companion in the bedding way I have seen for Cramoisis supérieure, and equal to it in its profusion of flowers. Fifty of each in a pair of beds would be very acceptable for bold masses of colour.

PICEA NOBILIS GLAUCA.—This variety of one of the grandest of all known coniferous trees is intensely glaucous and lustrous, appearing as if silvered and burnished. It grows as freely as the type, and has a most striking appearance amongst the darker tones of colour of other hardy trees, and especially so if grouped with other conifers. A finer tree for a spacious lawn cannot be; every lover of the tribe should secure it.

CALLUNA VULGARIS FLORE PLENO.—A great bed of the double-flowering ling has a most delightful appearance at this season. It is a most beautiful shrub, producing long spikes of very double rosy pink flowers, exceedingly rich as compared with its single-flowering parent of the wastes. This ling and all the hardy ericas grow freely in the yellow loam of the common, and have a charming appearance, even when not in flower. This is the last note I can afford space for, and I close my book regretfully; for, next to seeing places, one of the most agreeable pastimes is to write about them.

S. H.

THE VON THORIGKEIT PALM.

A STORY OF ADVENTURES AND DISCOVERIES.

The town of Weisstadt, in Germany, is full of philosophers, mathematicians, and *savants* of all kinds. On entering the place the traveller is at once struck by the physiognomies of the inhabitants: all the faces are more or less like geometrical figures.

Herr Dummkopf, one of the innumerable professors who adorn Weisstadt, was rich though learned; and, nevertheless, something was wanting to complete his happiness. Every morning when he rose he addressed to himself the following remark: "Why did the traveller Bruce never discover the peninsula of Meroc, which Herodotus saw as plainly as he saw the moon?" This thought at last absorbed him so completely, that he could not refrain from packing up his shirt and starting at once for Egypt. He passed through France, crossed the Mediterranean without observing anything, so thoroughly occupied was he with the non-discovery of the supposed peninsula. After remaining a few hours at Cairo, he pursued his journey to the ruins of Carnæ. He bestowed a careless glance on the Colossus of Memnon, the crypta of Osimandias, the obelisk of Luxor, and all the wonders of Egyptian Thebes; and as he continued to ascend the Nile he saw Latopolis, Elethyd, Apollinopolis, and Syene. The ruins of these ancient towns were not honoured by a single mark of admiration; it was humiliating for the Egypt of Sesostris!

One day the sun was so hot at noon—a very natural thing in the torrid zone—that the learned Dummkopf allowed himself to be seduced by the cool aspect of the Nile, and determined to make an era in his scientific life by taking a bath in the sacred stream.

He looked around him. The desert was indeed worthy of its name. There was not even a statue of Isis, of Ibis, of Anubis, or of Serapis to be seen. The Nile flowed on in religious silence, and Dummkopf, reassured by the solitude which reigned around, hastened to take off his boots and clothes, and after arranging them carefully on the bank, plunged into the eternal river.

Dummkopf was grateful to mother Nature for having placed a cool refreshing stream by the side of the burning desert. As a boy he had been in the habit of swimming in the Rhine of his fatherland, and now, remembering the accomplishments of his youth, he struck out, turned over, floated on his back, dived, paddled like a dog, plunged like a porpoise, and again thanked mother Nature for having in her bountiful wisdom placed a cool refreshing stream by the side of a burning desert. He was continuing to disport himself like a fresh-water Triton, when suddenly, close to him, and in the middle of the Nile, he saw a huge green snout, adorned with lion's teeth, and lighted up with a pair of blood-red eyes.

Dummkopf instantly remembered that the Nile was fertile in crocodiles, and began to chide his memory for not having thought of that fact before.

In the meanwhile the monster was bearing down on the imprudent bather, who, though thin, by reason of excessive study, was at the same time a very acceptable meal for a hungry crocodile.

For it was indeed a crocodile, and of the finest kind—a colossal and amphibious lizard, more ferocious than the tiger of Bengal or the lion of the Atlas.

Dummkopf made straight for a little island—the terror of navigators and the salvation of swimmers. He had almost reached his place of refuge, with the crocodile so close on his heels that he could feel its warm breath on the soles of his feet, when he remembered that the monster was amphibious. Another man would have been paralyzed by this reflection. Not so Dummkopf. He looked before him, and seeing a friendly palm-tree within reach—it was the solitary ornament of the little islet—he ran to it, took a spring, and climbed up its branches with the agility of a squirrel.

Having perched himself in safety near the summit, the learned professor looked down upon the Nile. The crocodile was issuing slowly from the water, shaking, as he did so, his coat of glittering scale-armour. He

then walked along the sand like a fish that had suddenly become a quadruped, and gradually approached the foot of the palm-tree.

Dummkopf ransacked his memory for all he had ever read about crocodiles, with the view of ascertaining whether Pliny or any other natural historian of celebrity had ever stated that they were able to climb up palm-trees.

It appeared to him that both Pliny and Saavers had testified to the climbing capabilities of the crocodile.

"Oh, Philosophy," he mentally exclaimed, "grant that my brethren, who make mistakes in every page, may also have erred on this point!"

Suddenly he remembered with a shudder that he himself had written an article in the *Weisstadt Review*, in which he maintained that crocodiles were in the habit of climbing up trees like cats. He wished now that he had thrown the article into the fire; but it was too late. All Weisstadt had read it. It had even been translated into Arabian, and no author had yet contradicted it, although it had penetrated to Crocodilopolis itself.

The amphibious monster approached the palm-tree, looked up, and evinced the most lively joy at discovering Dummkopf among the branches. It walked round and round, looked up again, and then, recognizing the impossibility of taking the stronghold by assault, sat down, as if determined to reduce it by blockade.

Here we must render homage to true science. Dummkopf, in spite of the pre-occupation of the moment, was filled with regret when he found that, contrary to what he had stated in the *Weisstadt Review*, crocodiles did not climb trees. He saw that he had committed a gross error in Natural History, but he at the same time made up his mind never to correct it, if, by a miracle, he escaped from his present perilous position. He had made the statement with a full conviction of its truth, and it added one more fact to Natural History. Crocodiles climbed up palm-trees. It was impossible to deny it now, even after sitting on a palm-tree up which a crocodile had been unable to climb. The conclusions of science must not rashly be interfered with.

In the meanwhile, the crocodile lay stretched out at the foot of the palm-tree, in calm anticipation of Dummkopf's inevitable descent. From time to time the animal testified, by the wagging of its tail, to the pleasure it experienced in looking forward to that incident.

The naturalist, to do him justice, did not lose the opportunity of studying the habits and manners of the Egyptian crocodile; but having viewed the animal in a scientific spirit, he again trembled for his life, for it was now evident that the blockade was to be kept up in earnest.

Hours of suspense and of imprisonment consist of 240 minutes each, but they come to an end at last. Time sometimes goes on cruiches, but it proceeds nevertheless. The sun went down as on the previous evening, and after a very short period of dusk the last rays of departing daylight exhibited the crocodile lying at the foot of the palm-tree, placid and horizontal.

The Professor now searched in the store-house of his memory for some instance of a man who had passed the night on the top of a palm-tree. After going through the whole of ancient and modern history, he commenced the department of travels, and suddenly bethought him of "Robinson Crusoe," which, though not usually accepted as a book of travels, is far more truthful than the great majority of works of that class. Now, Robinson Crusoe passed the first night after his shipwreck in a tree, and this tree was in all probability a palm-tree. "Why, then," said Herr Dummkopf, "should I not do the same?"

And, still fortifying himself with the example of Robinson Crusoe, the Professor drew some of the smaller branches around him, and composed himself to sleep.

But the night was long, and Dummkopf slept but little. He dreamed that he was at Weisstadt, delivering a lecture which proved that the crocodile was a fabulous animal like the sphinx, when suddenly a shower of crocodile's tears fell on his face. He awoke with a start, and was very near falling down on to the tail of his besieger.

The crocodile was now, in all probability, fast asleep, and Dummkopf resolved to play him a trick. "If," said the Professor, "I could slip down the tree, and swim across the Nile without its hearing me, it would be nicely caught when it awoke in the morning and found me gone." But having reflected that he might be caught himself, he abandoned this desperate project, and merely resolved not to go to sleep again that night.

When day broke, the Professor saw that the crocodile had not been idle during the night. Instead of sleeping, he had been fishing on the banks of the Nile, and the bones with which the ground was strewed showed that he had not fished in vain. The monster had now had his first course, and he looked upwards towards his intended victim as if to say that he was quite ready for the second.

The Professor had certainly a terrible future before him. The contest between the besieger and the besieged was by no means equal, for the former could find as much food as he required in the waters of the adjacent Nile, while the latter saw no prospect of obtaining the slightest nourishment, and would in all probability either die from starvation or fall fainting into the jaws of his voracious assailant.

In the meanwhile Dummkopf's stomach, a machine which in some respects is quite independent of the brain, began to murmur loudly, for it had been deprived of two meals—the supper of the previous evening and the morning's breakfast.

Among a great many other things of which the learned Professor was ignorant, he did not know that palm-trees produced dates, a rich pulpy fruit, on which the Arabs have contrived to live very well since the time of Adam, the first colonist of Arabia. However, a short time after sunrise a ray chanced to fall upon a large bunch of these valuable articles of food, which the Professor at once recognized from having seen them in the grocers' shops of his fatherland. In Germany he had been in the habit of breakfasting on beef and sausages, supported by several slices of bread, and washed down by several glasses of wine. But in the desert he was obliged to content himself with whatever manna he could get, and to be thankful, moreover, that Providence had sent him any. He ate dates by the handful, and felt much strengthened by his repast.

After breakfast a strange and superstitious idea occurred to the Professor. He had read somewhere that crocodiles were the natural avengers of all the insults offered to Egypt by barbarian travellers. It appeared to him that there was some sense in this, for if crocodiles didn't serve to avenge something or other, he was convinced they could serve no purpose at all. Then he reflected that he had passed without notice the statue of Memnon, the colossal torso who had just commenced his morning's cavatina under the influence of the sun's rays. The divine Osimandias and the Pharaohs, as represented by the sublime pyramids, had been

treated with similar disrespect; and the Professor now repented his irreverence, and vowed to kiss the big toe of Memnon, the highest tenor in the world, if he only escaped his present danger.

After this vow the illustrious Dummkopf became more tranquil. He looked down at the crocodile, but the vow had produced no effect upon him. He did not even seem to have heard it. There he was still, watching patiently for his prey.

Dummkopf was now dying for a mouthful of cold water. Dates possess the property of producing thirst. Hence they are very desirable at dessert, if the host wishes his guests to pass the bottle freely, but not otherwise. For a professor at the top of a palm-tree from which he is unable to descend, they form the most unsuitable food that can be conceived; but Herr Dummkopf had no choice—he had either to eat dates or die of inanition. He was like Tantalus: the river was flowing at his feet, but he was unable to get a drop of water wherewith to moisten his parched lips. He again compared his position with that of Robinson Crusoe, and found that all the advantage was on the side of the latter. It was true Robinson Crusoe passed a night on a tree, but he came down the next morning, killed parrots, made them into fricasseed fowl, drank rum-and-water, walked about with an umbrella over his head, met no crocodiles, and found a man Friday. "Happy Robinson Crusoe!" exclaimed Dummkopf; "and yet he complained. I should like to know what he'd have done in my place, on the top of a palm-tree."

Suddenly the sky became overcast, and the Professor was filled with a joyful anticipation of rain. He had already joined his hands so as to form as large a receptacle as possible for the drops, and was promising himself a regular aquatic orgie, when all at once he remembered that in Egypt it never rains.

The crocodile seemed to understand the sufferings of the Weisstadt Tantalus. He walked to the edge of the river and swallowed several quarts of water, at the same time casting ironical glances at the unfortunate Professor. The pleasantries of masters is always intolerable. Dummkopf was disgusted and enraged; but this only increased his thirst.

He cast his eyes along the Nile, in hopes of discovering some providential sail. But then he remembered that in that part of the river, above the rapids, there was scarcely a chance of meeting with a boat of any kind. A death-like solitude reigned around, and nothing was to be seen but dark ruins, among which an occasional ibis, motionless, like a mark of admiration, was perched.

Again the Professor turned his thoughts towards Robinson Crusoe. "Certainly," he said to himself, "if Crusoe had been in my position, at the top of a palm-tree, he would somehow or other have found means to obtain a drop of water. Come now, how would he have done it?"

Dummkopf's mouth was on fire, and there was the great Nile rolling calmly and majestically before him.

At last Necessity, who is known to be the mother of Invention, brought her ingenious child to his aid.

The Professor clapped his hands. He had discovered a hydraulic process which would enable him to appease his thirst. How little is required to give joy to poor human kind! Here is a man on a palm-tree—a dying man who cannot escape from the jaws of a crocodile—and because he has discovered a very equivocal means of obtaining a few drops of brackish water with which to moisten his parched lips, he is convulsed with delight.

Dummkopf was proud of competing with Defoe's hero, and set to work without delay. He began by breaking off from his palm-tree several long branches, which he spliced together by means of fibres. He then waited until the crocodile entered the water for a few minutes—by way of keeping up its character as an amphibious animal—and extended his apparatus towards the river. The leaves at the extremity of the machine imbibed a considerable quantity of water, and the Professor, drawing back his improvised pump, refreshed his calcined lips by means of the saturated foliage. He repeated the experiment several times, and, in fact, gave himself up to all the excesses of intemperance. This was an ingenious device, for which Tantalus would have given his eyes.

But, above all, Dummkopf was amused at the notion of mystifying his crocodile, who, as for that, richly deserved it.

Having no longer any anxiety as to the means of satisfying the two chief wants of existence—hunger and thirst—the Professor now began to think how he should manage for his clothes. His aboriginal costume was admirably suited to a tropical climate during the day, but remembering that during the night he had felt rather chilly, he resolved to make himself without delay a garment of green leaves. Besides, how was he to appear before the public without clothes, if by chance a boat should present itself?

Dummkopf accordingly gathered in his aerial aloof a certain quantity of the largest leaves he could find, and, crossing his legs like a tailor, proceeded to make them into a vegetable paletot, which could not be said to belong to the latest fashion, but which, on the other hand, had a primitive cut about it that was highly picturesque. Two leaves sufficed for the nightcap, which, original or not as its appearance may have been, at all events looked much better than the hats we wear in open day.

Here was Dummkopf now lodged, fed, and clothed at the expense of nature. Happiness is altogether relative; and, for a time, Dummkopf was happy indeed. He was proud of his inventions, and from the height of his palm-tree looked down upon Robinson Crusoe with contempt.

As he was reflecting calmly on his happiness he saw the monster, no longer horizontal, at the foot of the tree. He was making one last endeavour to take it by storm, but, failing in the attempt, had forthwith recourse to sapping and mining. He went to work with the air of a crocodile who had made up his mind, and who had said to himself, "There must be an end to this."

Dummkopf, shuddered as he heard the teeth of the monster grinding against the bark of the tree.

But the molars and incisors of the crocodile are so arranged that they can do no serious harm to the palm-tree; they can tear the bark off, but cannot pierce or crush the trunk. Dummkopf, however, was ignorant of this fact, and expected every minute that his asylum would fall to the ground, and leave him a prey to the horrid monster, into whose scaly body he would enter as into a tomb of shell, but without the smallest epitaph to inform the world of the numerous virtues he possessed.

The crocodile next attacked the tree with his tail as with a battering-ram. How the Professor quivered when the tree shook! And the worst of it was, that, independently of the most terrible result that could possibly take place, there was the certainty that the Professor would lose a large portion, if not the whole, of his provisions, unless the monster desisted from

his sanguinary assault; for with each blow from the crocodile's tail down came a bunch of dates, and when, as often happened, the fruit fell on the animal's back, his fury redoubled.

At last Dummkopf could stand it no longer. Convinced that life was not worth defending at such a cost, he resolved to throw himself from the top of the palm-tree, in order to find repose in death. Full of this desperate idea, he stood up, put aside the branches which might have kept him back at the edge of the precipice, and thrusting one foot resolutely forward, kept the other firmly in its place. An honourable thought checked him on the very brink of the abyss. Dummkopf had no family, no wife, no children, no nephews; it was his duty, then, to remain in the world as the sole representative of the Dummkopfs. Man is ingenious, even in the midst of his despair. If he has a wife and children, he wants to live for their sake; if he is alone in the world, he will live for his own benefit.

Dummkopf was very grateful to himself after coming to this heroic resolution. He even called himself a coward for having entertained for an instant the idea of offering himself up as a sacrifice to the voracity of an amphibious monster.

As he now determined not to die if he could by any means avoid it, the Professor began to consider whether it would be possible to enjoy, at the top of this palm-tree, that sort of happiness which a civilized man has a right to expect. The crocodile had expended all his force in vain. It was evident that the palm-tree was an impregnable fortress, as far as his attacks were concerned. The climate was superb. At the foot of the house—that is to say, the palm-tree—ran a magnificent river. Thanks to the hydraulic apparatus, there could never be any want of water; and as for food, there were dates in abundance. The crocodile, instead of being terrible, was now only amusing; and as it was clearly proved that the palm-tree could suffer no injury from the monster's wrath, the Professor, in his lively moments, sometimes went so far as to pelt him with date-stones.

Every morning, when the sun rose, Dummkopf bent his ear towards the desert and listened to the cavatina of Memnon, the colossal tenor. Then, after breakfast, if he was pleased with the crocodile, he threw him down a few rotten dates, and was amused to see how voraciously the monster devoured them. Between breakfast and dinner he read in the library of his memory, and studied the mysterious monuments by which he was surrounded. When a profound thought occurred to him, he took a stylus, formed out of a twig, and jotted it down on a leaf, which served as papyrus. Then he read it over several times, and put it away in a place of safety.

There were no neighbours to watch his conduct, no journals to criticise his thoughts, no tax-gatherers to trouble him about overdue rates. He was as free as the air, and only wondered why the misanthropes of society did not imitate Simon Stylites or himself, and retire for the rest of their lives to the top of some column or palm-tree.

We must now leave our anchorite in his palm-tree, and proceed to the opposite bank of the Nile, where Herr Von Thorigkeit, the celebrated botanist of Berlin, was engaged in a hopeless search after yellow lotuses. Herodotus, it is true, saw yellow lotuses, but then Herodotus possessed the peculiarity of seeing things that did not exist. At all events, since his time the yellow lotus has not been met with, and for that reason conscientious botanists are perpetually looking for it.

Herr Von Thorigkeit, then, was searching for the yellow lotus, and he was accompanied by two Arabs armed with carbines.

There are some things, ordinary enough in themselves, which have an overpowering effect on the imagination, when they are seen in the desert. What, for instance, would be the feelings of a traveller who should discover in the midst of the Sahara a neat little house, with the words "Reading room, admission one penny," over the entrance? Von Thorigkeit was behaving naturally enough when he uttered a cry of dismay which resounded along the left bank of the Nile.

He had seen two boots, one proud and erect, the other bent down as if with fatigue. Dummkopf's clothes had disappeared, carried away by the stream, or perhaps swallowed by some omnivorous crocodile, but there were the boots standing on a ledge of rock.

The legitimate dismay of the botanist will now be understood. He had seen two boots on the left bank of the Nile, one proud and erect, the other bent down as if with fatigue.

The faithful Arabs, who had never seen a pair of boots in their lives, became terrified with the terror of the botanist, and bravely fired at the Wellingtons, which fell riddled with balls.

From the top of his palm-tree the Professor heard the report, and at first felt inclined to curse the troublesome individual who had come to disturb him in his solitude and meditation. But human weakness at last gained the day, and he resolved to make signals of distress to the three men whom he now perceived on the left bank of the Nile.

He broke off a long branch of the palm-tree, stripped it of its leaves everywhere but at the end, where he left a large tuft, and waved it vigorously above his head with one hand, while with the other he threw into the Nile a quantity of dates, the only projectiles at his command.

The botanist, who was surrounded by that silence which is known to aeronauts alone, turned round at the sound of the dates falling into the water, and this time experienced a surprise which was greater even than the former one. The apparition of the boots was forgotten: he saw a palm-tree with a lofty crest, which waved to and fro in the midst of a perfectly calm atmosphere! After the first shock, this discovery caused him infinite delight, and he would have given all the yellow lotuses in the world for this phenomenon of a palm-tree.

Von Thorigkeit opened his note-book and wrote in it the following lines:—"In Upper Egypt there exists a kind of palm-tree which possesses the peculiarities of the aloe, with this difference, however, that the stem of the aloe attains an elevation of twenty feet above the level of the soil, and remains motionless, while the palm-tree of Upper Egypt agitates the top of its stem vertically and with a movement of prodigious regularity. We have named this tree the Von Thorigkeit palm."

Having written this, the botanist made a sketch of the palm-tree and showed it to the two Arabs, having no other public to exhibit it to. The children of the desert, with their lynx-like eyes, had just discovered a human form beneath the thick foliage of the island palm-tree, and they resorted to the most energetic gestures in order to make the botanist see it too. But Von Thorigkeit could think of nothing but the grandeur of his discovery, and the beauty of his drawing. He paid no attention to the gestures of the Arabs, and thought only of the sensation that would be produced in the learned world by the Von Thorigkeit palm.

The two Arabs persisted in their pantomime, which said as plainly as possible, "Look there on that little island; there is a human being there

up in the palm-tree; he is in danger; he is making signals, and we must go to his aid at once."

Von Thorigkeit pulled out a pocket telescope, shrugging his shoulders at the same time with the air of a man who makes a concession merely from politeness, and looked carelessly towards the Von Thorigkeit palm-tree. He had now his third surprise within the hour—the last completely absorbing the two others. He had seen distinctly a human face, and even a German face, surrounded by leaves; and a human hand shaking a naked branch with a tuft of foliage at the end. He replaced his telescope in his pocket with regret, read his article again, cast another glance at his drawing, and after reflecting, like Brutus, whether he should destroy his two children or let them live, decided at length upon the latter course. "Well, so much the worse," he said to himself: "what is written is written, and I shall not cut out a single word. Besides, as the aloe exists, the Von Thorigkeit palm-tree might have existed, if nature had only seen its utility; I see its utility, and I shall let it remain."

This resolution having been taken, the three men held a council. The first thing to do was to find a boat, which, after two hours' walking, they met with. It was a fishing vessel, and the botanist had only to hold out a piece of gold and to point to the river, in order to make the fisherman understand what was required of him. He then pointed down the stream, and said, in a haughty voice, as if the fisherman was likely to understand him,

"The island of the Von Thorigkeit palm-tree!"

The pantomimic direction would have sufficed.

They descended the Nile. The island of the Von Thorigkeit palm-tree was soon visible; and, as they approached it, the Arabs, with their lynx-like eyes, manifested some uneasiness, and exchanged signs of intelligence. After a quarter of an hour's rowing, doubt was no longer possible. They had really seen an enormous crocodile keeping watch beneath the palm-tree.

They imparted their discovery to the botanist, who now received his fourth surprise in the course of the day, and trembled with cold in a temperature of 100 degrees Fahrenheit. However, for the honour of his fatherland, the learned German endeavoured to conceal his alarm, which, it must be admitted, was natural enough on the part of a hotanist, who was accustomed only to hunt for flowers, and who had nothing whatever to say to the amphibious monster of the Nile.

The Arabs were talking quietly among themselves, like men accustomed to hunt crocodiles. They put fresh caps on the nipples of their guns, stood up firmly in the forepart of the boat, and told the fisherman to be careful with his oars.

The crocodile saw the boat approaching, but did not know whether it brought prey or peril to his shore. In the meanwhile, he made ready either for defence or flight, according to the number and importance of the invaders. He lay stretched out at the edge of the river, as motionless as a crocodile in a museum; but he kept his mouth wide open, ready to swallow the first enemy who landed.

The two Arabs, who were thoroughly acquainted with the habits and manners of the animal, took aim, uttered a syllable at the same moment, and their two shots sounded as one. The bullets entered, at the only vulnerable spot, the open mouth, and went through the whole length of the crocodile's body.

The monster shook his head with contortions so comic, that they called forth shouts of laughter from the first floor of the palm-tree. Then, casting forth a torrent of blood upon the sand, he closed his tearful eyes, and moved no more.

Dummkopf arranged his vegetable costume the best way he could, looked for his gloves merely through habit, and not finding them, came down as he was. The Arabs, like all their race, were grave men, but their seriousness disappeared in the wildest laughter when they saw Dummkopf's costume. The botanist himself, now re-assured by the death of the crocodile, could scarcely restrain his hilarity; but he bit his lips, and after shaking hands with his fellow-countryman, begged him to communicate his adventures. Dummkopf commenced by requesting his learned friend to check the unbecoming mirth of the three Arabs, who were threatened with the vengeance of the Prussian consul in case they did not instantly desist.

Then Von Thorigkeit in the most gracious manner offered Dummkopf his paletot, which Dummkopf naturally accepted, retiring for some minutes behind the palm-tree, in order to change his clothes, as he expressed it, though he might have said to dress himself.

Having taken a solemn farewell of his palm-tree, Dummkopf got into the boat, taking with him the crocodile and the coat of leaves as reminiscences of his adventures, and also as corroborative proofs. These precious relics were destined for the "Neue Museum" at Berlin, and Herr Von Thorigkeit, who was attached to the Berlin University, hastened to thank Herr Dummkopf in the name of the Prussian capital.

Dummkopf was equally courteous to the worthy hotanist. He thanked him in the name of science for his discovery of the Von Thorigkeit palm-tree, which added another member to the already numerous family of palms. He even promised to write a notice in the *Weisstadt Review*, to prove that the palm-tree just discovered, through the indefatigable zeal of Von Thorigkeit, belonged to the same species as the aloe of Ceylon.

At the nearest village a complete Arab costume was procured for Dummkopf, who, with the honesty which always distinguishes true science, restored the paletot to Von Thorigkeit.

The two friends returned to Germany together, and soon afterwards an article signed Dummkopf appeared in the *Weisstadt Review*, in which full justice was done to the labours of the intrepid botanist and traveller, Von Thorigkeit, who had discovered the Von Thorigkeit palm-tree at the risk of his life, and not until he had killed two black reptiles of the cobra capella species. The article was illustrated with a woodcut, which represented the new tree agitating its tuft in the air.

Von Thorigkeit also did his duty, for as soon as he reached Berlin he made known to the world that Herr Dummkopf, who had ventured above the third cataract, had rectified the errors of all the previous maps, and that in the course of his expedition he had killed two crocodiles by means of electricity.

Those who have meditated on the nature of man will not be astonished to hear the end of this true story. Dummkopf is at present the proprietor of the *Weisstadt Review*. He is a lecturer in the Weisstadt University, and in addition to all this, he has a wife and six children. Well, in spite of the Review, in spite of the lectureship, in spite even of his wife and six children, Dummkopf, at certain moments, regrets the peaceful life he led in his aerial apartment at the top of the palm-tree.

Such is man!—a being full of contradictions!

ORNAMENTAL-LEAVED PLANTS FOR FLOWER-GARDEN.

The desire for novelty, or rather for a change of sameness in our bedding system, has caused some of our horticultural friends to recommend the introduction of various kinds of vegetables to be cultivated for the effect they would produce as foliage plants. I, for one, cannot accord with the recommendation, as I consider they are entirely out of place in the flower garden. My convictions on that point were greatly strengthened on witnessing a quantity of beet employed for the said purpose in the Royal Botanic Gardens, Regent's Park. I could not see that they were in any way a substitute, either in quality or effect, for the many good ornamental-foliage plants we have already in the list of our flower-garden decorative plants.

But, of all things, why should we not endeavour to give more attention to their arrangement in their proper sphere, the kitchen garden, where they could be made to fulfil two purposes—that of use for food and beauty to the eye? A well-kept kitchen garden can be made equally attractive with the pleasure or flower grounds, if effect and order are attended to. I remember, a season or two ago, visiting one of those gardens in which such attention was bestowed on the growth of vegetables; and the first thing, on entering, that I beheld was a plot of Pine-apple Short-top beet. The whole of the plants presented such uniformity of growth and similarity of colour, that they conveyed a pleasing impression to the beholder. Is it not, then, possible to make every class of vegetable, when growing in their proper quarters, so far conformable to our individual appreciation of all that is beautiful, and not seek to transfer them to positions for which they are altogether unfit?

With these remarks I will enumerate a few of the most desirable of our foliage plants for the flower garden, and which I believe cannot be surpassed for splendour of effect when judiciously used, as the present is the season to correct or otherwise improve our plans for the ensuing year, especially as the summer is not too far advanced to judge of their intrinsic merits.

Iresene Herbstii (syn. *Achyranthus Verschaffeltii*).—I have not observed in my rambles among flower beds this summer many examples of this beautiful plant. I cannot account for its omission, for it is a plant that with me grows freely; besides, it is very readily propagated, either in the spring or autumn, is not at all difficult to strike, and can be preserved with ordinary care in a cool house during the winter, and increased with far less trouble than *Amaranthus melancholicus*, and in vigorous growth excels it by many degrees. In respect to colour, its dark crimson, intermixed with shades of bright carmine, have a very charming effect during fine weather. Its compact habit is also a recommendation for its general culture.

Centaurea gymnocarpa.—For the centres of large beds, or as single specimens to be planted at certain distances, either as a relief to the panel or other system of hedging, nothing of its character can well exceed its elegant and graceful form, growing, as it does, from two to three feet in height. In the large conservatory of Holland Park House, Kensington, Mr. Dixon, the respected gardener there, had this spring a great number of them as single specimens growing in pots, and their beautiful silvery pinnated foliage stood out in bold relief to the many green leaf plants not as yet in flower, as *Azaleas*, &c., &c. It can either be increased by cuttings or from seeds.

Chrysanthemum Sensation.—The first time I saw this bedded out in any quantity was this year, at Battersea Park, and I was particularly struck with its beauty; its silver-like foliage, view it which way you will, is remarkably striking. It cannot fail to become a popular favourite as an ornamental plant.

Pyrethrum parthenifolium aureum (the "Golden Feather" Pyrethrum).—This valuable addition to the list of our coloured leaf plants for flower garden decoration was sent out for the first time this spring by Messrs. E. G. Henderson and Sons. When I saw it in their collection, I had some doubt as to whether it would preserve its colour throughout the season when bedded out, but that was quickly dispelled by witnessing its effect as an edging plant in Battersea Park, where its golden-coloured leaves presented a fine contrast to the many other plants that it surrounded. They say it is quite hardy; if so, it is the more acceptable. Its flowers are very insignificant, therefore they require to be picked off.

Poa trivialis argentea elegans (Variegated Meadow Grass).—This plant was issued to the public by the same firm as produced the *Pyrethrum*. It is a very neat-growing grass, not so luxuriant as *Dactylis glomerata*, nor is it so strikingly effective; its blades are more inclined for an erect growth than the latter. In my opinion, it will become a very useful plant for vases or suspended baskets. Perhaps it requires a much higher state of cultivation to give it luxuriant growth than I have seen.

Dactylis glomerata (Variegated Cocksfoot Grass).—For effect, both in the distance and close to it, nothing belonging to the list of dwarf grasses can surpass this beauty, or I may even say equal it. Its habit is very graceful. If you wish to keep it close and compact, do not plant it in too rich a soil, nor supply it with much moisture, unless withering from the effects of drought. I have a large quantity of it planted out as an edging plant to a ribbon border alternating with *Lobelia*, and the difference of growth is observable at a glance at the spots where the soil is rich and moist, and, on the contrary, where the soil is poor the growth is more moderate. This grass is perfectly hardy, and almost any amount of rough usage will not destroy it; but better plants may be produced if you take them up and divide them into small pieces, potting them into small 60-sized pots and keeping them in a cool frame during the winter months.

Cinocaria maritima.—This is a far more useful plant as a second row edging to large beds and ribbon borders than it is generally regarded. In a large public garden within a few minutes' walk of my residence there are large quantities of it employed for edging the larger-sized beds, in connexion with Purple King Verhena, the latter forming the outside row; and the display of colour afforded may be said to be perfect, being both soft and pleasing, especially towards the close of the day. If some of the plants are taken up now and potted, they will assist to ornament the conservatory during the remaining autumn months. It can be raised in any quantity from seed. Seed sown now, and allowed to remain in the seedpan during the winter, and then pricked off early in the year, or if sown early in the spring, they will make good plants by the time you require them for hedging.

Gnaphalium lanatum.—The great value of this white or silver-leaf edging plant is that it makes an excellent outside border for tall weak-growing plants, as, from its quick but bushy growth, it forms an excellent

support to such plants as *Plox Drummondii* and *Calceolaria amplexicaulis*. It can be kept in good trim during the summer season by pruning and pinching, and in the autumn allowed to grow a little free, with the object of keeping the bedding plants in their place. It strikes readily, but as soon as the cuttings are rooted the shoots should be topped.

Stachys lanata.—This gray woolly-leaved plant is perfectly hardy; of this I am quite satisfied from the severe test it was subject to last winter; for in Kensington Gardens there is a walk, I should say, upwards of a quarter of a mile in length, and there are two borders extending the whole distance parallel with each other, the inside edgings of which are composed entirely of the *Stachys*; and I could not observe, on the return of spring, that it suffered in the least from the nipping frosts of the past winter. As you paraded the walks it wore a very cheerful aspect during the dreary season of the year. To look neat and well, it requires to be kept thinned in the growing season, both of leaves and shoots. In fact, this rule applies to all fast-growing ornamental plants. It is readily propagated from offsets.

JOHN P. McELROY.

ON THE FORMS OF ROSES.

Loose and inaccurate definitions in any pursuit are highly discouraging, and often lead to its abandonment in disgust. In the charming and popular pastime of rose culture, which has almost reached the dignity of a science, this inconvenience is specially felt, in the unreliable descriptions of "form" and nomenclature of "colour," so that those who are compelled to form their ideas of novelties from mere phraseology totally fail to realize anything like the truth. To speak, for instance, of the subject of form: it is quite sufficient for it to be recog-



Reflexed.



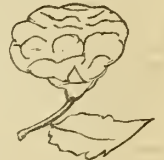
Expanded.



Cupped.



Half-cupped.



Globular.

nized as a canon of beauty that a rose should be "cupped," and forthwith every variety produced has the desirable property assigned to it, whether round as an apple or flat as a pancake; nay, it is not too much to assert, that could a square flower even be brought out, such would receive the designation of cupped, so long as that configuration is considered an essential recommendation. The original offence, no doubt, rests with the French raisers, who in their anxiety to disseminate their wares, indulge in the national genius for hyperbole, and picture forth their productions in romantic terms, rivalling the flowery language of the East. It may be urged that it is a difficult task to describe accurately the shape of any flower, varying, as that does, with the period of growth; some roses, for instance, being globular when partly blown, and cupped or expanded when fully developed. But it should always be understood that "form" should be decided when the flower is at its best, just before its "blasé" development by sun and air; and that its true contour can be most distinctively ascertained from a profile view, the flower being held level with the eye, because then differences can be most distinctly perceived. When examined from this aspect, it will be found that the arrangement of the petals of roses materially differs. In some, the centre is the highest point of the flower, the petals turning back outwards, and gradually increasing in dimensions to the outer row. This form, as exhibited roughly in No. 1 of the diagram appended to this paper, might receive the technical appellation of "reflexed," representing an extensive array of some of the best varieties amongst our modern roses, of which the old favourite Jules Margottin, when in proper character, presents an admirable type, being as eyeless as the "Mouster Polypheme" after the crafty Ulysses had extinguished his solitary orbit. A modification of this particular style of contour is exemplified by another old and valuable rose, representative also of a numerous class, *Baronne Provost*. This section of flowers might appropriately be denominated the "expanded," in the diagram shown as No. 2.

Let us take, again, a style completely opposite to these, wherein the outer petals are the largest, placed somewhat uprightly, containing and supporting, as it were, the interior leaflets, more or less in number; for, be it remarked, it is in this line want of doubleness most frequently prevails. Here is exhibited the true "cup," No. 3, out of which, were the exterior of sufficient solidity, we might partake of that beverage "which cheers but not inebriates," garnished with an additional whiff in the tea-scented varieties, far superior to the rose puddings of Roman epicures, which must have been rather physicky eating, although perhaps good for coughs. This con-

figuration of flowers appears in a modified form as the "half-cupped," No. 4, or tazza-shaped, the profile being much shallower than the cupped, though the outer petals are still the largest. Lord Raglan, and many of the same style, form representatives of a formation gradually going out, though some of the kinds are very beautiful when in perfection.

The fifth of representative types should be termed the "globular," No. 5; solid and substantial every one of them; sometimes hard to open; usually upright growers, with robust wood. In some cases the points of the petals roll over, though the ball-like contour of the flower is usually preserved. These may be considered the primary shapes, which embrace almost all the roses in our gardens. It must not be forgotten, however, that in some cases the petals are imbricated—that is, crimped or puckered, the petals being arranged longitudinally with respect to the centre; that in others they are short and close, presenting the appearance of the summits having been shaved off; and in others, again, they are completely incurved, being closed at the top, like *Madame Pierson* and *Globosa*, and seldom opening at all. When they do expand, however, they belong to the category of cupped roses. The finest example of an imbricated flower may be found in *Madame Moreau*, which presents a striking resemblance in form and arrangement to a show hollyhock, and is certainly novel and interesting.

If every popular rose, whether new or old, were classed under its characteristic form upon some such system as indicated above, or were certain well-known and distinct roses selected as types of styles to which all resembling them should

be referred, with further particulars of growth, colour, and foliage, rosarians would be enabled to understand better what they were about; descriptions would convey definite ideas; speculating in new roses would become a pleasure, instead of being, as too often at present, a disappointment, or, to use a popular phrase just now, "a leap in the dark."

W. D. PRIOR.

NOTES OF A TOUR THROUGH KENT.

SOMERHILL, THE SEAT OF JULIAN GOLDSMID, ESQ.

Somerhill is distant about one mile and a half south-east of Tonbridge, situated, as its name implies, upon a considerably elevated position, and it commands a variety of views over a vast extent of country. Viewing the mansion from the southern corner of the principal terrace, two sides of the noble building stand out boldly, and produce a most imposing effect. This is one of those old baronial residences that, with the exception of Knowle, is second to none in the county. The grounds are entered by a handsomely designed lodge, quite in character with the residence, and as we follow the neatly-kept drive, a short distance further on to the left is another very pretty lodge, also in good keeping with the main features of the place. Opposite to this lodge is a rustic boat-house, and a fine expanse of water; and as we make our way towards the mansion, by a path pointing as the most direct way, we find the agreeable shade of a well-timbered portion of the grounds most acceptable, as it not only affords us shade, but it gives to the place a character of grandeur and stateliness, as many of the trees on this spot bear evident signs of having battled with the winds and the storms for some centuries past. Upon the lawn contiguous to the house are some noble cedars, and a few majestic specimens of various varieties of coniferae, while the views from here are amongst the richest in the neighbourhood, being beautifully diversified by hill and dale.

It is not without some amount of regret I now remember that my visit to this place in June last was a hurried one, owing to my wishing to reach the western part of the county early in the day; therefore Mr. Hopgood, the able and intelligent gardener there, will, I hope, excuse me if he should find I have omitted objects I ought to have named, as my notes do not furnish me with sufficient data to go into more minute details of this portion of the grounds; but this is in great part atoned for by the rich treat I enjoyed when inspecting the plant and fruit houses, and in observing the order and neatness that prevailed in every department of the garden.

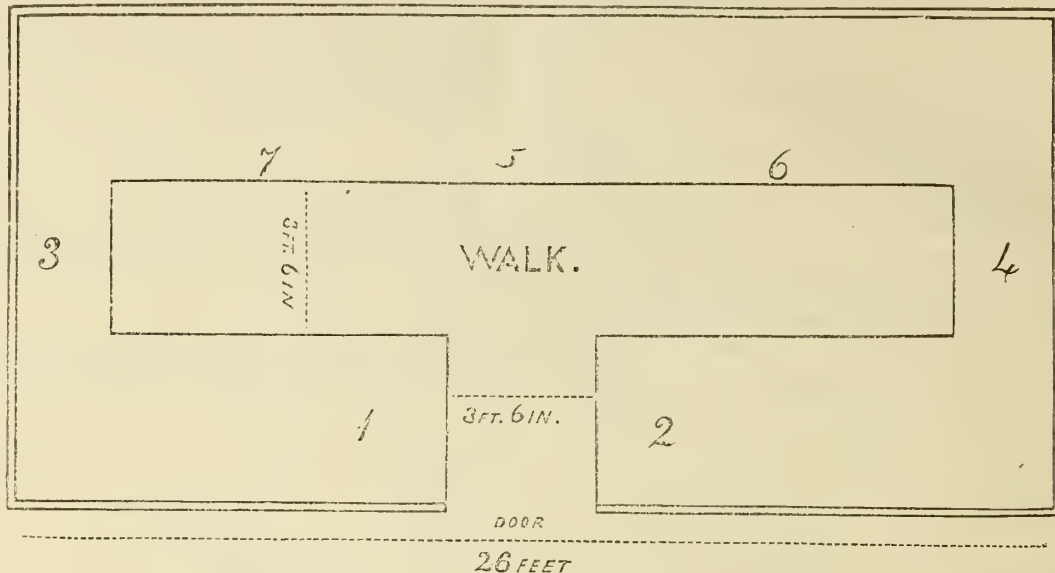
The first glass structures we enter are two span-roofed houses, one of which is used as a cool plant-house, and the other as a stove. In the first of these we find many very useful plants. It was gay with geraniums, ericas, epacris, and azaleas, and other choice spring-flowering subjects. But besides these, I made special note of a few others in both houses. Amongst the most striking features, there were some excellent plants of the *Coleus Verschaffeltii*, grown in the pyramid style. These are admirable subjects when distributed amongst such decorative plants as ferns, begonias, &c. The plants under notice were pictures of health and skilful cultivation. Then there was *Hoya Cunninghamii*, a very chaste and free-flowering variety for a stove, and when trained to neat sticks, as it was here, makes a fine specimen. That noble fern *Hypolepis repens* was a grand sight, with its graceful fronds towering up so stout and strong, as also was a very large plant of *Adiantum cucucatum*, in a most thriving condition, and *Adiantum*

cardioclana, very fine. Here I saw that very old favourite berry-bearing greenhouse plant, *Rivina humilis*, so useful for Christmas decorations. Of the many valuable creepers grown here, I made note of the following: *Tecoma Australis*, a grand winter-flowering plant, very useful for cutting (this is the white variety); *Passiflora princeps*, with long racemes of drooping flower-spikes eighteen inches long, with no less than nine to twelve flowers to expand upon each raceme; this is, in my opinion, the best of all the Passifloras. On the day of my visit the first flowers were just opening; it flowers upon the old wood. Besides these, I noticed *Begonia fuchsoides*, and that very old subject *Plumbago capensis*.

We next enter a range of houses ninety feet long, in three divisions, including a peach-house, muscat-house, and early vinery; the peach-house was newly planted. Here were some handsome specimens of young fuchsias from autumn-struck cuttings, in a most luxuriant condition. The muscat-house, like the preceding, being newly planted, we have only to notice the

order and good keeping; and when we find them in such a condition, we always accept it as the key to a right understanding of the order and neatness that is sure to prevail in all parts of the garden, and in this the old adage was no exception to the general rule.

In a well fitted up fruit-room I observed, in fine preservation, excellent samples of such apples as the Golden Knob, the Northern Greening, and the Winter Quoining. In an adjoining shed to this is the mushroom-house, a sketch of the interior of which I give here, showing the principal line of beds. There is nothing new in the principle of construction, but it is the material with which it is built that I would call particular attention to, as the foundations for the beds are built entirely of brick-work. This house, as well as the fruit-room, potting-shed, and stoker, are in a line on the north side of the wall of a range of three houses. Now as to the superiority of brick-work over wood-work for the interior of a mushroom-house, every gardener who knows what it is to grow mushrooms in contact with wood,

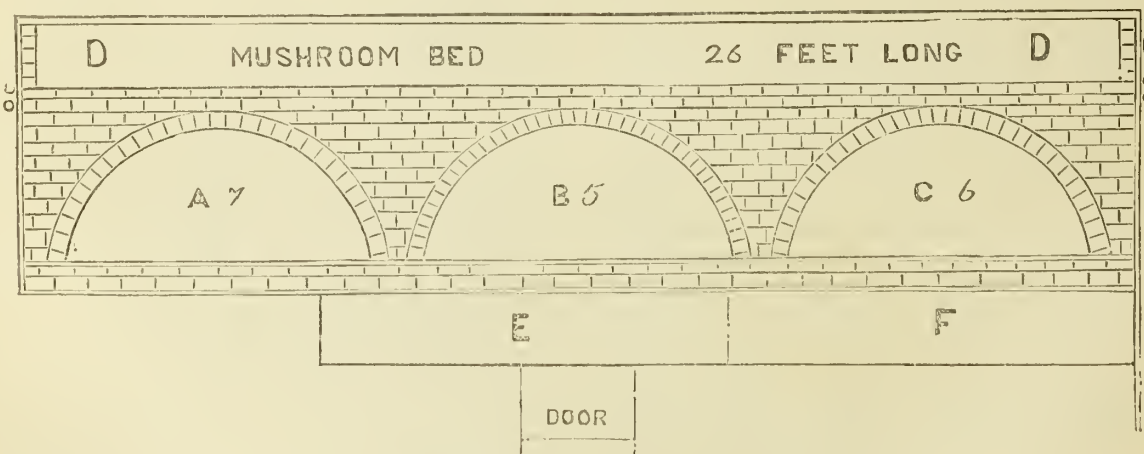


GROUND PLAN OF MUSHROOM HOUSE AT SOMERHILL, KENT.

promising condition of the permanent occupants of both houses. In the early vinery we found an excellent crop of grapes, with every prospect of finishing well; and considering that the vines are very old, we should consider it quite a success. This, like the two preceding houses, is to be furnished with a young stock of vines as soon as other houses, which we shall presently notice, are in a fit condition to take their place; the able gardener there acting on the wise principle of retaining some of the old vines until others can be brought into bearing. This is a far better practice than rooting all out at one time, and leaving the proprietor's table unsupplied with grapes for two or three years. The next range is a hundred feet long, and divided into a second vinery, and two late ones. In the first division, used as a second house, the crop was very regularly placed, and altogether a degree of healthiness maintained that would satisfy the most experienced grape-grower. In the two later houses there was the same cheering prospect of a crop, although in one instance the vines were very old, but had the character of

must acknowledge that brick is in every way better adapted for it, to say nothing of the durability of bricks as against wood. We have another good reason for advocating the use of bricks, because wood affords such an inducement for the lodgment of insects, especially that pest of the mushroom-house, the wood-louse. I consider the introduction of brick-work into a mushroom-house in the place of wood a step in the right direction, as one likely to reduce the troubles of the gardener and increase the supply to the proprietor's table. Mr. Hoppood would do me and the readers generally a great service if he would kindly inform us by what routine of management he has succeeded so well with this house, as at the time of my visit the supply was plentiful. The figures on the ground-plan denote the positions of the bottom beds, over all of which is a long top bed, as shown on section.

In the kitchen garden everything was looking in a thriving condition, but peas generally are not up to the average point of earliness this season in this county. Upon the walls I noticed marvellous crops of Bigarreau and May



MUSHROOM HOUSE AT SOMERHILL, KENT.

finishing well. In one of these houses we noticed a fine lot of begonias in a most vigorous condition, and also that very old favourite aster-like plant, *Agathaea celestis variegata*, which makes a nice edging for a small bed. In two ranges of well-constructed pits, there were superb crops of both early and late cucumbers and melons in abundance, as well as early potatoes. All these pits in the first part of the season are filled with potatoes, the cucumbers and melons taking their place. Amongst large quantities of bedding plants in excellent condition, I made note of that useful variegated geranium *Lady Plymouth*, well adapted for an edging. The plants were large and in sufficient numbers to be useful. There was also the *Cloth-of-Gold* geranium, a rather scarce article in this county, yet, when properly used in conjunction with suitable subjects, it is a fine addition to any stock of bedding plants.

The admirable arrangement of all the outbuildings about this place, and their superior order of keeping, is worthy of a special remark, as it is not in every place we see potting-sheds, tool-sheds, and stokeries, in uniform

Duke cherries, and also the appearance of a heavy supply of Morellos; both peaches and nectarines had also set a magnificent lot of fruit, and out-door strawberries and other fruits were promising well.

In preparing my notes I was so pressed for time and space that I had not the opportunity of thanking those who with every courtesy and good-will assisted me so much by giving me permission to inspect the gardens under their charge, and by affording me all the information that was in their power; but my thanks are none the less sincere for not appearing in their proper place, and I would take this opportunity to remark that my tour through Kent will be long remembered by me as exemplifying the truth of the old adage in the most unmistakable manner—that of all men the noble brotherhood of gardeners are the most communicative and unreserved class of men we meet with, to say nothing of their individual kindness to a stranger of the craft. This concludes my series of "Notes of a Tour through Kent."
J. C. CLARKE.

BARHAM GARDEN, KENT.

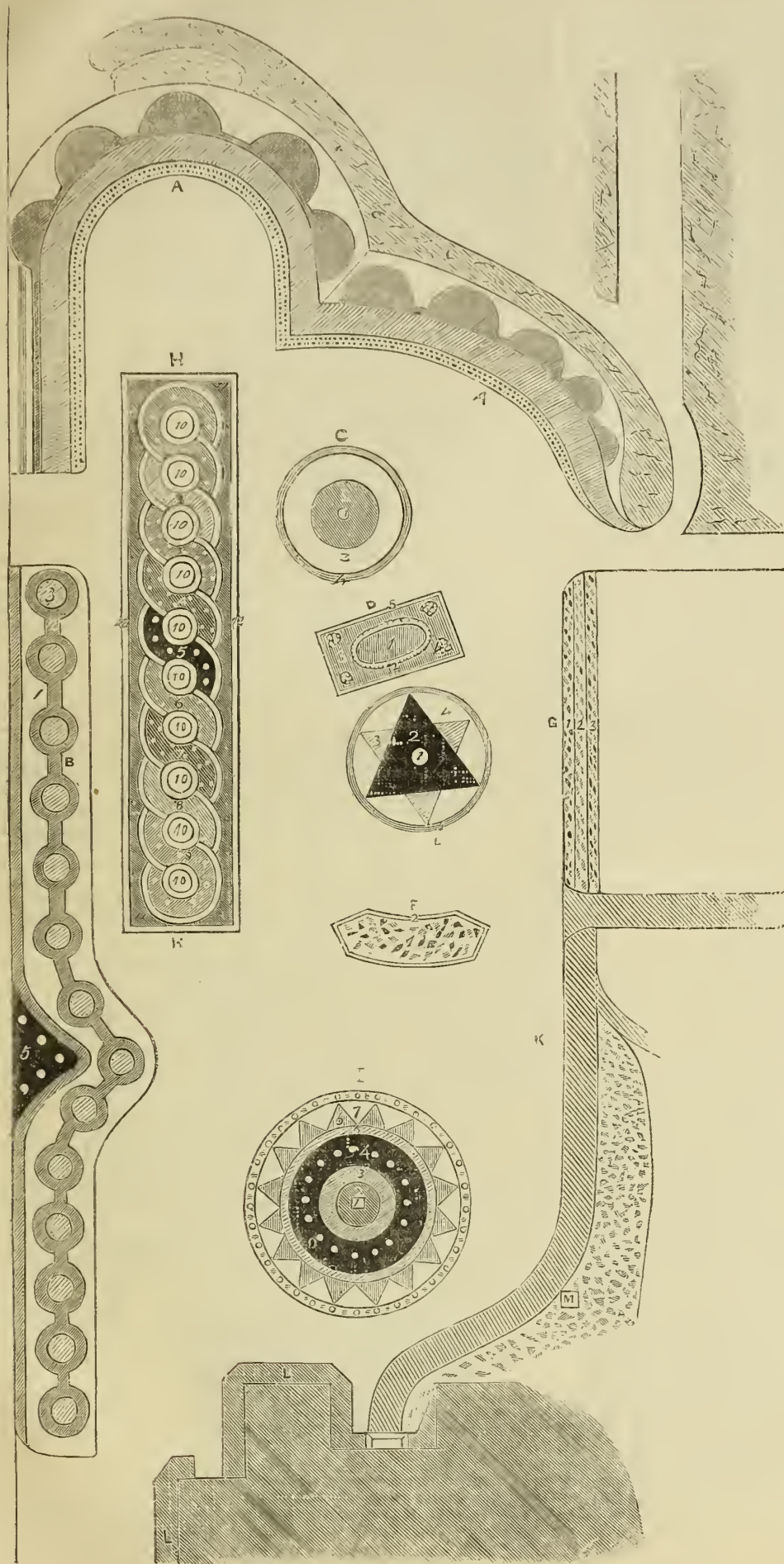
Many of our readers have been entertained, and we trust not a few have been able to glean information here and there, from the remarks upon public and private gardens which have appeared in these pages from time to time, derived from personal inspection. It is now our pleasant duty to give the result of a visit we lately paid to the garden of the Rev. Charles Oxenden, rector of Barham, Kent.

Barham is a well-to-do village in one of the prettiest parts of Kent, surrounded by hop-gardens and corn-fields. It is situated somewhere between Canterbury and Dover, and is three and a half miles from the Adisham station of the London, Chatham, and Dover Railway. It is a pleasant drive from either of the places mentioned, and numerous visitors avail themselves of the kindness of the rev. gentleman, who, with the generosity of a true lover of a garden, allows his neighbours and the public to participate in the enjoyment of that from which he himself derives so much pleasure. A placard at Adisham station and another on the garden gate inform strangers that they can be admitted to see the garden every day except Sunday, between one and five o'clock.

It is our intention on the present occasion to confine our remarks to the flower-garden, and the system of bedding-out, which though necessarily on a limited scale—from 35,000 to 40,000 plants being used in the various designs—is carried out to great perfection. The chief points of excellence are design and colouring, with general good growth of the plant; in all which particulars it will bear favourable comparison with any other garden, whether public or private, with which we are acquainted. The *coup-d'œil* from the study window, the point from which we first saw the garden, is surprisingly beautiful; indeed, we could not help exclaiming upon seeing it, "How very lovely!" and we think there are few, even among those who profess not to admire the bedding system, who could help paying it a similar tribute. The harmony of colouring is so good, that although the general appearance is very brilliant, the eye rests upon it without fatigue. This is owing perhaps in a great measure to the unusually large proportion of *Cerastium tomentosum* in the various compositions, the beautiful gray-white tint of which serves to enliven the whole, while at the same time it tones down and blends all the colours with which it comes in contact. The only imperfection of any moment is in those designs in which the *Coleus Verschaffeltii* enters; the severe cold nights we have had this summer having starved it to such an extent that it has made scarcely any growth, and has therefore not quite filled up the spaces allotted to it; but the rest of the plants are in such excellent condition that, if one were to judge from them only, it would be difficult to tell that the present season has been at all unfavourable.

Another circumstance which cannot fail to strike the observer, is that the outlines of all the designs are sharp and well defined, the minutest particulars of the most intricate patterns being seen to advantage from any part of the garden. This is the more remarkable, because most persons must have felt when looking at a large panel-bed, that the different heights of the various plants which form the whole combination do to a certain extent spoil the effect, as the higher ones must of necessity hide portions of those next them; it being only at a considerable elevation that the design can be seen in all its integrity. But this is not the case in the present instance, for Mr. Oxenden has managed to make the plants in each pattern bloom at one general level, so that the design can be seen almost as well while standing on the lawn, as when mounted on the rostrum which has been erected on one side of the garden, as a *point d'observation* for the convenience of visitors. The simple and ingenious method by which this is accomplished we will now proceed to explain.

The whole secret consists in planting in trenches. Suppose, for instance, we are about to plant a panel-bed. We take the *Cerastium* and plant it on the dead level in the part it is to occupy, and desire so to manage our other materials that they shall all flower on a level with it. For this purpose the earth is removed from that portion of the bed in which the *Calceolarias* are to be placed to a depth of about ten inches, and is carried right away; after which the *Calceolarias* are planted in the trench in the ordinary manner. The same plan is adopted with the rest of the plants—*Geraniums*, *Tropaeolums*, *Verbenas*, &c.—the depth of the trenches varying from ten inches to three inches, according to the height and habit of the plants being dealt with. Of course this system involves a great deal more labour than the ordinary method, and when first done is somewhat unsightly, though not to such an extent as may be imagined; but when the plants are in bloom the great advantage of the plan is seen, Mr. Oxenden having managed so well that the whole of the plants in the design have blossomed at one general level, just above the box edging. The same treatment is adopted with equal advantage on slopes. After



LAWN AND FLOWER BEDS BARHAM GARDEN, KENT.

Scale, 1-20th of an inch to 1 foot.

the bed has been sloped to the desired angle, portions of the earth are removed in the same manner, to suit the requirements of the case. When this system was first suggested to some leading nurserymen, it was "pooh poohed" and said to be ridiculous; but as it has now been carried out here for four years, and has answered every expectation, its success may be looked upon as established, and we ourselves can testify that the examples we saw were all that can be desired.

A reference to the annexed plan will enable our readers to understand our description of the beds, and to form their own estimate of the general merit of the design of the garden; but it must be seen in order to appreciate fully the excellence of the colouring and the extreme neatness with which the whole is kept. The sloping border at the extreme end of the garden furthest from the house (marked A on the plan) is remarkably good. It is 142 feet long with a general breadth of 12 feet. In the front are two rows of *Geranium Mrs. Pollock* and *Lobelia splendens magniflora* planted alternately. Next are three rows of two-year old plants of *Geranium Cloth-of-Gold*, behind which are semicircles of *Coleus Verschaffeltii* on a carpet of *Centaurea ragusina*; at the back is one row of *Gladiolus Breuchleyensis*. The chain bed B is also a sloping border 137 feet long by 7 feet broad. The chain consists of a double row of *Coleus* separating to form the circular links, which are *Calecolaria floribunda*. On each side of the chain is a carpet of *Cerastium tomentosum*, and at the back of the bed a good row of *Geranium Trencham Rose*. At 5 is a fine block of *Stella Geranium* spotted with *Centaurea argentea plumosa*. This bed was not in perfection when we saw it, as the *Coleus* had not grown sufficiently to fill out all the space it was intended to occupy; but this was the fault of the unkind season and not of the planting.

At C is a circular bed of great beauty. It is fifteen feet in diameter; in the centre is a single plant of *Centaurea compacta* surrounded by a three-foot ring of *Verbena Leab*. Outside this is a three-foot carpet of *Cerastium*, bounded by a box edging and a narrow border of yellow spar. This bed is so chaste and so pretty that it seems to increase in loveliness the more it is looked at. D is an oblong bed 15 feet by 8 feet. 1 is an oval centre of *Lobelia Paxtonii*, round which is a frame of *Mrs. Pollock*; the rest of the bed is filled in with *Verbena Purple King*, having specimen plants of *Flower of Spring Geranium* in the corners, the whole being bordered by a narrow path of dark granite. E is a very brilliant and remarkably pretty round bed, fifteen feet in diameter. In the centre is a single plant of *Centaurea compacta*, the upper triangle is a brilliant scarlet verberna, and the corners of the under triangle a seedling *Geranium* raised on the place, which is to be called *Standard Gold*. It is of dwarf compact habit with a leaf of pure yellow without any green blotch in the centre, and will no doubt prove a great acquisition. The circle is filled in with a *Cerastium* carpet surrounded by a yellow spar border and a box edging. We may as well mention here that Mr. Shrubsole, the gardener, showed us seedlings of various plants, some of which are of such excellence that we cannot pass them by without particular mention. One seedling miniature *Lobelia* is exceedingly good; it has exactly the foliage and compact habit of *Mrs. Murphy*, with light blue flowers, a profuse and constant bloomer. A seedling zonal geranium with white-edged leaves possessing many desirable qualities, and is a decided beat upon "Bijou." It is of dwarf habit, the leaf being perfectly flat without the least disposition to cup. The white margin is very broad, occupying about five-sixths of the entire leaf, and is a pure milk-white, in fact about three shades whiter than any we have yet seen. It is to be called the *Bride of Barham*, and if its constitution proves good, will no doubt become very valuable.

The bed at F, which is 22 feet long by 7 wide, is pretty, but not in our opinion such a decided success as most of the others. The centre is of *Geranium Diadem*, with a narrow margin of *Golden Chain*, which is not allowed to bloom. G is a sloping border separating the kitchen garden from the flower garden, and consists of, first, a double row of geranium *Amy Hogg*, behind which is a double row of *Bijou* (bloomless), and at the back a double row of *Magenta*.

The Spar Panel bed H is particularly excellent, and shows the peculiar merit of the plan of planting in trenches better than any other bed in the garden. The colours have been selected with great taste and judgment, and the planting is unexceptionable. All the plants bloom (as we have observed before) on a dead level, enabling the observer to see the whole beauty of the outlines from any point at which he may be standing. The bed is 78 feet long by 15 feet broad, the scrolls being imbedded in a fine carpet of *Oralis corniculata*, the beautiful bronze tint of which harmonizes well with the whole of the colours. A box edging with a frame of cockle-shells surrounds this, and the configuring paths of variously-coloured spar and granite are remarkably pretty and neat. The arrangement of the plants is as follows: 1. *Verbena Crimson King*, spotted with *Cineraria maritima*. 2. *Calecolaria floribunda*. 3. *Verbena Queen of Scots*, edged with *Lobelia Mrs. Murphy*. 4. *Verbena Isa Eckford*, spotted with *Flower of Spring* (bloomless). 5. *Verbena John Keyes*, spotted with *Centaurea compacta*. 6. *V. Beauty supreme*, edged with *L. Mrs. Murphy*. 7. *V. Ariosto Improved*, spotted with *Flower of Spring* (bloomless). 8. *Tropaeolum compactum*. 9. *V. King of Bedders*, spotted with *C. maritima*. 10. All the centre circles are *G. Mrs. Pollock*. 11. *Oralis corniculata* carpet, and 12. Cockle-shell frame.

The superb circular bed at I is by far the most beautiful bed in the whole garden; it would indeed be difficult to find a finer example of brilliant colouring combined with good taste and quiet chaste beauty than this. In the centre is a white vase on pedestal planted with *Stella Geranium* and *L. Paxtonii*. Round this (2) is a three-foot ring of *Tropaeolum compactum*, which is surrounded in its turn (3) by a two-foot ring of *Verbena Celestial Blue*. Next to this (4) is a broad ring four feet six inches wide of *F. melindres splendens*, spotted with *Centaurea compacta*, and round this (5) a narrow circle of *Lady Plymouth Geranium*, which is bloomless. The next ring is divided into triangles, alternately planted with (6) *Lobelia speciosa* and (7) *Cerastium tomentosum*; the *Lobelia* triangles radiating outwards, and the others pointing towards the centre of the bed. The outside ring of this charming bed consists of an edging of *Variegated Arabis alpina* and *Lobelia Paxtonii* planted alternately. The narrow border next the house (L) is filled with *Christine Geranium*, and at K is a fine bank of mixed varieties.

In conclusion, we advise those of our readers who have or can make an opportunity, to visit Barham and judge for themselves; assuring them that they will meet with a hearty welcome from the reverend proprietor, and will be amply repaid for the time they will have spent.

JAMES GOLDWELLS.

SUBSCRIBERS TO THE GARDENER'S MAGAZINE who desire to extend its sphere of usefulness, and are willing to interest themselves in promoting its still wider circulation, can materially further this object by sending to the publisher the names and addresses of persons they think are likely to become subscribers, who will forward to each a SETTER COPY free. A stamp must accompany each name and address sent, to cover the postage of the specimen copy.

THE MOUNTAIN FARM.

After having travelled to and fro some two thousand miles within the boundaries of this tight little island this season, I begin to think the happiest hours that o'er I spent were spent upon a mountain farm. It lies—let's see—a goodish way off from my home: the exact latitude and longitude I don't know, but can work out the figures with very little trouble, or perhaps nearly hit the mark by the aid of a map. It is in a shire of course, and about twenty miles from the roar of the Atlantic, which can be heard at times on still nights, after strong gales, moaning, moaning like some one in pain, and at other times, in bright breezy weather, like some one singing. It is truly a mountain farm, though not exactly on a mountain; it is, in fact, the centre of a great plateau some fifteen hundred feet or so above the level of the sea; so I judge by what I saw of the barometer while there; exact measurement, by comparing our respective aneroid readings, some day to be made when the cool weather comes and we can mutually play at arithmetic. My off-hand rule for guessing at altitudes is to allow one thousand feet for one inch of average depression below the average of the sea-level, a rule sufficient for guess-work and no more. The name of my friend—and a good old friend of the most constant sort he is too—is for present purposes Lesete, and a very proper name, for he has a double share of warmth in his heart, and can melt ice instantly by looking at it. The rainfall is large, 90 inches at the least, and mountain mists and occasional small showers of drizzle are common even in the brightest weather, and with a steady barometer. The temperature is equable; but the London blood in me suggested it was a rather cold place during the brightest days in the month of August, and I quite shivered, though not thinly clad, during a midnight ride I had with Lesete after a visit to a romantic glen a long way off, where we tasted mountain fare, and found that wit and wisdom were not of necessity in populous cities pent, or the products solely of all-arrogant London. But, on the other hand, it is never severely cold in winter. When we wretched cackneys are frozen out the streams here are all flowing; they have, however, every year about eight months of very mild winter. The land is moorland, all moorland. For miles and miles around nothing else than moorland, and every view from this high table-land terminates in a wavy horizon of mountains and moors, some dusky green, and gray, and tawny, showing that man has made the moor to blossom like the rose in many kinds of useful cultivation, some towering into bold peaks and promontories black as ink under a cloudy sky, but in full sunshine showing streaks of a hazy purple, telling that heather only—unprofitable heather, good for grouse, but for man the emblem of starvation—is the principal product of these mountain wastes. Magnificent indeed are the views; they change and change again as we drive over the hills, and have around us on every hand a wondrous panorama of gigantic slopes cutting all the points of the compass, as if nature had been busy churning, and had been suddenly arrested in her work by some freak to leave off mountain-making to try her skill in the fashioning of wild flowers. Greater changes still in going through the valleys. There small villages, very small ones too, nestle amongst elms and alders, all of the trees stunted by the poverty of the land, yet found only in the lowest spots, and following faithfully the devious lines of the brawling strout streams that make music wherever they go, bearing pretty sing-song messages from the mountains to the sea, the burden of their melodies being, "The earth is the Lord's, and the fulness thereof." In the foreground, whether on hill or in valley, vast sheets of heather, alternating with waving eorn, great patches of furze that long before the 1st of September compel one to think about fowling-pieces and powder and shot. All the roadsides flanked by vast breadths of hummocky furze and heather (*Erica tetralix*, the showiest of all our British species) mostly mingled together,—such a display of cheap "bedding" as almost makes one wish geraniums were not. As to the soil, peat prevails, and there are hundreds of acres consisting of a top crust of peaty sponge, varying from a few inches to ten or twelve feet deep. But there are vast tracts of a poor friable loam mixed with stone, the stone a shale in plate-like masses about half an inch thick and of all shapes and sizes, the natural break-up of the vast under-stratum of rock which constitutes the bony structure of the hills for miles and miles around. Some of the narrow roads—they are all narrow, and when two carts pass, one of the two has to draw aside carefully and stand hard against the wall of furze or heather to prevent a collision—some of the narrow roads are cut through the living rock; and the red and gray lines of the tilted strata, hewn sometimes into fantastic scarps and hollows, contrast grandly with the dark greu and glittering gold of the flowering furze, and the dazzling purple of the heather. Sometimes we drive for many miles through fringes of rosy lychnis (*Lychnis dioica*), and there are great patches of the lovely blue vetch (*Vicia cracca*), and sometimes intensely coloured blotches of common red clover (*Trifolium repens*), and the grayish pink valerian (*Valeriana officinalis*), and everywhere more or less of rushes, festucas, osmundas, lastreas, blechnums, brakes, poly-podies, lady ferns, equisetums, wild thyme, bird's-foot trefoil, lythrum, and many another bright and graceful wilding asking not the care of man. The mountain larks sing merrily, the curlew pipes in peace, the lean cattle and the mountain sheep crop the scant herbage, and the idea of a poor paradise appears to be perfectly embodied in the happy faces of the thinly-scattered people, and the beautiful but unproductive hills on which they have built their mud cottages and planted their reluctant yielding farms. Let me try, in imitation of Tupper, to wind up this introduction, and then proceed to other matters.

The mountain farm is as a mine of wealth,
If we can dispense with common luxuries,
And subsist on beauty as our highest good.
The wild flowers are the mountain's garland,
The bees and birds its unpaid choir;
The wild deer, rabbit, hare, and partridge,
Its ministers of innocence and happiness,
That teach the stranger man to be content,
And tune his heart to peace and merriment,
With simple things of humblest origin;
And, in the midst of Nature's vastness,
Own his own littleness and helplessness,
And patiently submit to the all-wise decrees
Of the Maker of the mountains, the Master of the World.

Friend Lesete is a man of whim; that's why I like him. Five years ago he took the farm. I haven't measured it, nor have I put him on oath as to its extent; but call it a thousand acres, more a less; it cannot matter as to a few inches either way to any of us. It was then all moor, and much of it would have ruined a mountain farmer of the district at a rent of sixpence per acre. Lesete was once a great gardener, and all men—that is, wise and good men—know his name, which in the parish books—I don't know the extent of the parish, but a mountain or two is not of much consequence there—in the parish books it is not Lesete, but some other name. Guess it if you like; I shall never divulge, for he desires to be not

to fortune, but to fame unknown. Not to fortune, no, for he is looking after that, and will some day, I am quite sure, extract from the peat, and the poor loam, and the stone, and the clay—I forgot the clay; every lump turned up by the grafting-tool hardens in the sun to a flint-like brick in a few days; such clay!—he will extract from these a fortune of some sort, and for the present is doing well enough, as his happy sunburnt face, his wife's happy and not sunburnt but yet rosy-with-health face, and his children's happy and quite-brown-with-sunburn faces, tell sufficiently, without a word about the tender chickens, and the good beef and mutton, and the cream (oh, the cream!), that he scratches and scrapes and quarries (as it were) out of the mountain farm. "Quarries" I said, and the term is not apocryphal, for he began with deep draining to take off the subterranean water. Every deep drain he made added to the total of the trout streams. The fields are all divided by thick hedge-rows of alder, hazel, blackthorn, and bramble—none of your close-shaven-faced, Romish-priest physiognomy farms is this, giving license to the blast to tear the fleeces off the sheep, and hurl the beeves into the brawling burn, but sheltered wherever and however shelter can be got, and shelter it needs; and the hedge-rows are like burning Newcastle coals to warm the air and nurse the tender herb when the winds pipe roughly. Wherever a dividing hedge-row runs, there runs or jumps or dances or spins a silvery trout-stream; the trout in myriads, and of all sizes, from that of a minnow to the fore-arm of a strong man,—the water, of course, as unsullied as virtue, or trout would not live in it—and at every yard of its course tumbling over stones in a downward but not degrading path towards the ocean, singing always:—

Gaily I sing as downward I go;
Water was made to tumble and flow;
The light of the heaven shines clear on my face,
And while seeming to lose it I'm winning the race.
If you want a sweet sip, stoop down with your lip;
The time will soon come when I'll play with a ship.
If trout are my people in this merry motion,
I shall soon sport with whales in tumultuous commotion.

The work began with deep draining, and the first effect was to render it possible to grow oats. Capital yield of oats, too; I saw some carried on Thursday, thrashed by machine on Friday, and sold at—ah, you want to catch me!—at Whatsitname market on Saturday, when the price was tip-top high, and the quickness of the movement made a difference to Lesete of about two pounds an acre above and beyond what he would have obtained had he waited another week. So you see he is not above making his fortune, if only Fortune will heiferd him.

The next step was to shallow drain and experiment with manures. Now the land poured out its surface water, and the trout streams increased in volume and hurry, and their treble chime changed to tenor and bass, a glorious mountain song. He felt so confident that lime would correct the acidity of the peat, that he carted lime fifteen miles at an awful price in men and teams. But it was not well. Wheat, harley, and turnips lived, but scarcely paid for all the outlay. He tried gypsum, guano, wool—all sorts of things, paying for them like gold-dust; but the returns were poor. Yet the tilling did the land good. Many a hard pan was broken up, the peat began to mellow, the clay bricks which lined the field where the drains were laid began to soften—such mountain dews and frequent drizzle would soften a stone in time, and, indeed, the native rock is ever crumbling into dust, and it is of disintegrated rock the poor loam consists, waiting to be fertilized. The thought struck him as by an inspiration, "The starving farmers here for centuries have been rearing sheep and cattle, and sending them away. On the bog grasses, the narthecium, the fluviatile poa, the whin, the ling, and the wild thyme, the mountain herds have fed and have walked off, taking with them their bones, and the soil wants all the bones back again!" So he thought none, had it consigned from London by railway, carted it a day's journey from the station—two day's journey for every load—and thus began to return to the land the bones of which it had been robbed for centuries. Presto! wheat began to pay, turnips made big hulbs, clover and good feeding grasses became possible. More bone and more bone, and bravo for Lawson's grass-seeds. More drainage, more trout streams, more bone, more grass-seeds. The scene is changed: great harvests of peas and beans, great harvests of wheat, oats, harley, and mustard. Sweet hay in plenty, clover, fat rape, turnips, and mustard for green food. More drains, more bones, more sheep and cattle, more money, junkets, clotted cream (hroma! hroma!), and jolly old wi—; but no, I am ignorant of the extent of pantry and cellar, and only know that, like the justice's belly in the "seven ages," they must be "well lined." Lesete, loving the country and his country's work all the while like a poet, has already made land that starved its former tillers at sixpence an acre worth at least five pounds an acre, and the capital hurried in the soil pays twenty per cent—

Twenty per cent, twenty per cent.,
That's a good rate when money's well lent.

The farm might have employed a dozen hinds in times gone by. It now employs a hundred hands, and hands are better than hinds to a man who converts a field into a workshop, and regards nature as a great crucible into which to toss the rough ore, in the full expectation of taking out a lump of gold.

The mountain sheep are giving place to breeds that weigh them down in the scale; the mountain cattle are retiring before monsters of meat; yet there is much to be done. We went over some of the undrained hogs, all springing now like luxurious couches spread for the great gods, but soon, with the autumnal rains, to become sappy sponges on which no human foot dare tread. There we found the hog pimpernel (*Anagallis tenella*), lovely gem for Flora's tiara, and which she must soon on this spot exchange for *Trifolium incarnatum*, or the green and coarse-looking but fine feeding *Dactylis glomerata*, which Lesete used to grow (in a variegated state) as a grand ribbon plant in days of lang syne. We found the *Potamogeton fluitans*. Can the soil be good for farming where that grows in plenty? No. We found *Sphagnum* and *Drosera rotundifolia* and *Narthecium ossifragum*—acres of them all, and high up on the hummocks between them *Viola palustris* and *Myosotis palustris* in gigantic knolls. Can the land be good for farming where these are the rampant growth? No, no, no! In a short while hence there will be grand crops of oats, wheat, turnips, and grasses, where these now rejoice, and court the dryads to sing of god Pan and the happy days of Saturn to them in the indigo mist that bathes them with balmy moisture all the long year through. The scene has changed and will change; the poor paradise is changing to a fat paradise, and out of the spongy peat and the flinty clay and the irrepressible stone will come forth fun for the thrashing machine, wages for the honest labourer, and good cheer for the children of men. Drainage and bone, what queer regenerators! yet these are the agents that are making a green pasture of a hungry mountain top, and filling the valleys with the bleat of timid sheep and the lowing

of happy herds. Did I say drains and bones? Ah, farther back lies the process; the land, in fact, is blessed with a better regenerator than either, the brain of man is the real fertilizer; and here is a mountain farm made fruitful by means of knowledge, enterprise, prescience, and a great confidence that God helps those who help themselves.

Going over the fields one day with Lesete, I noticed that the common charlock (*Sinapis arvensis*) was a common weed. Many a field, especially if in turnips or mangolds, was gaily golden with this persistent weed. I timidly asked friend L. if he had tried charlock as sheep-feed. I was profoundly staggered when he answered "No." I got the hint of that idea from the Dean of Shipley, so if I appear now to play the part of agricultural prophet, let me at once transfer whatever praise belongs to the character in this connexion to the Dean, who must be lauded against his will, though in his nature modest still. Said I, "Look here, ten acres of swedes, growing nicely, and like cloth-of-gold with the lovely charlock; let's try it." Hard by was a flock of fifty sheep; the spot was far removed from the farm, and we would not go up for a dog. Said I, "You be dog, and I'll be shepherd." Settled at once. L. went up the field, and shouted in a mighty voice, "Go a-forn-'em." The sheep gathered together in a twinkling, and faced all one way, seeing the dog by the aid of their vivid imaginations. "Turn 'em down."—"Go a-forn-'em,"—"round,"—"up,"—"turn 'em down." It was easy work for me. I took the other side, and we had the sheep out like turning a water-wheel, and, with a little opening of gates, and heading up the stony lane to prevent a run towards the moor, got them into the turnip-field. Next morning we had a look. Half the field was spoilt of its golden livery; the sheep were eating in a geometrical order in regular squares, and we observed that scarce a turnip was touched. They pitched dead among the charlock, eating it to the ground, and, if a turnip was nibbled, it was by accident. Or rather, to be more particular, we found by observation that one old ewe, and only one, would touch the turnips, but all the rest ate charlock only. So we used the sheep as weeding-machines, taking them out of the field the moment the charlock was gone, because, of course, at that juncture there would be nothing left for them but the turnips. The flock went thus from field to field, delighted to eat the yellow weed, and caring for nothing else while charlock could be got; and we agreed that so many days' feed—it matters not how many, the measure of the weed will any day give it—might be gained at the cost simply of moving the sheep; a discovery, we may venture to call it, of making weeds into mutton, and keeping the turnips to make beef.

One of the first things that attracted my attention as I roamed about the farm looking for botanical rarities, or gazing abstractedly upon the gigantic hills that rolled around the grey horizon, was the abundance of poultry, large and small. I might have mistaken some of the tawny chickens when far off for partridges, but "Cohh," the pointer, that went about with me for the sake of having somebody to talk to, never pointed at them; and, bless him, he would point at a mouse if he came across one, and look as if his goods had been seized for rent when he found I would not shoot it. Everywhere soher hens and giddy chickies. Far away down by the margin of some brawling burn, there would be seen chickens going to roost, in companies of a dozen or two, in some stunted oak-tree. All over the harvest-fields matronly hens and disobedient chickies, the chanticleers keeping at home mostly, and serving as huggle-calls to prevent a complete distribution of the females and the little ones all over the mountain side. I soon learnt that the way friend L. dealt with his poultry was to let them go where they pleased, let them nest anywhere, give them nothing to eat, make game of them, so to speak, and thus they seemed to spring out of the ground like the wild flowers, and only to need gathering to make one comfortable. "Feed them," said he, "and they won't scratch; leave them alone and they do well, multiply, and get fat on the farm-yard waste." To be sure, the yard swarmed with them, especially about the ricks, and they followed the wains and went far up on the hills, and kept in the track of the carrying of the peas and the oats and wheat, picking up everywhere, like citizens of the world, and ready at any moment to sing, if singing were in their line,—

I have food while others starve,
And beg from door to door.

As to the results, there was no lack of eggs (such eggs, cream and omelette combined). As to chickies, they were as fleshy and as white, as tender, sweet, and digestible, as if taken from some angelic poultry-yard, and, as somebody somewhere said of something,

Too good for nature's daily food.

The somebody was Wordsworth, no doubt, who well knew the glories of a mountain farm, and, for aught I know, may have concocted that line while eating a self-fed chicken in the peace of Rydal. If you want to know how this system answers, I'll tell you one fact. There is an old black hen, half Polish, half Dorking. She makes her nest in the hedge, close home by the farm-yard. She puts in the nest as many eggs as she pleases. She hatches them out in her own time. She nurses them well, and teaches them the way of life, like a professor of scratching. As soon as they can fairly toddle and scratch, she sends them off on a foraging expedition, and there she is again in the nest, in the hedge, on another batch of eggs. As a fancy bird, her value is about ninnepence. Lesete averred that as a breeder of chickens, wholesale and perpetually, he would not take five pounds for her. Nor would I. She should be called the "hybrid perpetual," and I would expect to eat a good chicken of hers every Sunday throughout the year, and get a glass of wine to follow, by stealing a few of her eggs. May the old hen live for ever, and let it not be true what the physiologists say, that the ovum of a hen contains only 650 eggs, and beyond that number she cannot lay one. Bah! old "hybrid perpetual" will lay thousands, I warrant, and as she is mortal, or so it appears, she shall make a decoration for the sitting-room when her family cares are over, and grim Death has put a stop to her motherly "cluck, cluck," that, for the present, tells how well she obeys the injunction of Genesis i. 22.

Geese and ducks are kept on the scratching system, and in considerable numbers. The geese graze on the moors, in the same fashion as on commons everywhere. But they get no corn at night, as is the common rule in country villages. The ducks keep near about the farm, and look out sharp for adventitious extras in the shape of waste grain and scrapings of the pig-trough when the pigs have left it. Tasted several of these ducks; good, of course,—nothing but age or fishiness can interfere with the enjoyable deglutition of a properly cooked duck. But it's another matter with geese, most people like these birds artificially fat. So when we had a mountain goose for dinner, I considered there was a scientific commission sitting—subject for inquiry, quality of an unfed goose. When the commission had finished its agreeable inquiry, a report was drawn up, and agreed to as follows: The poor towns-folk who eat fat geese of the poultener's pattern, or rather eat what is left of them when the heat of the fire has converted

wasted corn into useless grease, are to be pitied with all the tender pity due to such as labour to postpone the gastronomic millennium. Could there be a better goose? Absurd idea! The commission has no more to say about it.

Let me not forget a pretty instrument, by aid of which the farm work is regulated, and, though it is a "catching" climate, showers and fogs occurring suddenly even in the fairest weather, it is most rare that a handful of hay or corn is lost. My private opinion has long been in favour of making it a misdemeanour for farmers to lose hay or corn by bad weather, and here, in a most curious climate, is a simple and forcible illustration of the doctrine. The instrument is a Negretti and Zambra's Aneroid Barometer; my playful friend calls it "Annie Royd," and courts it like a sweetheart. He can tell you for two days to come exactly what will be the weather, and make good forecasts of a week or more. All the while of our stay he told us, long before the showers came, when to expect them, and how long they would last. It was the best bit of barometric practice I have seen as yet. There was a field of peas dead ripe, and the barometer was low. "Never mind," said L.; "cut them." They stood on the field, and were well soaked with rain. "Never mind," said he; "we'll carry them next Tuesday; make the stackyard ready." On Tuesday we looked at them; they were wet, but just hard enough to carry without shelling out. At midday the heavens beamed clear, the sun shone bright and hot, the peas were soon dry, and when the day had nearly gone L. jumped on his horse, galloped over the farm, got the wains, the horses the men, the boys, the girls, all to work merrily, and the peas were home and stacked as if by magic. "There," said the master, "by that quick move at the nick of time I saved the crop. To-morrow and next day we shall have rain again, and, whatever the weather is after that, work will press so hard in all directions, that the peas, if out, might be left till not worth carting. Miss Annie Royd, you've saved me one hundred and fifty pounds."

A very curious occurrence remains fixed in my memory in connexion with this visit. The farm buildings stand all alone in the midst of a wilderness. The nearest post town, which is in reality a village of about twenty houses, is twelve miles distant; the nearest church is sixteen miles away; the nearest railway is a half a day's drive distant, and demanding two changes of horses to do it; there are no neighbours, and one may realize the idea of solitude perfectly without the aid of either Cowper or Byron, who have sung so instructively about "houndless contiguities of shade," and "sitting alone by the deep sea," &c. Well, while enjoying this, so striking a change from the hurried life in London I am used to, the existence of organ-grinders, German hands, howling street vocalists, and other wretches that frequently put a stop to my labours when I am peaceably, and I hope harmlessly, labouring for my daily bread, never occurred to my mind at all. I had clean forgot that the world contained such hideous mortals—such unconverted, demoralized, incurably sinful, selfish, and scottish a set as itinerant musicians of any kind. But lo, as we sat at breakfast one morning, properly disposing of sublime hacon and eggs, there broke out, close under the window, the "tink-a-tink, tink-a-tink" tune of a thing sometimes called a "hurdy-gurdy," but which in reality is a small portable piano. I was immediately seized with such a fit of laughter that I was obliged to quit the table, and go out of doors on the grass, and look at the romantic Italian, and laugh again and again at him and his music, until the fellow began to suspect he had come to a madhouse. The infection spread through the house; we all laughed. Such a thing was never seen before as an organ-grinder of the true London pattern on the mountain-top, perseveringly pursuing his melodious occupation. When the laughing subsided, we enjoyed the music, and when we had had enough of it we sent him away with a liberal reward for the pleasure he had given us, and in full consideration of the fact that he must tramp twelve miles further to find another window, and with all the risk that then he would not be wanted.

I made a pleasant foish of my stay with a little of the noblest sort of sport. We found two noble red stags on the mountain side, and L. and self agreed to hunt them together. We had only bullock dogs to aid us, but one, a powerful hitch, named Nanterose, was equal to the task, and played her part in the chase superbly. Greatly pleased was I to leave L. in the possession of those two red skins; I could not stay so long as to see their meat on the table, but I had tasted of their haunches in imagination while engaged in the rough, hard, but comical chase we had, and in which we and our dogs were the victors. I was sufficiently satisfied to know that there would be meat in the larder at the Mountain Farm after we had left it, for we ate so much that we might have speculated on the capability of the country to keep us longer. Such an appetite as mine would need an average of a stag and a krel of trout per diem, with some small extras, solid and liquid, to make elegant accompaniments. Next time I find my appetite fail I shall fly to the Mountain Farm, and look upon Lesete's steep hills, red stags, and well-filled larder as the perfect cure. TOM TIDDLER.

Calendar.

WORK FOR WEEK COMMENCING SEPTEMBER 21.

Kitchen Garden and Frame Ground.

WINTER SALADINGS.—All kinds of cress may be sown now with advantage to furnish a few nice gatherings before the frost puts a stop to it. *Corn salad* will stand the winter, and furnish acceptable leaves, which must be gathered young. The botanical name of this plant is *Valerianella olitoria*, and it is known in many places as "Lamb's Lettuce." Sow in drills six inches apart. The *Normandy cress* stands the winter well. If sown in August, there need be no further sowing; but if neglected, sow now; and if we do not have very early frosts it will be useful, as when it has got a good root-hold it endures frost with impunity. Another good hardy cress is the *American*; and this is the best substitute for watercress. If a breadth of this was sown in August, it should now be planted out eight inches apart. If none has been sown, get in a pinch of seed at once: this can be gathered from all the winter. It is time now to make another plantation of endive, also to plant out winter lettuces from the seed-bed, and another sowing of lettuces may be made.

ARTICHOKES to be cut down as soon as the heads are gathered.

CABBAGE. Plant out at every opportunity; there is plenty of ground now, and there is good time for the plants to grow.

BROCCOLI.—Plant out all that remain in seed-pans and beds. A good distance is fifteen inches, but in warm sheltered places they may be allowed eighteen inches to two feet.

CELERY will be growing freely after the recent heavy rains. When a

good growth has been made begin to mould up, but not before. Generally speaking, all celery not yet moulded should be commenced, as that begun now will not be fit for use much before November. But in the case of that planted out very late, another week or two may be allowed for growth, as there is not much growth after the earthing process begins.

CARBSICUS AND TOMATOES that ripen tardily may be cut with a portion of stem attached, and hung up in any warm light place. A lean-to greenhouse is about the best place, but a kitchen window will answer, or if laid on tiles in a frame facing the sun, with the lights on, they will soon ripen.

CARDOONS have now done growing, and it is time to blanch them for use. Those that have flower-heads upon them are no use; pull them out. Before earthing tie them loosely, so as to keep the leaves and stems together and prevent the soil going to the hearts, then bank them up high and firm.

CARROTS will not grow much more now, and may as well come up. Store in dry sand in a dry and cool place.

PARSNIPS are still growing, so it would not be well to take them up. But as they are now most delicious when properly cooked, the table may be supplied if desirable. As parsnips stand the winter well, we always leave ours in the ground, and take out a few now and then when wanted; always, however, taking up what remains at the end of February, and storing them in dry sand for use.

TURNIPS must be thinned in good time and the rows hoed between. Where broad-casted, the hoe must do the thinning, weeding, and loosening of the soil; but when in drills it is best to thin them by hand, as the hoe always leaves two or three close together fighting for a place, which is an evil.

ONIONS must be housed, and if not dead ripe, spread them in a dry sunny place, or put them in an oven after the bread is drawn, and let them have a gentle haking. If well dried at once they will keep well, but if stored soft some will rot and some will grow, and all will very soon be worthless.

CAULIFLOWER of the last sowing to be pricked out under hand-glasses, and a few to be potted in 60-sized pots to push on for extra early supply, as they can be planted out early in spring on a warm well-manured border, and have the shelter of old lights, or inverted pots or thatched hurdles, in case of late morning frosts.

Flower Garden.

CALCEOLARIAS.—The time has come for wholesale propagation of this useful hedging plant. There is nothing more easy in all the round of practical work than to raise a stock by means of cuttings. Let the cuttings consist of the shoots of the season that have not flowered, and of which there are plenty now. Make these shoots into lengths of two inches each, removing one or two leaves, so as to have enough bare stem to thrust into the earth; if dibbled an inch deep they will do admirably. The best way to treat them is to make up beds in frames, the beds to consist of mixtures of peat, leaf, thoroughly rotten manure, mellow loam, and sand—in fact, of sweepings and scrapings of the compost yard; or, if there be no compost yard, leaf-mould and light loam, one part each, and one part sharp sand, will answer well. Make the bed level, dibble in the cuttings two inches apart, water them with a fine rose, and put on the lights. They will want no more attention except a little shading for the first two days, if sunny, and air occasionally to prevent mildew. Protect with mats during frost. At the turn of the year they will begin to grow; then take up every other one by finger and thumb, and pot them and place in a greenhouse, leaving the remainder at four inches apart, to grow into neat little plants for bedding out at the end of April or early in May. By this plan you will have two hatches, the plants all strong, and time and tide will tell you what to do with them.

BEDDING PLANTS must be housed as soon as possible. All the old plants of slow-growing kinds of geraniums—such as Golden Chain, Italia Unità, &c., &c.—should be taken up and kept carefully. Many of these beautiful varieties make no effect till the plants are at least three years old.

CARNATIONS not yet potted or planted must be disposed of without any more delay, as it is of great importance to have them well established before winter. When potted, shut them close for a week to promote the formation of the roots.

PINKS to be treated as recommended for carnations.

TULIPS.—Offsets and show varieties may be planted.

AURICULAS to be housed for the winter, and watered very sparingly. Look over the stock in removing them to the frames; see if slugs are hidden in the hole next the crooks; and if the surface of the soil in the pots has moss or liverworts growing on it, you may be sure there is something the matter with the drainage, which see to at once. If aphids are in the hearts of the plants, shake a little dry silver sand over them; then take each plant separately, and hlow the sand out with some force.

BULBS to be potted in successional hatches, so as to prolong the blooming season. Pot the early-blooming *Gladioli*, *Sparaxis*, *Ixias*, *Narcissus bulbocodium*, *Jonquils*, and *Tritonia aurea* in a mixture of peat, leaf-mould, and turfy yellow loam, equal parts.

CHRYSANTHEMUMS require plenty of water, and twice a week manure-water, but not a drop of the latter to touch the leaves. See to any tying that has been neglected. Pot up at once those grown in the open ground for the purpose, or if to be moved to make beds and ribbons, clear the ground, dig it over, and plant them at once in the places where they are to bloom. Plants potted up from the open ground to be kept shaded, and frequently sprinkled till they recover. Of course, they must be lifted with good balls, and be potted firm, with plenty of drainage. Thin the huds of the plants grown for cut blooms. Some of the large incurved varieties give the best bloom from the top huds.

HOLLYHOCKS to be cut down as soon as they cease to be ornamental. If there are good shoots at the base, they may be taken off and potted, and put in frames; they will root in time. Any pods of seed that can be gathered should be put in dry earthen pans, and placed on a top shelf in a sunny greenhouse to perfect their ripening. The seeds are usually damp and soft for some time after they appear ripe, and, unless dried off in some such way as we advise, may become infected with mildew before spring.

REVISI all named plants while there are blooms or fruits to determine if they are tallied correctly. To keep plants correctly tallied will do more to familiarize the mind with their several characters and excellences than any amount of book study; in fact, every garden is a book where not he who runs, but he who stoops, may read; and everything of real interest should have a tally correctly written. This is especially useful in regard to rock plants, coniferous trees, and roses.

DOG'S-TOOTH VIOLET.—This exquisitely beautiful plant, *Erythronium dens-canis*, is not half appreciated as it deserves, and it seems to owe some of its obscurity to the prevalence of a belief that it is difficult to grow. The fact is, the more you do for it the less it likes you. In the front of a pent-

bed is a capital place for them; or in any thoroughly sandy loam. To be well drained is of the greatest importance. They are hardy as oaks, and in the early days of spring their leaves and flowers are alike so beautiful that whoever gives them a fair chance will never after be without them. There are many varieties, but the following are sufficient for all ordinary purposes:—*Album, album major, purpureum, purpureum major, roseum, and Americana*.

ALSTHEMERIA.—These are best known to the old class of gardeners. They are truly fine things, producing many racemes of flowers of brilliant red, orange, rose, and carmine colours, variously barred, and striped. They are generally supposed to be tender, but if properly treated are hardy enough to endure any of our ordinary winters, and may, therefore, be planted with perfect safety. The way to manage them is to plant them in a dry sandy loam or peat, consequently, they are well adapted for beds and borders, which have been prepared for *Calandrinia umbellata* (a lovely herbaceous plant), *Semprevivum, Erythronium, and Tritonias*. A well-drained position, a bed raised above the level, and the shelter of a wall or large mass of shrubs, are conditions favourable to success. In planting, put the tubers nine inches deep, with their bud or crowns uppermost. Leave them untouched several years, and they will become fine specimens, throwing up their flowers freely one to three feet high, and making a splendid display during the summer months. The tallest kinds are *A. aurea*, orange red; *A. pulchella*, scarlet; *A. hemanthus*, vivid red; *A. psittacina*, red and green; *A. Chilensis*, various; *A. Brasiliense*, red; and *A. argentea vittata*, red and yellow: the last grows six feet high, and is rather more tender than the rest, but will do under a warm wall. The dwarfier kinds are *A. odorata rosea*, rose; *A. peleriniana*, red and blush, quite a gem. There is also a white variety of this one, called *alba*, and *A. tricolor*, white, crimson, and yellow.

LILY OF THE VALLEY.—Great is the dismay when a garden refuses to produce flowers of the lovely lily of the valley. And some gardens do refuse, no one knows why. Perhaps bad management is the real key to the failure. It may be planted in any kind of soil or situation, and usually will grow like a weed. If any difficulty is met with in growing this plant in the open ground, prepare for it a piece of deep well-manured loam, plant at any time, but best of all in autumn, and let the roots be only two or three inches deep, and leave them alone. You will, no doubt, be well rewarded. If the little bulbs are put in singly, a foot apart, they will meet by the second season after planting, and flower abundantly. The way to grow it in pots, and to force it for early bloom, has been described in the issue for Feb. 25th, 1865. It may be proper, however, to add that the best roots for forcing are those imported from the Continent by dealers in bulbs—they are larger, and every way better than can usually be grown in English gardens. When grown in pots they come in usefully sometimes for exhibiting, and are charming subjects for the decoration of the greenhouse. Those with variegated leaves should be grown in sandy peat, and kept several years in the same pots, preferring to shift them to larger sizes as the pots are filled to shaking them out, as a certain degree of starvation preserves the beauty of the leaves. The prettiest of these is *Convallaria majalis foliis striatis*, the leaves are elegantly variegated with golden lines. Another is called *Folii marginatis*, having elegantly-variegated margins. There is a pretty double-flowered variety called *flora pleno*, and there is a red-flowered kind called *rubra rosea*, which has a delicate tinge of colour. It makes a change, but it is certainly not more beautiful than the white kind.

CROWN IMPERIAL.—This, the *Fritillaria*, can be grown well in any common border, but the smaller kinds are better adapted for pot culture than the open ground, and they require a sandy peat soil. The common Crown Imperial, *Fritillaria imperialis*, requires a rich, deep, moist loam, such as most herbaceous plants thrive in. In almost every well-kept garden the common soil is good enough for it. It is a noble subject when in flower, and is so much a favourite that the Dutch growers have raised hundreds of varieties. The best of these are, *King of Holland, Maximum, Slageward, Double yellow, and Double red*. There are two charming varieties with variegated leaves; one is *gold variegated*, the other is *silver striped*. These make splendid clumps or beds. The best of the smaller kinds is *F. meleagris*, of which there are several varieties. It is a most beautiful plant. This is well worth growing in pots, but it is quite-hardy, and will do well in the border. The varieties of imperialis grow four feet high; maleagris grows only one foot.

Fruit Garden and Orchard House.

WALL TREES must have *extra care this season*, or there will be no fruit in 1868. The weather has for a long time past been most unfavourable for the ripening of the wood, and the trees are gross and sappy. The safest procedure is to thin the trees regularly, and nail them in so as to expose all the best of the new wood to the light of the sun and the heat of the wall. The shoots laid in should be shortened, which will also assist in the maturation of the fruiting joints, and there is no fear now of a second growth. If the borders are covered with pot plants or rubbish, or planted with winter greens, clear all off, and fork the ground lightly.

APPLES to be gathered during dry fine weather. Those already in store must now be looked over, to remove all that show the first symptoms of decay.

PEARS require same attention as apples.

STRAWBERRY BEDS made this season are looking well; the rains have promoted a free growth. But, as there are plenty of weeds, the hoe must be used, and the weeds must be raked off, and the ground between the plants must then be well trodden.

ORCHARD TREES are now in many instances leafless, and perfectly at rest. Replot such as require it at once; those still full of leaf to be put in the hottest part of the garden, and have no more water till after they have shed their leaves. Any of the trees may now be pruned in; and as work is not generally pressing now, this is a good time to prune, train, tally, and pot and plant new trees for culture under glass.

PLANTING.—The planting season is near at hand, and where alterations and improvements are intended, the preparation of the ground should be begun at once, as there can be no good result from planting trees in ground left untouched till the last moment, and then hastily chopped up and prepared in a superficial manner. It is strange that few people ever think of manuring for trees; yet if to be planted on land that has been much cropped, or where trees have been before, deep digging and manuring are essential to success. Soils deficient of calcareous matter may be greatly improved for all kinds of fruits by a liberal dressing of chalk, lime, or old mortar. Land too wet for fruit trees may be made suitable, if proper drainage cannot be afforded, by laying it up in long banks of six or eight feet wide, with deep waterways between. Many a marsh might be made profitable by this simple procedure.

Greenhouse and Conservatory.

CONSERVATORY AND GREENHOUSE.—The high winds during the past week must have given our readers fair warning that if tender pot-plants are not at

once housed they may very soon not be worth housing. There is nothing more to be gained in the way of hardening; in fact, a little sun-heat under glass will ripen the wood of plants that are still in a sappy condition much more effectually now than sunshine out of doors, besides the safety of glass for whatever is worth keeping. Keep from using fires as long as possible; but if any special reason require it, let no rules without reason interfere; set the fires going, dry the houses, and have a change of air while there is no fear of a chill. By good management, much may be done now with sun-heat. Plants recently potted and housed must be frequently sprinkled, and kept a little close to encourage root-action. Do not keep them very wet at the roots; in fact, after the first watering when potted, let them go nearly dry at the root before watering again, but sprinkled frequently, and as the lower leaves wither remove them. Keep the houses clean and dry, so as to allow of as much ventilation as possible among hard-wooded plants. If the weather is mild and wind westerly, give air at night to *Camellias, Azaleas, Heaths, Epacrises*, and other subjects of like habit and hardiness.

LACHENALIA.—This is one of the easiest of plants to grow well, yet too often we see them with thin, flabby, and perhaps bruised leaves, and a few poor spikes of flowers; they should have leaves an inch or more across, very fleshy, a rich deep green colour, and richly spotted, and half a dozen large spikes of flowers in a five-inch pot from half a dozen bulbs, and a few more spikes rising to succeed the first lot. The best routine of cultivation is as follows: The bulbs are potted as soon as they begin to grow naturally, in a mixture consisting of three parts mellow loam, half a part of thoroughly-decayed hotbed manure, and half a part of silver sand. Six bulbs of the largest size are put in a five-inch pot; all the small ones being potted separately, and rather thickly, to increase in size for the next season. They remain out of doors, and have all the rain that falls, and take their chance like hardy plants until there is actual fear of frost. Then they are removed to a top shelf in a light, airy, cool house, where there is enough hot-water-piping to keep out frost, and no heat is used except in frosty weather. The amount of protection is, in fact, not much more than they would have in a common frame. It is an important matter to keep them always moist, near the glass, with plenty of air, but never to be frozen. Starvation ruins them, and heat is not good for them, though, if forced gently, they flower well. Ours do not bloom usually till the middle of April, and they then make a splendid show. One lot is always used for the outside margin of a circular bed, which is then usually filled with a mixture of tulips, hyacinths, and elegant hardy shrubs—all in pots plunged in cocoa-nut fibre. There are several varieties entered in the catalogues, but *bicolor* and *tricolor* will suffice for all ordinary purposes.

TRITONIAS.—People will persist in confounding tritonias and tritomas, yet they are as distinct as lilies and ixias. Tritonias are not quite hardy, but they may be grown out of doors in a bed of sandy peat well drained, with some protection in winter. The best for out-door purposes is *T. aurea* (sometimes called *Crococoma aurea*). This forms a fine bush-like mass two feet high, well covered all the summer with pretty orange-coloured flowers. To grow it out of doors the bed must be sheltered, and the plants must have a cover of cocoa-nut fibre piled over them all winter. As to pot-culture, all the tritonias can be managed easily. Pot the bulbs in autumn, in well-drained pots of sandy peat. Give very little water until they are growing freely, and keep them in a cool greenhouse or frame, taking care that frost does not get to them. When they begin to grow, give air frequently, and as they advance increase the supplies of water. If extreme neatness is required, they should be neatly tied to thin green stakes, but it is better to let them sprawl about *au naturel*. Put a row of *T. crocata* in bloom, and in the sprawling state, all along the front of the conservatory stage, and what a glorious sight you have! All the species and varieties are good, but we recommend particularly, in addition to the two already named, *T. concolor, T. eximia, T. fenestrata, T. lineata, T. rosa, T. speciosa*.

Stove and Orchid House.

ORCHID HOUSE.—We have several times cautioned our readers against using an excess of heat and moisture at the decline of the season. By withdrawing the supplies of water, orchids will go to rest safely at much lower temperatures than is usually adopted; *Cattleyas* especially must be kept cool now to make them rest.

WINTER FLOWERS must be thought of now or never. Give a few *Begonias* a shift, and push them on for flowering; look to *Euphorbia fulgens* and splendens, *Poinsettia pulcherrima, Achimenes picta, Lily of the Valley*, and pot up from the borders *Dielytra spectabilis* in plenty; it is one the best of things to force, and, though "common," exquisitely beautiful.

Forcing Pit.

PINES ripening their fruit must be kept warm, and have less water. Be careful how you give water now, and keep up the heat in the succession pit.

VINES must be got ripe in the wood now, if they are not so already, or all sorts of evils will befall them. Cut off the ends of any shoots that are green, and any that continue to grow too luxuriantly may be checked by removing all or part of their leaves, at the same time keeping their roots as dry as possible. All superfluous shoots to be removed as soon as possible, and the vines in the early house to be pruned at once, and the border covered to keep it dry and warm; wooden shutters are sometimes used, but we prefer straw hurdles.

THE NEW FUEL.—To burn coal economically, instead of to volatilize 30 per cent. of that which we purchase in the form of smoke, and to send half of the heat produced up the chimneys, has been as yet too hard a task for us to accomplish. Gradual and enlightened reform in a matter of this kind, perhaps of any kind, is not altogether germane to the English character. But when a new feature is introduced, when a new power comes into play, great and salutary improvements often accompany it, as if of their own accord. Such seems to be the promise of the consumption of petroleum. If all that we hear of the economy and convenience of this material as a fuel be true, there can be little doubt that it will rapidly supersede coal for manufacturing, if not for domestic, purposes. In such a case, a smokeless London is not an impossibility. Let our photographers not omit to perpetuate some of the effects of picturesque gloom which, during August, 1867, have shrouded the leeward districts of London as if under perpetual thunder-clouds. The residents in a smokeless London would find it hard to understand how their predecessors should have supported life in the metropolis as it existed during the dog days of the present year; and no photograph can enable those happy future citizens, if such be about to succeed us, to tell how far the chief necessary of human life, the air we breathe, has been poisoned by the improvident development of commercial activity, and by a gradually-accumulated neglect of the prime laws of comfort and of health.—*The Builder*.

Correspondence.

ON THE MERITS OF TRICOLOR GERANIUMS AS BEDDING PLANTS.—All your readers must have had an opportunity of seeing and judging for themselves, either in public or private gardens, beds and edgings and borders, of this beautiful section of geraniums. Gardeners generally esteem them as great favourites, planting them in the most conspicuous beds, in ribbon-borders; and all sorts of colours and tints are brought into requisition for contrasting with them; and many of my neighbours estimate the value of their collection of bedding plants by the number of tricolors they possess, and count all other things of secondary value. Let us look at them without prejudice or favour. Are they worthy of the position they hold? No doubt they are in fashion; but let us not be led by fashion, but by good taste. Have they got that which constitutes a good bedding plant? Does not the colouring which makes the tricolor so beautiful as an individual plant deteriorate it for this purpose? To appreciate the beauty of this, give me a single plant; nay, I could say one single leaf. Concentrating my attention thereon as a lover of nature, I can revel in its loveliness; with the eye of a florist (or leafist) I can recount its numerous qualities, its harmonious blending of colour, its evenness of outline, its rays, its zones, its belts, its splashes, its contrasts, &c.; and as each successive leaf expands, with what eagerness do we watch its development, especially if the plants are seedlings, and if we think we can detect some peculiar tint, some advance in habit or outline! What delight is kindled while it displays to us, in gratitude for our care, all the colours and tints of an autumnal evening! It is as bright, and almost as transient, too; for on each day we look on a leaf it is changed in character, according to its age and development. It is too good a plant to be subordinate. What we want as a bedding plant is one that is decided, or self-colour, in flower or leaf; and the gardener can then use his colours as a painter while painting his picture—the difference being, one is upon canvas, the other on the greensward. Having these colours, we can make the picture as our fancy may dictate. Now, what colour can the artist or gardener call his Mrs. Pollock or Italia Unità? *No colour at all*—a mixture and a muddle; that is, in comparison with such as, say Golden Chain, Golden Fleece, or the bronze-foliage sections. They do not, in my fancy, harmonize with any other plants, although I have seen many things tried with them, and as a rule their own blooms are not bearable. When they are used as bedders, it ought to be in a limited quantity and in isolated beds, where the eye catches no other high colour but its surroundings, such as green cool verdure. I have beds of Mrs. Pollock, but none gives me so much pleasure as one of several varieties of plants I have planted in some rock-work. The beautiful green of ferns as a background and the dark rugged boulders of rock afford pleasing contrasts to the beautiful zones of the tricolor geranium; nor ought we to have large beds or masses of it: a small bed, say four feet over, a space where the eye looking down on it can comprehend the whole. Large beds are, indeed, too much of a good thing. I look on them with some such feeling as a painter would look on an admirable picture, but would not like a room hung full with fac-similes. It may be according to fashion, for I hear ladies on the Continent are wearing dresses on the skirts of which are printed copies of well-known and beautiful landscapes; but doubtless they are eyesores to a landscape painter. It is too much of a good thing, and not good taste; and so I say in the case of the tricolor geraniums.

Tooting Common.

T. S.

AGAVE GEMINIFLORA.—Can any of your numerous readers give me a few hints respecting a plant of the Agave tribe, which I consider to be the *Agave geminiflora*? I have had two of these plants under my care for many years; their foliage was considered ornamental for the conservatory. One of them, in August last, threw up a peculiar-looking fleshy stalk; it grows fast, and is now nearly seven feet high. Within a little distance from the base of the stalk it has thrown out bunches of flower-buds; I can now count over two hundred. I believe the flowering of this plant to be very rare in England, and shall be glad therefore to receive any information as to treatment while in flower, so that I may, if possible, save the plant from death by exhaustion.

JOHN CARTER,

Victoria Road, Wimbledon Park.

Gardener to Alderman Besley.

[We are not acquainted with this species of Agave; is it not rather a *Fouquieria*? We shall be glad to hear from any of our readers experienced in the management of succulents respecting this subject. In the mean time we advise our correspondent to give the plant plenty of water, and to increase the temperature slightly.]

KEEPING BEDDERS IN AN OPEN BORDER.—As a constant subscriber for several years, I should feel obliged by your advice. I have on one side of my garden a long border, facing north-east; it has a wall behind it, and is overhung by large trees in some places. It is of course very dry, especially as the whole garden is on a slope, and I have tried various plants in vain. I should be much obliged by your informing me what would grow best in such a situation, and the best mode of treatment. I observe this week you speak of turf-pits. I kept a large number of calcularias through last winter in a bed under a westerly wall, only protected by a wooden edging all round, about a foot deep, and covered in on top by a double thickness of sugar-mats. I also preserved in cold frames and pits all my stock of bedders, including Pelargoniums, Fuchsias, Lobelias, &c., &c., and had very few losses indeed, except in verbenas. What is the best time to plant bulbs of gladioli for an open air plantation? I see by "Carter's Catalogue," just to hand, they send them out in November.

B. A.

[The dry shaded border might be made beautiful with green and variegated hollies and a selection of herbaceous plants, such as Solomon's Seal, Polyanthus, and Primulas (the double varieties of the English primrose being exquisitely beautiful), *Artemisia maritima*, lesser Celandine, Enchanter's Nightshade, *Doronicum caucasicum*, *Epilobium hirsutum*, *Helleborus niger* and *viridis*, *Myosotis sylvatica*, *Potentilla alba*, reptans, and *tormentilla*; the double yellow Ranunculus or Bachelor's Buttons, *Spiraea Japonica*, *Statice armeria alba*, and alpina, any of the Periwinkles, especially those with variegated leaves, *Viola cornuta*, *cucullata*, and *obliqua*; you may also plant there a few clumps of Roman hyacinth, snowdrop, crocus, and narcissus, and leave them untouched several years. Any of the hardy Japanese shrubs would thrive in the same shady border. If you refer back, you will find abundant information on the cultivation of the gladiolus. The month of April is the usual season for planting the bulbs.]

Replies to Queries.

W. S.—This is not a good time usually to purchase bees, because the winter is approaching. Prices of stocks vary. We have heard that Messrs. Cutbush and Son, of Highgate Nurseries, supply swarms in the season; but we do not know if they also supply established stocks. You might write to them and inquire. The best book on bee-keeping is Taylor's, published by Messrs. Groombridge and Sons, price 4s. We cannot answer your query about savings banks.

W. W. B.—Your petunias are infested with thrip; you have kept them too hot and too dry.

T. Lechmann.—Your plant is *Dracena terminalis*, a rather difficult thing to keep in a window, but you may keep it with care. Read an article on *Dracenas*, by Mr. Gordon, which appeared five weeks ago, and you will learn how to manage it. Keep it warm and rather dry all winter, and let it have as much light as possible.

Q. Z.—Strip off the grapes and destroy them at once; they will come to nothing if left, and will probably do harm. Then begin to remove the leaves from the vines, a few at a time at intervals of a few days. When the vines are quite bare of leaves, wash them with a solution of Gishurst compound.

Hibernia.—1. We do not know; write to the advertisers of the plant. 2. Inquire of an astronomer. 3. There is no such book. 4. *Crocus sativus* has a perianth of six equal segments, three stamens shorter than the corolla, and a three-lobed stigma. *Colchicum autumnale* has six stamens, each alternately longer than the other. There are other and very obvious differences, but these will suffice to distinguish the plants while in flower.

B.—Leave the long gross shoots alone, and when pruning in March next shorten them back to hard wood, so as to retain a dozen or so of the best buds.

B.—"Editor" scarlet geranium has always been spoken of in these pages as first-rate.

Elvira.—Your fuchsias are infested with thrip; they have been kept too dry and too hot.

Forcing Lily of the Valley.—J. M., Liskeard.—The best bulbs for forcing are those imported from Holland, and which you can obtain only from the first-class seedsmen. Pot them as soon as you obtain them in light, rich, sandy soil, and plunge them out of doors as soon as potted in cocoa-nut fibre. In October put them in a warm greenhouse, and after the expiration of a week transfer them to a forcing pit or stove, where the temperature averages 50°, but which must be gradually raised to 70°, by which means they will be in bloom at Christmas. After Christmas they require about four weeks to be brought into bloom in a temperature of 65° to 70°. They must have plenty of light, or they will be poor wiry things. With good bulbs and good management, twenty to forty spikes of bloom may be obtained in a 32-sized pot.

Hamilton Terrace.—You have done all that can be done. Now leave the trees alone till winter, and then have them scrubbed with a hard brush and hot strong brine; that will keep the American blight away for several years, and do the trees much good.

Club.—Working Man has no chance of getting rid of club in his light land unless he will abstain from growing cabbage for two or three years, and in the mean time keep the ground always at work. A good dressing of lime might do very much towards a cure, but it is easier to propose remedies for club than to effect a clearance of the pest.

Growing Specimen Pelargoniums.—Novice must do very little with his plants until March next, but the foundation branches of the specimens must be carefully trained out while they are soft and pliable, otherwise to get them into position when the wood is ripe will cause the breakage of many. Keep them very near the glass; do not stop or prune until February next; winter them as cool and as dry as will be safe.

R. W. S.—The dates of the chrysanthemum shows are not yet determined by the respective committees, except in a very few cases, and therefore it is impossible for us to advertise them.

Correct Label.—We shall not report the Crystal Palace autumn show, for the simple reason that we do not think it worth reporting; the Crystal Palace shows become worse and worse every year, and are now quite unworthy the attention of men who value their time, and who are accustomed to see things well done.

Nemo, Kensington.—Your plant is *Artemisia vulgaris*, the "mugwort" of the village botanists.

CATALOGUES.

HUGH LOW AND CO., CLAPTON, LONDON, N.—*Select List of Dutch Flower Roots suitable for early forcing.* The hyacinths are classified in colours and styles with great care, and with more minuteness of distinction than is commonly observed.

B. J. EDWARDS, 222, STRAND.—*Autumn Catalogue of Hyacinths and other Dutch and Cape Bulbs.* A good list, with supplementary selections of annuals for autumn sowing, and miscellaneous garden requisites.

JAMES CARTER AND CO., HIGH HOLBORN.—*Vade Mecum Part IV.: Dutch and Cape Bulbs.* A great mass of useful information, combined with copious and well-arranged lists of bulbs, stove and greenhouse plants, fruit and ornamental trees, roses, and other subjects in request at this season.

WILLIAM CUTBUSH AND SON, HIGHGATE NURSERIES.—*Bulb Catalogue for 1867.* This catalogue fairly represents this celebrated bulb-growing firm. There is no announcement made as to any exhibition by Messrs. Cutbush and Son in 1868.—*Descriptive Catalogue of Stove and Greenhouse Plants, Fruit Trees, Roses, &c., &c.* Exceedingly neat in appearance, and admirably arranged for easy reference, and moreover including all the good things in the several classes.

HENRY LANE AND SON, GREAT BERKHAMSTEAD, HERTS.—*Fruit Catalogue, 1867.* The fruits are all described briefly as to size, season, character, &c., &c., and the best varieties for small collections and for special purposes are clearly indicated.

JOHN PRASER, LEA BRIDGE ROAD, ESSEX.—*Catalogue of Flower Roots.* A short but good list of hyacinths, tulips, gladiolus, strawberries, and other subjects in demand at the present time.

THOMAS SAMPSON, PRESTON ROAD, YEOVIL.—*Catalogue of Flower Roots.* Short and sweet, lacking nothing good, and not likely to perplex intending purchasers with a bewilderment of varieties in any of the classes.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1867.				M. Imp. avg. of 43 yrs. Growth	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain	Barometer.	Thermometer.	Rain					
1867			b. m.	h. m.	b. m.	h. m.												1867	
29	S	15th Sunday after Trinity.	5 58	5 43	7 27	a. m.	6 37	p. m.	29 87	29 85	70	51	60	5	01	52.3	Zygopetalum maxillare, M	... Brazil.	29
30	M	Michaelmas Day.	5 59	5 41	8 36	"	7 5	"	30.03	29 98	66	51	58	5	00	52.1	" rostratum, I	... Demerara	30
31	T	Length of night, 12h. 10m.	6 1	5 40	9 43	"	7 35	"	30.06	29 98	61	50	55	5	00	51.9	Paphinia cristata, I	...	1
1	W	Cambridge Michaelmas term begins, Oct. 1.	6 3	5 38	10 45	"	8 11	"	29 97	29 96	70	51	60	5	00	51.7	Bobophyllum Careyannum	... Nepal	2
2	Th	Length of day, 11h. 23m.	6 5	5 35	11 45	"	8 40	"	30 11	30 00	71	53	61	5	00	51.4	Miltonia Morelli	...	3
3	F	Richard Cromwell born, 1626.	6 7	5 32	p. m.		9 33	"	30.09	30 03	62	50	66	0	00	51.0	" atrorubens	...	4
4	S	Hyde Park riots, 1862.	6 9	5 30	1 27	"	10 22	"	30.28	30 21	55	52	63	5	01	50.5	" Regnell	...	5

The Gardener's Magazine.

SATURDAY, SEPTEMBER 28, 1867.

FRUIT-TREE CULTIVATION IN ENGLAND is not in quite so deplorable a state as to demand a revolution as the alternative of its entire abandonment. Our exhibitions keep us constantly reminded that in all parts of the country the best fruits are skilfully treated and thoroughly appreciated, and, generally speaking, we believe sufficient is produced for our own consumption, though our markets are largely supplied with foreign produce. Communications with the Continent are now so rapid and certain, and the cost of freightage is, comparatively speaking, so small, that the foreigner, employing labour at a cheaper rate than rules here, renting land at less than English averages, and with a more intense and continuous flood of sunshine gratis, can compete with our own growers advantageously, and is likely therefore, to a great extent, to keep command of our markets in respect of certain classes of produce. Cheap baskets of well-ripened Black Hamburgs may now be seen in all the grocers' windows in London, and they command a ready sale at a price which pays the grower a liberal profit on the cost of production. Nevertheless, English-grown fruit is by no means at a discount. First-class peaches have been realizing a shilling each at Covent Garden for some time past. First-class English grapes, which surpass in quality all other grapes, no matter where in the world they are produced, realize prices that are calculated to encourage home cultivation of this best of fruits. As to the general management of fruit gardens, our practice is not quite antiquated, and perhaps a little of what might by some be called retrogression would be for our benefit. As to peaches and wall-trees generally, we see them in good gardens superbly managed, and on the fan-shaped system of training and its few modifications, the trees are, in a majority of instances, in perfect health, and are abundantly fruitful. We have two special enemies to contend with—the late frosts that destroy the embryo fruit or nip the blossom in the bud, and the dull damp weather commonly prevailing in autumn, which interferes materially with the perfect ripening of the wood. The antidote to these two evils is to be found in the more general employment of glass. First-rate grapes and peaches can only be obtained, except in highly-favoured districts, with the aid of some kind of shelter, whether in the form of a glass-covered wall, a spacious and well-fitted house, or the more humble, but highly useful, "ground vinery." It is quite certain that the judicious use of glass in fruit culture will always quickly repay its cost, both in the greater certainty and quantity as well as in the superior quality of the produce. We save thereby the tender crop from destruction by frost and wet when the trees are in bloom, we obtain increased heat for the ripening of the fruit, and the growth of the season is more perfectly matured. No one expects a dish of Black Hamburg grapes or Warburton Admirable peaches worth a place on a good table without the help of glass. Even strawberries, the hardest of our choice fruits, and lovers of the fresh air, are the better for the shelter of glass in a cold season. But we can scarcely help saying that in many instances, and with of course the best intentions, glass has been abused. The orchard-house with its potted trees is a charming affair when well managed, and the trees will give as much fruit as would fill the pots they are grown in; but it is a manifest delusion to suppose that the produce is ever equivalent to the actual value of the labour expended in securing it. Where an amateur, seeking amusement and not charging an ideal price to his own fruit account for the hours spent in the care of potted trees, has attained to some degree of skill in this system, it affords a delightful recreation, and the result may be considered to him "all profit." But if skill and labour have to be paid for at average rates, potted trees make too much work for the return they give, and we go back to the old and sound system of planting out in borders as the one to be trusted for profitable ends. In the first instance, fewer trees are required, at every step there is less work, and the trees, having more

vigour of growth, are less infested with vermin, less tortured by disease, and the crop puts to shame that of the best collection of potted trees occupying a similar extent of glass. A well-shaped and freely-fruited pot-tree is a beautiful object, of which its possessor may well be proud; but the man who keeps a ledger, and desires fruit at no higher price than its actual cost in outlay and labour, will be cautious how he deals with these pretty toys, and will prefer to accommodate nature rather than engage in a constant warfare with her. All restrictions of the head and root, no matter what the subject may be, is a form of warfare, and in the case of fruit-trees restriction must increase the cares of the cultivator and lessen the chances of success.

But restriction is not alone practised in the cultivation of fruit-trees in pots. We see it everywhere in operation as the orthodox method of cultivating the grape-vine, and the complaints of shanking, bad colouring, and other ailments, which reach horticultural advisors in extravagant abundance, invariably occur in connexion with restricted vines. The great vines at Finchley, Hampton Court, and Cumberland Lodge are never in need of doctors; they spread abroad as Nature designed the vine to spread, and though subjected to artificial treatment, and rooted in a soil many degrees colder than the vine is accustomed to in its native habitats, their vigour is ever in excess of the influences tending to their injury, and a state of health and productiveness is normal to them. When we called attention to this subject in December last, we had no anticipation of the discussion that would follow; but we had no doubt at all about the result of an inquiry, and now we may fairly assert that the balance of testimony is overwhelming in favour of the unreserved acceptance of the TEACHINGS OF NATURE; and restrictive culture, except for special purposes, and under peculiar circumstances, has received its death-blow.

What is true of the grape-vine is true of other trees. "Miniature fruit gardens" are to a great extent miniature delusions. As in the case of potted trees and single-rod vines, and single-cordon apple and pear trees, the "prolific bushes" are admirable, beautiful, useful things. They grow very little, and produce, in comparison of the space they occupy, very fair supplies of good fruit. But if our supplies of home-grown fruit are defective, these miniature trees will not supply the deficiency. They belong to the land of toys, and their advocacy as profitable fruit producers has been overdone. Let us hope that somebody has been benefited in a substantial manner by the distribution of thousands of these "miniature trees;" but let us hope also that healthy trees on free stocks—trees possessed of vigour and long-lasting properties—may be looked to for profitable results rather than such as are chiefly interesting because of the excessive trouble they occasion, and their general adaptiveness for planting in the front of a doll's house.

THE THOMPSON TESTIMONIAL FUND progresses far too slowly to represent the appreciation of British horticulturists for merit and good service. It may be that testimonials have become so commonplace as to meet with indifference, even in the case of an exceptional claim to public generosity; or it may be, and possibly this is the true reason of the tardy progress of the subscription list, that it is not yet generally known throughout the country that Mr. Thompson is about to retire from the superintendence of the Horticultural Society's garden at Chiswick, and his friends have determined to make him a substantial present in recognition of his splendid services to English horticulture. None of our professional readers need to be reminded of Mr. Thompson's labours in the classification of fruits and the rectification of fruit nomenclature. Except for his labours, more than one recognized work on fruits could possibly never have existed, and it is quite certain that to him chiefly are pomologists indebted for the precision, accuracy, and uniformity of nomenclature and classification that have of late years acquired ascendancy. From his position of authority at Chiswick, Mr. Thompson has exercised a beneficial influence upon every fruit-garden in the land. Through his application, and the exercise of a fine critical power, local names have given place to names universally understood; inferior varieties have been eliminated from the nurseries and the catalogues, and the best kinds in the several classes have been brought into notice prominently, and established as the

standard by which the merits of new varieties shall be tested. Nor is this the only service for which we are indebted to the modest, pains-taking, courteous, and clear-minded superintendent of Chiswick. He has written the best practical treatise on horticulture, "The Gardener's Assistant;" he has enriched the literature of science with papers on meteorology, relative climate, the diseases of plants, the various modes of improving and of multiplying fruits; and for five-and-thirty years he has superintended the meteorological observatory at Chiswick, and accumulated a splendid series of minute observations and returns, which cannot fail to prove of the utmost value in the investigation of atmospheric phenomena, and the determination of meteorological law. We are almost inclined to apologize for obtruding these particulars, because the progress of horticulture during the past half century has been so intimately associated with and dependent upon Mr. Thompson's labours, that to advocate his claims may be really superfluous. Lately, a list of subscriptions to the testimonial was forwarded to us, and it appeared a somewhat scanty list, and we concluded, and still conclude, that it is not yet sufficiently known, that every practitioner of horticulture has the opportunity of testifying, by subscription to the fund, that Robert Thompson of Chiswick has not laboured in vain, and shall not be without his reward.

There is a chronic difficulty in connexion with testimonials, which we should like to see ignored or annihilated in this particular case. This is not strictly a complimentary proceeding. A *substantial money-gift* is intended. We suppose all our readers know what that means. Now, the chronic difficulty is this—persons who cannot subscribe large sums are shy of sending small sums, and in the end do not subscribe at all, though conscious that in abstaining they neglect a duty and lose a pleasure. Now if thousands of gardeners allow this difficulty to paralyze their generous hands, the Thompson Testimonial will lack a feature of inestimable value. The difficulty may be most easily overcome. Let us take it for granted that every gardener in the land desires to contribute according to his means. Let there be established at once in all gardens where several hands are employed, in all nurseries, in all assembly and club rooms where gardeners meet, in all possible centres of horticultural interest, auxiliary funds for the gathering together of shillings, half-crowns, and so on to larger and larger amounts, and within a specified time, say a month, from the commencement of the movement let the moneys be transmitted to THOMAS MOORE, Esq., the Botanic Gardens, Chelsea, or Mr. JAMES RICHARDS, Assistant Secretary to the Royal Horticultural Society, South Kensington. Let there be, for once in the history of horticultural industry and enterprise, a GENERAL CANVASS, head gardeners, foremen, secretaries of societies, and others in influential positions, taking the lead, and that *promptly, generously, with spirit*, and in entire forgetfulness of any and every personal or party feeling, and with the view to make a bright mark on the annals of horticulture in commemoration of Mr. Thompson's long-pursued and honestly-accomplished labours.

AMONGST the many sales taking place just now, one announced for the 2nd and 3rd (Wednesday and Thursday next), at the old Edmonton Nursery, well deserves the attention of all classes of plant-buyers. Speaking by knowledge, we can say that the stock now coming under the hammer is as good as it is various. This sale will, we suppose, be the last scene in the history of one of the most celebrated nurseries on the north side of London.

A NEW FLY-TRAP.—A horticulturist who has had reason to complain of flies has invented a trap for destroying these pests; the trap is exceedingly simple, and is said to be very effective. The inventor commences by stating that to preserve your fruit-trees you must offer the fly something he prefers to your plums; now he likes meat better than anything else, so you place a piece under a cover, leaving a small entrance like that of a beehive for the fly to get in; the fly having consumed as much as he requires, has, as the horticulturist says, high aspirations. Like the sparks, he flies upwards. To accommodate him in his ascensional movements, you must make an opening at the top of the cover, and apply to this opening a tube of glass with a ball at the end; in fact, an apparatus like a long-necked wine decanter turned upside down; the flies will climb up into the globe, and not being overburdened with common sense will never think of descending and getting out by the way they got in. There is one of these fly-traps at the Paris Exhibition in the park close to the *Ecole Militaire*.

DESTRUCTION OF ENGLISH BIRDS.—Just before the close of the session, the Rev. F. O. MORRIS, rector of Nunburnholme, petitioned Parliament, praying that a heavy tax be imposed on the possession of a gun, pistols being amply sufficient for all purposes of protection, and that the law of trespass be made more stringent with the like object in view, the protection, within due bounds, of each and all of our native birds. Mr. Morris sets out the following among other reasons: "That birds perform a most useful part in the economy of nature; that if they are unduly destroyed insects increase in similar proportion, and do vast damage to the produce of both farms and gardens; that birds are ornamental as well as useful, and give great pleasure and instruction to naturalists and others who observe their habits; that owing to the indiscriminate and untaxed use of guns they are wrecklessly destroyed in great numbers every year; that many important and useful species have in this way already become extinct in Great Britain, and that others have become more or less rare, and will in like manner be exterminated if some means

for their protection and preservation be not adopted. That in the year 1864 your petitioner published a suggestion that there should be a tax laid on guns for this object, and that such tax would bring in a very large revenue to the exchequer. That its enactment would at the same time do away with the vast amount of poaching; that it would be the means of saving many lives which at present are sacrificed every year by the incautious use of fire-arms in everyone's hands *ad libitum*, as well as otherwise."

EAST LONDON AMATEUR FLORICULTURAL SOCIETY.

The summer exhibition of this society was one of the best ever held in the eastern parts of London, and perfectly justified the sanguine expectations of its promoters, who secured for the purpose larger and better rooms than they have been accustomed to select for their exhibitions hitherto. On this occasion the show was held in the Grammar School, Tredegar Square, Bow Road, which though far better than the Vestry Hall, where previous meetings have been held, was yet insufficient for the accommodation of the company. The society has, in fact, outgrown the capabilities of the district, and it will be a matter of the first importance in the future management to find a place in which the whole of the contributions and the whole of the company can be assembled together without inconvenience. It is not at all surprising that this society should enjoy continually increasing prosperity, for the members of the committee work together in perfect harmony, and are untiring in their efforts to insure success. On the present occasion the contributions were numerous, various, and of excellent quality throughout. In the class for six fuchsias, Mr. Deacon took the lead, with Mr. G. Groves second, and Mr. Peters third. In the class for three fuchsias, Mr. Hawkes took first place; Mr. Deacon, second; Mr. Enness, third. Three fuchsias, cuttings of 1867, a good class, first, Mr. Hawkes; equal second, Messrs. G. Groves and W. Grove. Three miscellaneous plants, first, Mr. W. Grove, with a fine *Coleus Verschaffeltii*, *Ficus elastica*, and a *Caladium*; second, Mr. Deacon; third, Mr. Sinclair. In the class for best collection of plants, first, Mr. Deacon, with a splendid lot, comprising good examples of *caladiums* and *begonias*; second, Mr. Grove, who, amongst other good things, had examples of *Tritoma uvaria*, *yuccas*, *aloes*, *stripe-leaved maize*, and some beautiful *begonias*; third, Mr. Hardy; fourth, Mr. Howard; fifth, Mr. Sinclair; Mr. Grace, Mr. Archer, and Mr. Enness following. In the class for collection of geraniums, first, Mr. Deacon; second, Mr. W. Grove. Amongst other plants shown, special mention must be made of a fine *Coleus Blumei* and *Gloxinias* from Mr. Grove; and a collection of miscellaneous plants from Mr. Truschell, of Stoke Newington. Balsams from Mr. Sinclair were good.

Cut flowers were of course abundant. Mr. Hopkins, of Brentford, took the highest positions in all the large classes for dahlias with a brilliant display of flowers. In the minor class for dahlias, the leading exhibitors were Messrs. Homewood and W. Groves. Amongst miscellaneous subjects, there were charming bouquets from Mrs. Grove, Miss Grove, and Miss Larch; a beautiful fern-case from Mr. Ocraft, a stand of roses from Mr. W. Grove, and various fruits from Messrs. Grove, Smees, Enness, Schrier, and others. Mr. Wilkinson, nurseryman, of Old Ford Road, contributed a beautiful collection of plants, not for competition; and Mr. Allen, nurseryman, of Shacklewell, contributed in like manner plants, flowers, and decorations. On one of the days of the show 1,000 school children were admitted gratuitously, greatly to their delight, which was increased considerably by the distribution amongst them, by the Rev. Mr. Sutherland, of the prizes awarded by the judges for their contributions. They were afterwards addressed by the Rev. J. Carter.

At the dinner of the society, at which there were present more than the ordinary number of guests, Mr. Howard, the chairman of the committee, presented to Mr. Allen, of Shacklewell, a handsome piece of silver plate as a mark of the respect and esteem in which he is held by the members of the society, on account of the generous manner in which he has always assisted the exhibitions by his advice, his contributions, and his presence. We have frequently witnessed Mr. Allen's devotion to the interests of the society, especially in the contribution of plants and flowers in a prodigal manner, and we have great pleasure in recording this acknowledgment of his zeal and service. Mr. Allen returned thanks in an appropriate manner, and of course had the privilege of proposing the health of the chairman. May the cordial spirit which animates the members of the East London Society long continue!

BERMONDSEY FLORICULTURAL SOCIETY.

The annual show of this Society took place at the Holly Tree, Blue Anchor Road, Bermondsey. Though there were good contributions in all the classes, dahlias were the chief attraction. But not less important in respect of display were the designs in cut flowers, of which there were many, and some of them were highly meritorious. For example, Mr. J. Chesney, jun., exhibited a design representing the arms of the City of London made up of dahlia petals, an ingenious and beautiful piece of work. Mr. Lindus presented a floral reproduction of the Prince of Wales's feathers. In the class for 12 dahlias: first, Mr. Gueran; second, Mr. Rose; third, Mr. Beard; fourth, Mr. Burt. 6 dahlias: first, Mr. Gueran; second, Mr. Beard; third, Mr. Burt; fourth, Mr. Rose; fifth, Mr. Greening; sixth, Mr. Dench. 12 asters: first, Mr. Rose; second, Mr. Gueran; third, Mr. Beard; fourth, Mr. Mars; fifth, Mr. Burt. 6 asters: first, Mr. Rose; second, Mr. Gueran; third, Mr. Dench; fourth, Mr. Burt; fifth, Mr. Mars; sixth, Mr. Gage. The asters generally were good, and there was a capital lot of 12 from Mr. A. Russell, not for competition. 6 antirrhinums: first, Mr. Rose; second, Mr. Gage. 12 fuchsias: first, Mr. Greening; second, Mr. H. Thomas. 6 fuchsias: first, Mr. Greening; second, Mr. Clench. All the fuchsias were small, but, generally speaking, well-grown and good varieties. 12 asters in pots: first, Mr. Thomas; second, Mr. Dench. 6 asters in pots: Mr. Burt first. 6 balsams: first, Mr. Clench; second, Mr. Greening. The awards in the competition for devices were as follows: first, Mr. Gage; second, Mr. Chesney; third, Mr. T. Gage; fourth, Mr. C. Wells. The awards for bouquets were: first, Mr. Greening; second, Mr. Rose. There were some good collections of vegetables.

SUNSTROKE.—A correspondent, observing the frequency of death from sunstroke lately, suggests what might be an easily-obtained remedy, whether in the garden or in the field. Many a sportsman must have found relief on a hot day by putting in his hat turnip leaves or fern leaves. A thick cabbage leaf or two are very good, perhaps the best. Several pieces of white paper, with holes through them, would also be found useful.

KENSINGTON PALACE AND HYDE PARK GARDENS.

Kensington Gardens at any time of the year is always an interesting spot to the mere rambler, and to gardeners generally; for here is a fine collection of majestic and stately old trees, and a choice assortment of the newest shrubs, which collection, I think, is second to none in the kingdom. Mr. Mann, the superintendent, has taken especial interest in this department: they have been judiciously planted for effect; and correctly named for the convenience of the public. All these beautiful avenues and groves and glades are the work of Mr. Mann, who commenced operations somewhere about forty years ago. The old trees have been for years decaying, making great gaps that young trees cannot fill, and as there was space sufficient to admit a line of young trees in front of the old ones, this was done, and the result is that there are groves of half-grown and flourishing trees, the turf on which they stand smooth and level, and their stems distinctly seen, with room to extend their heads and branches. The old and tall trees in the rear look over the heads of the young ones, and blend their foliage with them in a very pleasing and striking manner, and as the autumn advances it will be more so, for the old trees change colour before the young ones, and must therefore enhance the ornamental effect of their association. It is said that in a grove or an avenue the same object is seen from beginning to end. Granted; but here is perpetual change and variety, for here is a grove of elms and an avenue of oaks—in fact, they meet and cross in all directions—and there are also groves of chestnuts, hornbeams, abeles, birches, and other trees: they have a simple and grand effect without any sameness or even formality, and in spring-time there is something so very charming in these rows of trees. Every line has its peculiar tint of green, which is soft, fresh, and delicate, producing inexhaustible sources of delight and admiration. But when we add 100,000 plants which blossom in these gardens and park in spring, the enjoyment of the walk is greatly heightened and varied. Such indeed is the case—100,000 plants are grouped in beds and borders, their diverse forms and colours contrasted and blended with admirable taste. This display adds greatly to the charms of returning spring. These 100,000 spring flowers pass away as the summer comes, and there are then planted 300,000 plants to bloom through the season. This number will I have no doubt startle some of our country cousins, who are apt to think that Londoners do not see anything but bricks and mortar, but they will see that flowers are not scarce—they are as numerous as the bricks. I fancy I hear some one say, "What a quantity! I almost doubt it;" but there is no mistake about it, as I got my information from Mr. Bullen, Mr. Mann's foreman and propagator, on Friday the 30th of August, as I had the good luck to meet with him on that day, and he had a walk round with me, and we went to every bed and border, and passed this 300,000 in review, and a pretty sight it was. We started from the Palace, and first took notice of the new geraniums. *Nimrod* was conspicuous amongst the lot, a good truss and a bright orange-scarlet flower; *Cardinal*, orange-scarlet, is a darker shade than *Nimrod*—Mr. Bullen thinks this the best geranium raised; *Rebecca* pleased me much. It is after the style of *Amy Hogg*, but I was assured that it was not so good as it looked. I inquired the reason: "It is too prolific of seeds," was the reply. *Crystal Palace Gem* is one of the good things here; and so is *Annie Williams*. The following sorts are very much cut up for propagation, which is a convincing proof that they are to take a leading part among the 300,000 next summer: A *Seedling* of their own, salmon colour—what I could see of this, I think it will be good; *Dr. Lindley*, *Lucius*, *Madame Barré*, *Rose Belle*, *Waltham Seedling*, *Donald Beaton*, *Duchess*, *Culford Rose*, and *Indian Yellow*. There were, of course, scores of others, but not so much thought of.

Mr. Chamland's cottage (Mr. Mann's head foreman, who took Mr. Massey's place) is as attractive as in former years: thousands of people are gazing at it this very day. It is planted thus:—

The beds in front of the Palace are, as usual, well done; the colours richly contrasted and harmonized, and the effect in every respect good. Here is a square piece of turf with beds.



No. 1.—Middle, *Centaurea ragusina* and a crimson *Calceolaria* mixed. All round this, a circle of *Verbena*, a seedling, a charming thing; the colour deep pink; the habit and style of growth like *Purple King*. The edging to this bed is *Lonicera aureo reticulata*. It was good indeed.

No. 2.—Centre, *Coleus Verschaffeltii*, planted in star shape; an edging of *Portulacas* and *Mesembryanthemums*; and the filling-up between the two *Cloth-of-Gold Geranium*.

No. 3.—Yellow *Calceolaria aurea floribunda*; a circle of the pink *Seedling Verbena*; and an edging of *Cerastium*.

No. 4.—Variegated *Geranium Annie* and blue *Lobelia* mixed; an edging of *Lonicera aureo reticulata*.

No. 5.—Centre, *Amy Hogg Geranium*; next, *Geranium Mrs. Whitty*; edging, *Purple King Verbena* and variegated *Alyssum*.

No. 6.—In centre, bright scarlet *Geraniums*, such as *Stella*, *Cybister*, *Waltham Seedling*, and *Donald Beaton*; next, *Geranium Bijou*; *Purple King Verbena* is the third row; edging, *Gnaphalium lanatum*.

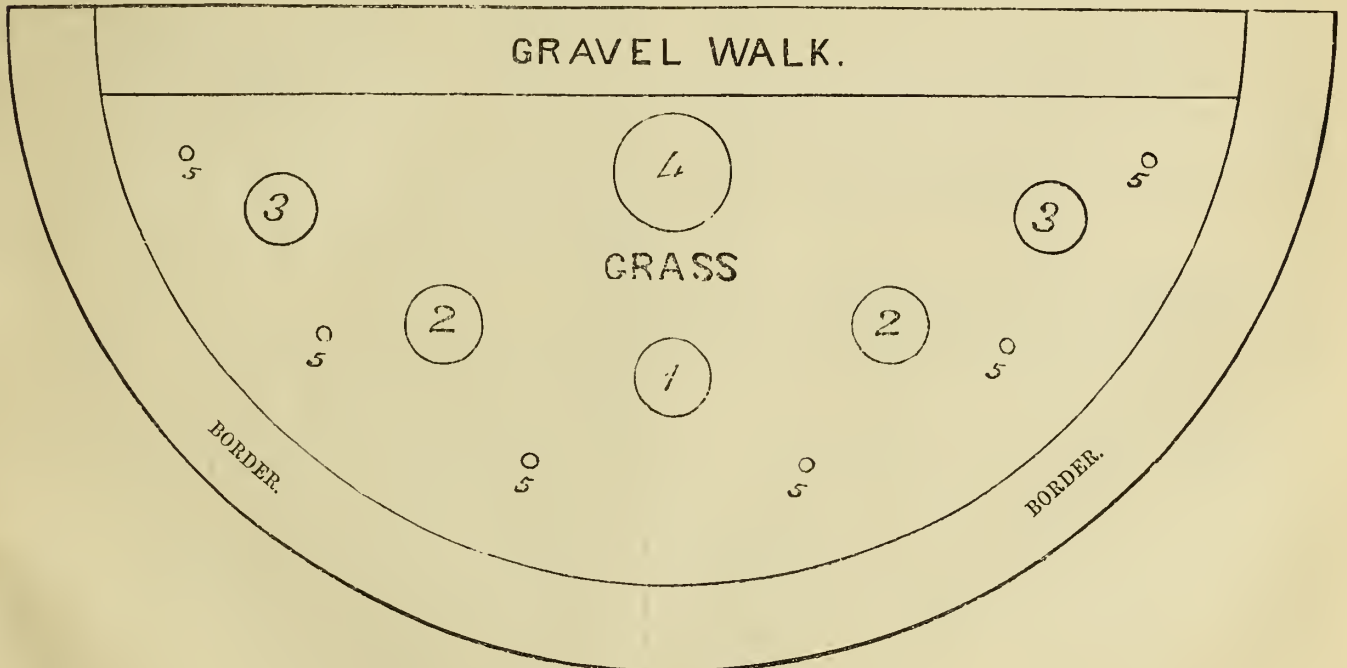
No. 7 is like No. 6, except that there are light or pink *Geraniums* in centre, such as *Mrs. Whitty*, *Madame Rudersdorf*, &c.

Round on the east side of the Palace there are some good examples of bedding, such as variegated *Geranium* edged with *Iresine Herbstii*, blue *Lobelia*, and *Lady Plymouth Geranium*; *Alternantheras*, edged with *Sedum glaucum*. On the west side, a flower border is very attractive: the first row, or edging, is variegated mint; second, *Alternantheras*; third, yellow *Calceolaria*; fourth, *Geranium Stella*; fifth, *Ageratum*; and then a mixed lot blending in with the shrubs. It forms a highly picturesque scene.

On leaving the Palace, we made our way to the park, through the floral walk. This walk is 700 yards long, with a flower-border on each side, planted thus: First row, *Stachys lanata*; second, *Geranium Tom Thumb's Master*; third, yellow *Calceolaria*; fourth, white *Pyrethrums*, and then a mixture of all that is good.

We now come to Albert Gate, to the improvement, or new garden, that was made in spring, and it certainly is a fine specimen of modern gardening. It is a model of what a public garden should be. Here is a variety of different objects, grouped and arranged in a style which is new in composi-

COTTAGE WITH ROCKWORK AND IVY.



This border has in the centre *Crimson Nosegay*; on each side, mixed rows of pink and scarlet *Geraniums* and yellow and orange *Calceolarias*; an edging of *Lady Plymouth Geranium* and *Purple King Verbena*.

No. 1.—Silver Chain *Geranium*, mixed with *Viola cornuta*; a ring of *Mrs. Pollock*, and an edging of *Echeveria secunda*.

No. 2.—*Geranium Mrs. Whitty*; an edging of blue *Lobelias*.

No. 3.—*Amy Hogg*; an edging of *Cerastium tomentosum*.

No. 4.—Scarlet *Geranium*; edging, *Lobelia* and *Lady Plymouth Geranium* mixed.

No. 5.—Large flower-pots filled with mixtures, completely covering them.

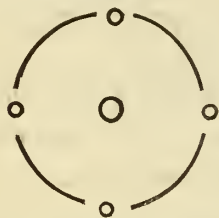
tion and character. There is a distinctness and a certain marked feature of a positive kind, which the eye can dwell on with pleasure; and as you traverse it, the scene changes at every step. I think it will be agreed by all that the principal excellence of this artistic work is naturalness; such a term, too, is the only one I consider appropriate to describe it. The surface is not level, but irregularly undulating. The flowers, shrubs, trees, and specimen plants, with fine foliage, are grouped in the happiest manner, and with as much in-

tricity and variety as they can give to a lawn without destroying its character. In the hollows are ornamental foliage and sub-tropical looking plants, which are now so much admired for their noble and handsome leaves such as Caladiums, Cannas, Azaleas, Castor-oil plants, Dracenas, Ferdinandias, Ficus elastica, Yuccas, Maize, Palms, and Cordylines. The beds for flowering-plants are on level and open spots; nothing but the choicest kinds are brought together to plant here, and they are dispersed in beds of various sizes and forms; triangles, circles, ovals, crescents, scrolls, and other various forms, artfully disposed, sometimes in masses, leaving large open grassy glades, which are broken up by single specimen trees and shrubs. The masses are rendered light in character by one or two detached beds of a smaller size. In the arrangement of the flowers in the beds, the mixed system has been carried out. I like this plan for two reasons: in the first place, the plants need not be planted so close; and in the second, they have more room to grow.

No. 1.—A bed of Mrs. Pollock and blue Lobelia mixed. This is a bed that will satisfy the eye, and produce harmony of colour; the red flower is supported by the due proportion of the yellow leaf; the blue Lobelia is harmonized by the presence of the other two colours, and the green turf is a complement to the red.

No. 2.—Queen of Queens, a silver-margined geranium with brilliant scarlet flowers, and Lobelia; good.

No. 3.—Luna geranium and Mrs. Lennox geranium, two half circles of each, mixed with blue Lobelia. A fine Rhododendron in the centre, and four Ficus elasticus, thus—



No. 4.—Geranium Mrs. Pollock and Viola cornuta; geranium Luna and Viola cornuta; geranium Annie Williams and Viola cornuta; geranium variegated Stella and Viola cornuta; very good.

Here, too, are some fine clumps of Cannas; but the other side of Rotten Row is the place to see the Cannas; for there is a field of them, planted in beds, all shapes and all sizes. The sorts most in favour are Coccinea, Annei, Discolor, Gigantea, Limbata major, very fine; Warscewiczii, Zebrina,

Purpurea, Metallica, Indica rubra, &c. Each bed has an edging of a plant of another kind, such as Coleus, Centaurea, Iresine, Solanum, variegated Coltsfoot, Euonymus radicans variegata, and others. It is hardly necessary to say that the effect produced by such noble plants is grand in the extreme, and it does not require what is called a superior taste to appreciate their beauty.

After all, the things which I admired most were the bold and massive clumps on this new ground, and the way in which they had carried out the massing system: flowers and foliage are here tastefully combined. There is no doubt about the effect that may be produced in gardens by this method of embellishment. Also, these large clumps have edgings of Stachys lanata; then comes the mixture of the ordinary bedding plants, such as verbenas, petunias, calceolarias, geraniums, &c. Then come the dwarf ornamental foliage plants, such as Cineraria maritima, Perilla, variegated Maize, &c. Further back, Cannas, Aralias, Caladiums, Dracenas, and among these mixed standard fuchsias and scarlet geraniums. Then come the plants of noble aspect and leaves of elegant outline, such as the Ricinus or Castor-Oil, Nicotiana wigandoides, Pampas grass, Tritomas, Polymnia grandis, &c. The Polymnia requires plenty of water and a rich soil, and then it will have a free bold habit, and form a capital companion to the noble Ferdinandia emmens. Phloxes, dahlias, and hollyhocks also abound in these clumps.

Let us now have a look at Hyde Park. The flowers by Park Lane perhaps never were better than they have been this summer, and all that I have heard speak of the display there have pronounced it perfection. The keeping of this part is entrusted to Mr. Dennis, and well has he and his little staff done their duty—not a leaf out of its place, nor a dead one to be seen. From Stanhope Gate to Grosvenor Gate, a distance of about six hundred yards, is where the principal display is to be seen. The beds are here oblong, planted thus: On the right-hand side next the Lane there is a run of oblong beds on grass from one end to the other, principally geraniums, two sorts in a bed, about three rows in the middle of one sort, and a row between it and the edging, which is part of the way variegated mint and blue Lobelia. There are a few beds with yellow Calceolaria in the centre; this enlivens the whole. There seemed to be all the best geraniums used here, and all the shades from Stella down to Madame Vaucher, and they were nicely contrasted. Black Dwarf and Christine—Culford Rose and a silver-margined leaf—Calceolaria and Madame Barré—Boule de Feu and Duchess—and others too numerous to mention.

On the left-hand side next the Park there are likewise oblong beds, nine in all, similar to those on the right, except the edging and the next row. The edging is Gnaphalium lanatum; next row Purple King Verbena. The middle bed is the key-bed—three rows of scarlet and one row of silver-edge geranium. The next two from the centre, Mrs. William Paul and Cloth-of-Gold. Next pair, Stella and Annie geraniums. Next pair, Madame Vaucher and Christine. The ends, Cybister and Golden Fleccc. Between each two beds is an evergreen oak.

Now we come to the ribbon border, about four hundred yards of it edged with Cerastium tomentosum; next Purple King Verbena; next a silver-loved geranium; next yellow calceolaria; next scarlet geranium; top line Perilla. Beyond that mixed shrubs. This looks very well, but the calceolaria ought to have been where the geranium is, and vice versa, as the calceolaria is too tall for the geranium, and it would have been better for contrast of colour. At the back of this ribbon border in the other walk is a fine example of panel painting. This, I think, is an extravagant way of planting, for it takes such an enormous quantity of plants to carry it out properly, as it is done here. There are three examples: in the first the groundwork is silver variegated geranium; within this blocks of Coleus Verschaffeltii (1); Crystal Palace Scarlet geranium and round blocks of Amaranthus melancholicus (2) :—



The next panel has a groundwork at each end of Heliotrope, round clumps of Calceolaria Prince of Orange; the centre ground of this panel is Tropaeolum with round blocks of Mrs. Pollock, and edging of Iresine Herbertii.

The next panel has groundwork of Verbena Lord Raglan and round blocks of yellow Calceolaria; the centre is Cloth-of-Gold Geranium; the edging Lady Plymouth Geranium and blue Lobelia mixed. The next groundwork is scarlet Geranium Boule de Feu, six round clumps of Cineraria maritima, the edging Verbena Purple King and variegated Alyssum. This brings us to Grosvenor Gate; from thence to the Marble Arch the beds are more thinly scattered, on account of the large trees there. But still they are very neat but elegant, and to name them would be only a repetition of some of the beds that are to be seen in other parts of the Park, and likewise near the palace in Kensington Gardens, which I have described. N. COLE.

STORING FRUIT.

We so seldom see a proper provision made for the storing of fruit, that I am induced to offer some remarks upon the subject that may be useful to those who really wish to enjoy well-kept apples and pears, for it is one thing to grow fruit and another to keep it.

In the first place, where any quantity of apples and pears are grown, both for the dessert table and for culinary purposes, a properly constructed fruit-room should be provided. In gardens of any pretensions we usually find a fruit-room, but in many there is none at all. But, to see a well-constructed fruit-room combining all the essential conditions necessary for keeping fruit is an exception; the position is either unsuited to the purpose, or some rickety tumble-down place, for which a stranger would be at a loss to find a name, is chosen for the purpose. A knowledge of this, gathered from my peregrinations into different parts of the country, has induced me to direct the attention of fruit-growers to the subject, and at the same time to point out some of the defects of fruit-rooms.

The position of a fruit-room should undoubtedly be so that the internal atmosphere should not be materially influenced by the outward elements, either by heat or cold; and to insure this, it must be somewhat sheltered, but not enclosed either by large trees or other buildings. It may stand in a range with other buildings, providing the precaution is taken that those adjoining do not shade or shelter it too much. A span-roofed structure, with its two sides facing east and west, is unquestionably the best position and form. The spot should be dry by being well drained if necessary. The most unsuitable form of fruit-house generally seen is one placed as a lean-to against a high wall with a northern aspect. Not unfrequently, we see what is termed the fruit-room in a musty old loft, and perhaps beneath it a great furnace fire going night and day, sending its waste heat and sulphurous smells up between the crevices into the fruit-room, while perhaps just through the wall is a forcing house maintained at a high temperature, hence the wall which divides the two becomes heated, and the air of the fruit-room is consequently heated by conduction from the wall. Where this is not the case, I have seen many examples where the room has been injuriously close and damp for the want of ventilation.

Those who have had any experience in this matter will agree with me in saying, that to have fruits in perfect ripeness, according to their different seasons of use, the most vital point is to keep the air of the room as near as possible to one even temperature; for as heat favours the maturation of fruit, so does cold retard it, and both are alike injurious to the promotion of good-flavoured fruit. This fact being acknowledged, we have to consider the kind of material best suited to the building of fruit-rooms; and to every experienced reader wood will present itself as eminently suitable as being the best of non-conductors of heat. My idea of the building of a fruit-room would be to have brick foundations to just a few inches above the ground, with the ends and sides of wood, composed of good stout uprights. These, both inside and outside, I would have neatly boarded, and the space between the boards, say about four or six inches, filled up with sawdust. Such a structure would not only prove a good non-conductor of heat, but would be capable of resisting a great amount of cold, thus securing one of the most essential features in a fruit-room. The internal fittings of such a room should consist in a tier of wide shelves all round from top to bottom, and in the middle of the building another tier of shelves, round which there should be ample room to move about. Means should be provided for admitting a current of air, both at top and bottom, at about two different places along each side, and the same at the apex. Systematic ventilation is very desirable to carry off the exhalations from ripening fruit, and, in my opinion, unless we maintain a sweet pure atmosphere the flavour of fruit is materially injured; in fact, I believe a certain amount of fresh air is necessary in promoting the ripening process of some of our best pears, and as to the late keeping sorts, I am not sure if we should not improve the flavour of them if we were to transfer them to a shelf in the forcing house a few days before they come into use, for what is favourable to those kinds which ripen in the open air cannot be an injury to others.

Very many of our most luscious pears are not valued in every case as they deserve, simply because people do not know their right season of use, and for the want of a proper place to keep them in. Yet many take the greatest care and spare no end of expense in cultivating, and then indignantly rebel the suggestion of the gardener when he sets forth the necessity of a proper room to keep them in. This is not as it should be, and until more suitable structures are built for the keeping of fruit, so long will the wealthy deny themselves one of the pleasures of their gardens. The coal-hole and other cellar-like places, in which I have seen some beautiful collections of fruit, would, I am sure, be more than sufficient to disgust those who had to eat them, if they only took the trouble once to see the condition in which they were preserved for their table.

With a fruit-room constructed as above advised, the gardener may do much towards improving the flavour of his fruit as well as prolonging its season of use; but no good will arise by creating any unnatural condition, for, as above stated, cold encourages the preservation of fruit by retarding its natural season of ripening, but fruit so treated is of little value in point of flavour, and the same holds good when any extra degree of warmth is maintained to induce it to ripen before its time. Light and warmth I believe to be essential at the point of ripening, but when applied before that time it will prove an injury.

Next to a suitable structure comes the proper management of a fruit-room, and doubtless this has much to do with the keeping qualities of the store. Cleanliness unquestionably ought to be most rigorously followed-up, as if decaying fruits are allowed to remain with the others they soon contaminate all they come in contact with, thereby increasing the number of decaying fruits. Next to cleanliness, a judicious system of ventilation should be adopted, unless the weather is damp or frosty; this is important to keep the air of fruit-rooms sweet and pure, otherwise the fruit will be hastened on to decay. As to the sweating and wiping process, which some writers tell us

is essential, it had better be left undone. The sweating to a certain extent cannot be prevented; but lay them out thinly on shelves, and it will be much less than when laid in large heaps, and the sticky substance which this sweating leaves upon the fruit rather adds to its keeping than otherwise.

Those who grow any quantity of fruit, and take an interest in it, will be careful to have a note-book at hand on a shelf, and to keep a careful record of the particular merits of any good subjects; as, for instance, the time of gathering each sort, the time of coming into use, and the number of days or weeks they kept in good condition. Such brief notes as these I have found valuable records for a reference.

Many late apples and pears are gathered before they are ready: the best and safest guide I have found is not to gather them before the fruit leaves the tree moderately easy.

I will remark, in conclusion, that of the two worst fruit-rooms I have ever seen, one was entirely underground, and the other was heated by a flow and return 3-inch hot-water pipe, over which there was no control, as it was connected with a boiler kept at work nearly all the winter. Such a method of disposing of fruit should be designated the slow-cooking and decomposing process; it cannot be said to be preservative. J. C. CLARKE.

MESSRS. E. G. HENDERSON AND SON'S NURSERY, WELLINGTON ROAD.

Temp'ted by the description of a new foliage bedder to be seen in this nursery, I made my way there direct. The report went so far as to say it eclipsed all the Sunsets, Meteors, Golden Belts, and Tricolors, and was everywhere the grandest leaf-plant out. In fact, it put all variegated fuchsias and geraniums in the shade. So I went to see it, and to judge of it on its own merits; and from the top of an omnibus which passed this establishment I caught the first sight of this foliage bedder, and was thereupon convinced that not one word too much had been said in its praise. Now I will tell you what it is, and then I will try to describe it. It is neither more nor less than a fuchsia, raised from seed by Mr. Bard at this establishment. They have named it *Golden Fleece*. A plant was sent to the Floral Committee, and they pronounced it a sport from the *Cloth-of-Gold*; but what should have guided them to come to that decision is a mystery to me, as Messrs. E. G. Henderson wrote to say it was a seedling, but the committee could make nothing but a sport of it. The style of growth is dwarf and branching; a medium size leaf, very glossy, and shining like gold; the flower-bud (including tube and sepals) is light crimson; the corolla blue. What a beautiful contrast we have may be imagined—a golden ground spangled with light crimson, and a dash of blue. The plant has a very healthy-looking appearance, and the more it is exposed to light, air, and sunshine, the brighter is the colouring of the leaves. Foliage bedders have acquired immense importance; indeed, leaves are fast superseding flowers in the parterre, and they certainly have the advantage of producing decided effects from the moment the plants are in their places. But still there is left a lingering desire to see the flowers; and many a time, when I have been admiring a bed of fine foliage plants, the question has been asked me, "What sort of a flower does it bear?" My answer has been, "Oh, it is grown principally for the leaves; the flower is not much." They have said, "Yes; but I like flowers, let the leaf be ever so beautiful." Well, in this *Golden Fleece* fuchsia we have them both combined and harmonized, and, in my estimation, it is the best bedder of the season, and I shall strongly recommend it for decorative purposes, either in the flower garden or in the greenhouse.

All the new bedders and the best of the old ones are to be seen here, and I noted down a few that pleased me most. Of Verbenas, there is a fine healthy-looking stock one, called *Polly Perkins*, a hybrid from *Velvet Cushion*, with *Purple King* habit and magenta-coloured flowers; very free, and literally covered with bloom. There is a row of this verberna 40 feet long, planted by the side of the fuchsia *Golden Fleece*, with an edging of that excellent lobelia, *Indigo Blue*. The effect is charming. The lobelia is deep blue, with large white eye; but this is not the very best lobelia, I think; for one called *Speciosa spectabilis* is the richest blue of any I have seen. A scarlet verberna, in a seed-bed marked X Z, was a brilliant object, close and compact; the flowers almost rested on the foliage, and were so numerous that scarcely a leaf could be seen. I think this will prove a gem of the first order for an edging plant, for it is just what we want: our plants for edging are principally blue and gray; a fine scarlet ring next to the green grass would be glorious, and I believe this verberna will be just the thing to do it. Of Geraniums, the collection, as regards variety, is the most extensive I am acquainted with. Amongst the kinds that took my fancy, and which I think the most deserving of notice, are *Countess of Tyrconnel* and *Edwinia Fitzpatrick*. They are both decidedly improvements on Mrs. Pollock, and freer in growth, more of a branching habit and larger foliage, with richer markings. Of golden bedders, one named *Princess of Wales*, with leaves of a rich lemon-yellow ground tint, bright bronze-red vandyked zone, very dwarf and compact, the leaves very much lobed. *Canary Bird* is another of this class, but not so dwarf, and the leaves are round: I have no doubt that they will both become great favourites. *Viola cornuta Mauve Queen* (Mr. Wills's variety), and *Purple Queen* (Mr. Bennett's variety, of Osberton Hall), are planted in lines side by side. Bennett's variety is decidedly the best, being a close compact grower, and a freer bloomer, consequently the most suitable for edging. Mr. Wills's is best planted alternately with the miniature variegated geraniums. The effect is charming, both with the golden and silver-leaved varieties. The foot-stalk of the *Mauve Queen* is tall and slender, and the flowers mix in with the flowers of the geraniums; or you can pick off the geranium blooms, and the effect is still beautiful. *Golden Feather Pyrethrum* is planted here all sorts of ways to show its effect. It is certainly a good and useful thing; its uniform neatness and compact and dense growth forming an equal surface, it makes it just the thing for a front line or outer circle. It will contrast with any colour except white, and form an elegant feature. The *Alternantheras* have a pleasing effect when employed as a margin to a circular bed on grass; they will contrast well with blue lobelia, which may be planted behind. Mr. Joseph Newton told me that this plant is very beautiful in the gardens of Italy, where it is extensively used. It is a Brazilian amaranth, and of course is rather tender, but it will make a useful summer bedder. There are three sorts—*A. paronychioides*, the coloured leaf is a mixture of orange and carmine; *A. spathulata*, carmine and purple; and *A. versicolor*, carmine and claret lines.

The most dwarf and closest-growing silvery-leaved plant is *Antennaria tomentosa*; it is even with the surface. It is a first-rate thing to use as an edging for a bed of *Sempervivums*. That is how it is used here, and

it sets the *Sempervivum* off to the best advantage. The *Sempervivum* are becoming great favourites; and Messrs. E. G. Henderson have one called *S. Californicum*, with chocolate points, which I believe will please everybody. It is six inches over the crown; close, neat, and compact. One more plant, and my notes are ended. It is the last, but worthy of a place in the first rank as an edging plant. It is the lavender cotton, *Santolina incana*. It has a good effect at a distance, and when under the eye it is pleasing to look upon; the little leaves are like a pavement of crystals. There are many more things worthy of notice, as we are all aware; but, as I had only half-an-hour to spare, I jotted down just a few things that particularly took my attention; and if my fellow gardeners feel as much interest in reading them as I do in writing them, we shall be both well paid for our trouble. N. COLE.

AN OLD MAN'S TROUBLES.

After a gay season, some one has said, follows a dull one, and I am inclined to believe in the prophet who said so, for since he shook you so heartily by the hand, Mr. Editor, in that provincial town that was gay with all the brilliant attractions of a flower show, and miles of bunting and evergreens, the old man has been somewhat dull. Of course you know how much the old man enjoyed himself the short time we were together, and no doubt you will think (if you don't say so) that an old fogey like me ought not to let trifles trouble him. But I'll tell you what it is, that beautiful flowers, pretty ladies, and charming music, are as attractive to me now as ever they were; and you know that I was delighted beyond measure,—in fact, for the time I blest my stars that I belonged to the noble brotherhood of gardeners, but since that happy day I have been obliged to sing to a different tune, and this rather troubles me; and now you will be asking, What troubles you? and I will tell you. You have known the old stick long enough to know that I never allow pleasure to interfere with business for more than one day—or at the most, two at a time. So the next evening after the one I had spent in your company, having an eye to business, I took a gentle stroll through the flower-garden, principally to ascertain if anything had been forgotten or overlooked in the hurry of propagation for next year's display. As the family were at dinner, and the men had left work, I had the place to myself, and, naturally enough, the condition of the flower-garden, after a week's delightful summer weather, gave me much pleasure to look upon. And here I must tell you I am rather given to serious moods at times, when alone, and nothing vexes me more than to be disturbed in the midst of them. Even in my young days I could scarcely forgive the tiny voice and prattling feet of the little ones if they disturbed me when contemplating the beauties of a distant scene, or arranging the more important work of the garden for the following day. It was in just such a mood I carelessly threw myself into one of the rustic seats which command a view of every flower-bed in the garden. Finding that nothing had been overlooked, I felt at ease, and very soon I found myself comparing the serious business of flower-garden decoration in the present day with what it was when I was a stripling. I forget at the moment of writing if I sighed for the fate of many old favourites of the flower-garden now almost extinct, but if I did I am not ashamed to own it; for although we were less brilliant in colours at that time, we did not sacrifice nine months of the year, with double and treble the amount of labour, for a three months' display of flowers. No; we had a just appreciation for the chaste, the beautiful, and the good, to sacrifice our time and means upon a few species of plants to the exclusion of all others. To have done so in my early days would have been considered a great serious mistake. But times and tastes are changed now, and the old man feels it, because he has neither time nor means to cultivate a few of those old friends that would solace and please him. It may be well for the younger members of our craft that they have not old friends to lose, and therefore I forgive them for the share they take in promoting the advancement of the present system of bedding. But while exonerating them thus far, they must permit an old man to tell them they are in their enthusiasm ignoring the utility, the beauty, and the many claims that our hardy border plants should have upon their attention.

The very name of hardy border-plants puts me in better spirits, and if I speak the truth, my attachment to the GARDENER'S MAGAZINE has been principally brought about because its pages have so ably and so timely advocated their claims to notice. I would that other serials had the same inclination, and as much ability, to carry it into effect. But thanks, many thanks to our worthy Editor, and "The O'Shane," a reference to the last two volumes will put every one in possession of all the information it is possible to desire or to give of the best hardy plants known to English gardens. I presume the other gardening papers know this, and so they keep pretty silent. I admire their modesty, for it is better to remain silent than to publish stale records.

None but those who have been occupied with these old subjects, and that still retain an affection for them, can understand how much an old man like me delights to refer back to the date when especial care was taken to have a few beds of choice pinks, to say nothing of picotees and carnations; and when all the hardy annuals were carefully sown in autumn and preserved through the winter, adding cheerfulness and beauty to the late spring months. And well do I remember what inward pride and satisfaction I felt when the head gardener placed under my charge a choice collection of auriculas, and how proud I was to show them to friends, and extol their beauty. With the recollection of all this, seeing, as I do, in my mind's eye, the chaste and beautiful markings of many of these, my old favourites, I long for their more extended cultivation in the present day, feeling confident that, in the present state of refined taste, if they were more largely cultivated, they would soon outshine our present short-lived and gaudy system of flower-garden decoration. But, good reader, you must not be ill friends with the old man for what I have said above. The present bedding system has much to recommend it I do not deny, but its pleasures are so short-lived that I think you will agree with me in saying it ought not to monopolize and cause the extinction of many useful subjects which, if cultivated properly, would give us a much longer display of flowers, if both were grown on a moderate scale.

I think now, Mr. Editor, I have told you all my troubles, and you, I think, will share at least a portion of them with me. This knowledge is some consolation to me, because your generous nature will, I know, prompt you to look over the follies and whims of

THE MAN WITH THE BLUE APRON.

STRAWBERRY HILL.—A contemporary informs us that an Italian poet has written a poem of 900 lines about "strawberries." If this be the case, it is decidedly a most audacious attempt to play old gooseberry with the muse.—*The Tomahawk.*

ORNAMENTAL LEAVES FOR FLOWER-GARDEN.

(Continued from page 406).

Continuing the subject of variegated or ornamental-leaved plants for decorating the flower garden, I would wish to remind my readers that I am not unconscious of the fact that many of the plants that have and will be noticed are not by any means of recent introduction. Novelty is not my object, but rather to search out and give prominence to those jewels of floriculture which shed a lustre around the garden, when tastefully employed, by the splendour of their leaves alone.

ALYSSUM VARIEGATA (or *Koniga var.*).—This unique silvery-leaved plant, from what I have observed, does not appear to be so generally cultivated as it was a few years ago. Of all the dwarf compact habited plants that, as edgings, are used as a contrast to harmonize with the colour of the flowers of other plants, this *Alyssum* may be ranked among the most deserving of our notice. If intermixed or planted alternately in a bed with Purple King verbenas, or used parallel in rows with the latter plant in a ribbon border, the result of either arrangement would be charming, especially during bright weather. As a bedding plant for small beds, it is strikingly adapted, chiefly for the myriads of snowy white flowers it yields in constant succession during the autumn months; but, employ it which way you will, it is excellent. The best season for propagating it is the spring, as cuttings root then with greater certainty than in the autumn. That I may obtain a good supply, my plan is to select at least six plants from those struck in the spring. These are kept growing as single specimens in pots during the summer months. By frequent stopping of all the strongest shoots and occasional shifts good bushy plants are obtained, for withstanding the various changes to which plants growing indoors are subject to throughout the winter months. The greatest danger in the winter season they have to contend against is an excess of moisture either to the foliage or roots.

BALM GOLD VARIEGATED (or *Melissa vulgaris*).—This once popular favourite plant for edgings is now overlooked by many who formerly admired it, yet its worth is not to be despised for that. Though perfectly hardy, and perhaps a little too weedy in its growth, still, by attention in trimming and stopping the shoots, it can be so cultivated as to attain only a few inches in height. Thus trained it has a very neat and effective appearance, especially when used as an edging to a ribbon border of some extent. Although its roots spread widely, affording plenty of offsets, yet if you are anxious to preserve its true variegated character and dwarfness, then increase it annually in the autumn by cuttings. For the economizing of space in storing them away in cold pits or frames during the winter months, use square boxes of a few inches in depth, into which put some sandy soil, inserting your cuttings as thick as you consider advisable; from thence they are to be planted out in the spring into their summer quarters. I have seen front lines of this balm left in the same spot for several years make a splendid display of golden leaves in April, May, and June, but towards the end of June it becomes coarse and unsightly. Our Editor, I believe, first introduced this plant to public notice, having turned it to excellent account in the experimental garden at Stoke Newington. There is a border there at the present time which has been planted ten years, and in the early part of the summer it surpasses Golden Chain geranium, but towards autumn it loses its beauty completely, and has the character of a weed.

VARIEGATED MINT (*Mentha var.*).—Everywhere known as a splendid silvery edging plant. There is but one rule to observe, and that is to propagate it annually. If left in the ground it becomes coarse.

COLEUS AND ITS VARIETIES.—These plants have within the last few years gained an ascendancy among bedders that are used for their remarkable foliage. They are entitled to the encouragement given to them, when striking effect combined with richness of colour is considered. Hitherto *C. Verschaffeltii* has occupied the foremost place, but of late there are other varieties of the same species that bid fair to outrival the old favourite, viz., *C. marmorata*, *C. Gibsonii*, and *C. Veitchii*. The latter variety is considered to excel all of them in point of attraction both in habit and growth, the leaves being large and of a dark purple colour; however, as a bedder its properties have yet to be tested. *C. Gibsonii* in growth is bushy and much dwarfer than *C. Verschaffeltii*. Its merits as a bedder have been sufficiently proved to recommend it for flower decoration; the colour of the leaf being a light green blotched with crimson purple, it makes an excellent pot plant for ornamenting the conservatory, especially when grouped with lilioms, fuchsias, &c., during the autumn months. I would not advise those whose bedding system is limited to use the *Coleus*, as should the summer prove unfavourable in regard to a deficiency of nice genial growing weather, it would be a disappointment; for to maintain it in a healthy state and fully develop its true character both of foliage and colour, it requires a warm and rather dry season. The great difficulty you have to contend with in preserving the plant during the winter months is damp; water should not be allowed to touch its leaves, and just enough supplied to its roots to keep it alive. The best place is a warm corner of the stove. It strikes freely from cuttings in the spring, from which good plants may be obtained for bedding or other purposes throughout the year; so that if you are cramped for want of space, a few strong plants kept through the winter will be sufficient for the work of propagation. The present season, being colder than the average, has been a bad one for every variety of *Coleus*.

CENTAUREA RAGUSINA CANDIDISSIMA.—For large beds this beautiful silvery-leaved plant is exceedingly well adapted, and more so when used for bringing out the fine rich colours of such dark crimson foliage plants as *Coleus Verschaffeltii* and other plants of a similar character. But with the latter variety it is well contrasted for effect, especially as an outer edging to the bed, but such beds should form the inner circle of the flower garden, on account of their robust growth, unless they may be placed in isolated situations. This *Centaurea* is propagated from cuttings either in the autumn or spring. But the plan generally adopted by those who hed out on a large scale is to keep a few stock plants throughout the summer in pots; these will afford the best cuttings either the same autumn or the following spring, especially if you have kept them pruned in the earlier stages of their growth. Such practice will produce an abundance of young shoots; these strike root much quicker and with greater certainty than do the coarser shoots obtained from the summer growth in the beds.

CENTAUREA RAGUSINA COMPACTA.—I am not practically acquainted with the habit or character of this plant, but it has been advertised this season as being an improvement on the former variety, both in neatness and elegance, being of a much dwarfer and more compact habit, and possessing a bright silvery leaf. I should advise every practitioner of bedding to make acquaintance with it.

ALTERNANTHERAS AND THEIR VARIETIES.—This pretty but neat group of plants belonging to the *Amaranthus* family claim special attention. The dark but rich coloured foliage of these plants has at present made but little inroad

into our flower-garden decorations, being but of recent introduction. But I have no doubt that another season will find them hailed as a great acquisition to the list of what may be termed miniature foliage plants for margins and other kinds of borderings or edgings. A short time since, I had an opportunity of pencilling a few notes, on the properties of some of the varieties that I saw at Mr. H. Cannell's Nursery. Since that period I have visited Battersea Park, and there seen them used with rare taste and judgment. *A. spathulata* formed a margin to *Lobelia pumila elegans*, a most lovely blue flower. The blending of the foliage of the one with the flower of the other was really good, and particularly so as they were so nearly matched as regards height and habit, though the *Lobelia* had the advantage in breadth. In our walks we found the same variety of *Alternanthera* forming an edging to a bed of Golden Fleece geranium: in both instances it was very telling when the sun shed its rays on it, as then its various shadings of colour, consisting of pink, crimson, brown, and red, were beautifully blended. Being a native of Brazil, no doubt the *Alternantheras* will exhibit their beauty best in warm and dry seasons. I infer this from the effects wrought on them as the season draws to a close: its beauty of late in regard to colour has been on the decline, while the *Coleus* and *Iresine* still preserve their colour; yet withal it makes a decided change in our bedding arrangements while the season lasts. Of the varieties in cultivation, *A. paronychioides* and *A. spathulata* are certainly among the best. The former variety, no doubt, will have the preference among cultivators. There is a closely allied plant named *Teleianthera versicolor*, which possesses broader leaves than any of the *Alternantheras*. My advice to those who are anxious for novelty in their flower garden is to purchase some plants, and propagate sufficient for requirements next year. Early in the spring, the treatment recommended for the *Coleus* will apply to the *Alternantheras*, they being so closely allied in their constitution.

ARABIS LUCIDA VARIEGATA (or *Golden Arabis*).—This is one of those valuable miniature plants, in respect to height, that are indispensable for front line of ribbon border, and for edgings to beds. I think it would be much more sought after if its glowing effects could be seen as cultivated in the nursery ground of Mr. B. S. Williams, of Holloway, who is the original distributor of this welcome addition to the list of hardy variegated plants, the latter qualification causing it to be all the more acceptable. It preserves its uniformity of character throughout the season without the necessity of having to resort to the knife so frequently as in the case of many other foliage plants, for the purpose of keeping them in good trim. That its golden foliage may be seen the better, pick off all flowers as they appear. The plant is readily propagated by division, either in the autumn or spring. It attains its greatest perfection on sandy soil, and for several years past has been one of the best edging plants used at Kew.

LONICERA AUREO RETICULATA (or *Japan Honeysuckle*).—This is a remarkably handsome variegated plant of the golden-leaved kind. The stripes or markings of the leaf are very distinct. Although a climber, it makes a first-class plant for a dwarf edging; this is done by shortening the shoots as they grow, and otherwise pegging and training when growing. As a climber, the long shoots are admirably adapted for coiling round the stem of *March's Epergues*, when used for the centre of a dinner table. It also has a very pretty effect trailing over the sides of window flower-boxes, if planted in them. It is perfectly hardy, but I consider it advisable to propagate every year, and grow them under glass during the winter months if intended for bedding. Mr. Hibberd has proved its perfect hardiness, for he planted it on a rockery in the first year of its introduction to this country, and it has grown most luxuriantly.

CERASTIUM BIEBERSTIENII.—This variety quite supersedes the well-known *C. tomentosum*; being more robust and of freer growth, the shoots retain their erect position much better. It is perfectly hardy and increases readily either from cuttings or divisions of the roots. It is but fair, however, to our old friend, to say of it that the bluish tinge of *C. tomentosum* is greatly in its favour where a silvery lustre is required. JNO. F. McELROY.

CAMELLIA CULTURE.—No. IV.*

Those who are so favourably situated as not to be obliged to place their plants out in the open air during summer, will have nothing more than the ordinary routine of watering and air-giving to think of in connexion with them at this season of the year. But with those who have not the desired convenience to give them summer quarters under glass, the case is very different, as, being under the necessity of placing them in some sheltered place out of doors, the time is now come when they must be thinking of their removal to more secure and favourable quarters. As this part of the management of plants so treated requires some care, it will, I think, be advisable to state briefly the points that should be attended to in the work of housing them.

In the first place, unless the pots have stood very evenly upon some smooth hard surface, it is more than probable that some worms have collected in them, and in every case where there is a doubt about it, means should be adopted to free the soil in the pots of these intruders. The simplest and therefore the best means of doing this is to dissolve a peck of fresh lime in about twelve gallons of water. Let this stand until the water gets clear, when it may be used with perfect safety; each plant should be thoroughly moistened with this clear lime-water, which will soon bring the worms to the surface, when, as they come up, they must be removed.

The next point of importance in connexion with housing these plants for the winter is to see that they are not taken into the house with their roots suffering for the want of water. It sometimes happens in dry autumns, when the plants have been standing in sheltered situations, that they get very dry at the roots. In this case ordinary waterings are not sufficient to thoroughly moisten the whole ball of earth, and this is especially the case with large plants standing in tubs

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and large pots. Many persons seem to forget that when such plants are thickly studded with branches and luxuriant leaves that extend far over the dimensions of the pots or tubs, that an ordinary shower of rain does not find its way to the roots of the plants, on account of the leaves and branches which extend beyond the pot, and carry it over the point to which the tub or pot extends.

I have too many times seen plants suffering for the want of water under similar circumstances, when those whose duty it was to see that they were properly attended to thought that sufficient rain had fallen to well water them, that I know I cannot too strongly urge upon the cultivator the importance of giving proper attention to this matter when taking his plants into the house for the winter. As to the time of attending to it, it does not matter whether it is done immediately before or after they are taken indoors, but they ought not to be allowed to go unattended to many days after they are put in their winter quarters. With very large plants in tubs or large pots, more care is necessary, as the watering will have to be repeated for two or three successive days, if they are very dry. But with smaller plants the work may be done at once, by placing the pot in a tub of water, and allowing it to remain there two or three minutes.

The next important matter is to see that they are not subjected to any great change, or it may be the means of causing them to cast their buds. It would be bad management, directly they are taken into the house, to keep them shut up close and warm; there should be a current of air kept up through the house night and day for at least a week. The next week the house should be open all the time there is daylight, as any coddling at this stage will be liable to prove an injury to the plants.

Every Camellia, whether in the north or south of England, should be housed by the end of September, as the drenching rains we sometimes have about that time are very hurtful to them, if accompanied with a low temperature; and when we get October here, we are never secure from a few degrees of frost. The after management will be to give water liberally to those most forward in blooming, to assist them in swelling their buds; those which do not show an inclination to flower until the spring must have water more sparingly. Keep the syringe or garden engine plied freely amongst those that are not in flower at least twice a week, as a fine glossy foliage is not only more healthy, but more sightly than leaves covered with smut and dirt.

J. C. CLARKE.

THE EXTENDED VINES AT RAHENY.

During the current and previous year not a little of the space of the horticultural press has been occupied with the discussion of what is called the "restrictive" and "extension" systems of vine-growing. By the first is meant allowing only one or two rods to each vine, and cutting or spurring back closely; by the second, having only one vine in a house, and allowing it to extend till it has filled it with bearing rods. By some writers the latter has been spoken of as something new, which is by no means the case. The Hampton Court vine in England, and the large vine at Castleton, Co. Kildare, in this country, are examples of it; others will, doubtless, be familiar to our readers. It is now some years since we brought prominently before the public a more modern, but, perhaps, about the finest, example of it to be met with anywhere, in a notice of the large *Hamburgh Vine* at the Viceregal Gardens, which, in a very brief period, has been made to fill a house nearly eighty feet long and proportionately wide with splendid wood and magnificent crops. We propose to-day to direct attention to another long-existing example of it in the neighbourhood of Dublin, which, at the same time, may serve to illustrate what may be called the anomalies of grape-growing, more especially as regards the vine border.

At the Cottage, Raheny, formerly the residence of the late John D'Arcy, Esq., and now the property of one whose name is not unfamiliar in the agricultural and horticultural worlds—Mr. Marino—there is a range of pine-pits, nearly ninety feet long by about sixteen wide, with a south aspect. The ends and back wall are of brick, with low, upright, glazed sashes in front; the whole of sufficient elevation to admit of head room, and a passage round the tan pits in the centre. The whole is divided into five compartments—we suppose for the purpose of succession plants, &c. The border immediately in front was, until this year, occupied by a corresponding length of substantially-built melon pits.

During Mr. D'Arcy's time pines were always grown, and, we believe, successfully. It appears, however, that he or his gardener—and it must be a good many years ago, too, if we are to judge by the appearance of the vines just now—thought a good bunch of Muscats from the roof might be had as well as a good "Queen" or "Cayenne" from the pits. But, then, where were the vines to be planted? Where was the border for them? The place of the latter, in fact, was occupied by the melon pits; at the ends were walks; forty-five feet of the bank was occupied by a shed, where the garden assistants lodged, leaving only six feet of a narrow roadway between it and a high garden wall, so that the rays of the sun rarely, if ever, fell on it. Well, in this most unpromising spot, and in the two angles formed by the above-mentioned shed with the back wall of the range of pits, a Muscat vine was planted, and, as far as we could see, without any preparation whatever, in the hard, impervious gravel of the roadway. Up the back wall, snake-like, the thick rugged stems of the vines ascend, and insinuate their heads immediately where the sashes of the roof rest on the back wall-plate. If there was little preparation for the roots outside, there was less method in the training inside. At present the stems of these vines, where they enter under the roof, are about a foot in girth. From this point rods were conducted down towards the front, then somewhat parallel to it up again, and,

in fact, any way and every way. Other rods were conducted into the adjoining compartment, and allowed to cover the roof in the same way, and so on, till the entire eighty or more feet of roof was filled with bearing wood. Rarely indeed, if ever, have we seen heavier crops of Muscats than these two vines produce. And, further, we remember some years ago seeing bunches cut from them characterized by the very highest finish of which the variety is capable, and which adds so much to its appearance on the table.

These vines are in the highest health, and the crop of the present year abundant as any that went before it. Save the indurated road surface at the back of the house, the only apparent feeding ground for the roots is apparently little else than what looks like accumulated sweepings in the angles formed by the junction of the ends of the shed and the back wall of the house. Into this, doubtless, a whorl of feeders from a portion of the stem above ground has spread. Now, here is an example of the "extension system" of grape-growing in combination with pine-growing, and of long-lived and healthy vines producing heavy crops, whose border is little else than a hard gravel road, from which the genial influences of light and air are nearly altogether shut out. We leave our practical readers to draw their own inferences, merely suggesting the inquiry—Are we altogether right in pinning our faith for lasting results to the rich, elastic, non-compressed modern vine-border? We are well aware of the wonders produced by such for some years; but a certain solidity and poverty, such as characterizes the virgin soil, is we fancy, more favourable to permanent health and continued fruitfulness in vines, and other fruit-trees as well. We were not able on occasion of our visit to ascertain when these vines were planted, or the exact reason for their being placed in such apparently unfavourable situations. Should this meet his eye, perhaps Mr. Brady will, notwithstanding the many urgent calls on his time, kindly favour us with particulars. We may further remark that, in the melon pits alluded to above, we saw the most extraordinary crops of fruit that, perhaps, ever came under our notice.

—*Irish Farmer's Gazette.*

ENCLOSURE OF COMMONS.

It does not appear that there exists any diversity of opinion worth serious consideration in respect of the desirability of preserving for ever, for the use of the public, the various commons and forests immediately surrounding the metropolis. Lords of manors admit the desirability, though they may question the justice, of specific proposals relating to acts of enclosure, and commoners sharing with them in rights of pasturage, common in gross, and other advantages, are, as a rule, not deaf to the clamour of the million for unrestricted enjoyment of the few open spaces that remain. The great difficulty is to decide how these several rights are to be disposed of in favour of the assumed right, the almost indefinable right of the public to range free and wide over unenclosed wastes. Some time since Mr. Peek, of Wimbleton House, offered prizes for essays on commons preservation, and a set of six good essays, written in competition for the prizes, have been published by Mr. Sampson Low, of Ludgate Hill, and with these before us we are not at all prepared to say that the difficulties that beset the subject are cleared up. The great stumbling-block is the fact that in England a lord of the manor enjoys rights defined by the law, but the public have rights which apparently are only defined by sentiment, and the difficulty is to render sentiment subservient to statutes or harmonious with them. But there is another difficulty of perhaps a more serious nature, and it is this, that the public hold fast to the opinion that wherever there is a waste on which cricket may be played and where picnic parties may wander and bivouac without let or hindrance, it is a veritable No-man's-land, and that whoever fences it in or excavates foundations for houses may be made to pay a terrible penalty under some mythical edict of the Court of Chancery. It is a matter of fact that every inch of land in the country, not ostensibly the property of the Crown, is strictly private property. The "Queen's highway," as we term the common road, is private property, and it is simply placed beyond private control because by long usage the representatives of public interests—the parochial board, the highway boards, the corporations, the Commissions—have acquired on behalf of public interests, the sole right of its management. Once upon a time Cheapside was a part of a private estate. So of every road everywhere. So in the present day of all commons and wastes. We may roam over them freely, but the lord of the manor has rights superior to ours, and we may see the proof of it in the gravel pits, the pollarded trees, the draining of meres, and the work of felling and planting of trees. It is also a fact that landed property of all kinds is held in subjection to the Crown; the Queen is the first proprietor, the lord of the manor the second. The commoners take next place, and nowhere in the books is there a place for that indescribable and mythical proprietary, the general public. In every case of investigation of this subject, some attempt has been made to prove the existence of rights on behalf of the general public, without effect. The case breaks down somewhere, and we have at last to face the difficulty of reconciling a public wish with a legal requirement. Take the case of Wimbleton Common. Lord Spencer has rights there that sentiment can never overrule. He offered to fence in and convert to a park a large proportion of that property on condition that another part should be sold. He was compelled to abandon the proposal, but his rights remain intact. We come, therefore, to the very commonplace argument, that if the public want to roam over Wimbleton Common or any other such waste, the lord of the manor and the commoners must be compensated. We are well aware, however, that the means of compensation exist in the soil itself, and that therefore a grant of money from the public exchequer is scarcely needed. All the great wastes, the picturesque bits that so much delight artists and botanical wayfarers in the suburbs of London, are valuable as building sites, and the settlement of the matter in any particular case seems to lie in the apportionment of so much of the whole for building to pay for setting apart the remainder for public use for ever. This may appear a very prosy and perhaps venal method of meeting the difficulty, but we are keeping the law in view, and we are very much impressed with the fact that the six essayists just referred to have quite failed to establish the right of the public to free and unrestricted use of any waste land whatever.

But there is another consideration of some importance. None of the wastes around London can long remain as they are. The very use of them as recreation grounds must tend directly to their ruin in the long-run. Gipsying is not favourable to the longevity of trees. Butterfly-hunting and black-berrying do not tend to the conservation, in all their aboriginal wildness and beauty, of any common or forest land. The more they are used, the sooner they are worn out. Epping Forest (what remains of it) is being used up by the public. If a big tree can anywhere be found, a fire is made near it; or, if it is hollow, within in; and the grass all around is sooner or later strewn with broken bottles. Hampstead Heath is fast becoming a mere dirt-bed. Wimbleton has been in great part spoiled by rifle ranges. It is impossible

to preserve for any length of time a bit of unadulterated forest in close proximity to a densely populated city like London, and the only sober way to look at the matter is to consider how the lawful owners of the soil can be paid out; and next, how the land can be decently raised in, and kept respectable in turf and trees, and, if need be, in flowers also.

During the twenty years ending with 1865, no less than 3,250 acres were enclosed within a circle of fifteen miles of St. Paul's. By the Act passed in 1866, enclosure is forbidden, but the same Act authorizes levelling, draining, and "improving" of common lands within fifteen miles of St. Paul's; and we do not need to be told that those operations are antagonistic to the preservation of wild scenery and the *al fresco* enjoyments that are understood when we speak of unrestricted public enjoyment. To be still more plain, the law knows nothing of the public in these matters. It recognizes ownership in connexion with individual signs and seals, with the argument of inheritance or purchase for the proof of right to occupation, and it would decree any day consistently with such arguments that if any public right were established, trustees would be required, in order that signs and seals might satisfy its exigent prescriptions.

It would be most lamentable if, in the midst of a debate, making no promise of an end—in the prosecution of a cause on mythical foundations—we were to lose Hampstead Heath and Wimbledon Common and Epping Forest. Better far that we should face the facts, and go to work with the idea of compensation for a groundwork, rather than hope to wrest from lawful owners that which cannot be wrested, and to which the public have no absolute claim. There is a claim, no doubt, but it is relative, not absolute; let the claim be so enforced; let us save, if we can, the few breathing-grounds that remain, and waste no more time in attempting to prove a mere hypothesis in which there is not a single fact to be found to support. We would even desire more than the preservation of the existing wastes. We should like to see many noble properties contiguous to them secured for public enjoyment, and for the adornment of the capital with a belt of rural scenery. London is happily surrounded with glorious country. Hills rise above it on every hand, except in the line by the Thames. These hills are well wooded, and abound in picturesque scenery. By timely action, and by recognition of the written law at every step, much may yet be done, and we hope the Commons Preservation Society will adopt new tactics, and take resolute measures to confer upon the public the boon of open spaces secured for ever, without the shadow of a wrong to either the wealthiest or the poorest of those who at present have inalienable claims upon them.—From the "City Press."

Calendar.

WORK FOR WEEK COMMENCING SEPTEMBER 28.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—This is a time for earnest work in every department. Make a general clearance of the ground wherever there are vacant spaces, and ridge up all plots not to be planted on during winter. Get a waste corner clear for heaping up manures and composts, where they can be turned over during frosts, and if convenient empty the muck-pit, and cover the rotted stuff with a layer of soil to throw off rain; the whole to be turned two or three times before using it in spring. In preparing for next year's crops, trench over first the ground intended for root crops next season, and choose for potatoes, carrots, parsnips, and beet, plots that have been well manured this year. If the soil allows of deep digging, fork over the second spit, and if it is of a friable and fertile nature, bring it to the top, so as to turn the whole soil over eighteen inches or two feet deep. Plant out the August-sown cabbage; leave the weakest in the seed-bed for future planting. Plant out lettuce in a warm situation; take up potatoes, carrots, beets, and parsnips; earth up celery. Use the fork, spade, and hoe as much as possible to keep all plots clean, and destroy the large crops of weeds that the autumn rains will bring up. Lay cabbages and broccolis that are forward with their heads to the north. Cauliflower plants to be transplanted into frames, or under hand-glasses. In cold and wet districts, it is best to pot them to winter them in frames, to be turned out into beds of rich soil in spring. In undrained soils, it is a good plan to cut a few channels among standing crops, to enable the heavy rains to run off more quickly to an outlet, as dryness of the ground very much lessens the effects of frost. Fork over asparagus beds, and clear away all litter; remove the stems with a knife, and dress the crowns with manure, and a little fresh mould over all. This is the best time to make plantations of rhubarb for producing next season. Let the ground be deeply dug and well manured. Tomatoes not ripe should be cut with a length of stem, and put in a warm greenhouse where they will soon ripen.

ASPARAGUS to be cut down to the surface of the ground, be well cleaned, and covered with four inches of half-rotten dung. The spade must never be used, either on the beds or in the alleys.

CAULIFLOWERS to be planted out under frames and hand-lights, and some potted as previously directed. If there are many plants still left in the seed-bed, prick them out on a warm slope, or make up a raised bed for them, so that they can have the protection of mats or hoops during sharp weather.

BROCCOLIS in exposed places may be heeled over to be safe against the first frost; stir the ground between them, but do not earth-up the stems.

CABBAGE sown in August to be planted out as soon as ground can be got ready. In sheltered places manure may be used liberally, but in exposed districts it may cause too free a growth before winter, if the plants are to stand.

RHUBARB to be forced may now be taken up and laid on one side until it is time to put in the boxes or whatever other position it is to occupy when forced.

VACANT PLOTS in kitchen and flower garden to be turned over at once, and, if needful, manured. All heavy land which is to lie unoccupied till spring should be ridged up without breaking the clods. The autumn rains and winter frosts will mellow and fertilize the soil, and in spring every clod will break down into powder at a touch. Heavy land may be manured if convenient now, and very little will be lost; but light soils should not be manured till spring, unless they are at once to be planted, as from these soils the heavy winter rains will wash away much of the manure. Prepare tulip beds at once by frequent turning, and mark out plots intended for rhubarb, scakale, asparagus, &c., so as to have them deeply trenched in good time to be acted on by frost.

Flower Garden.

FLOWER GARDEN.—Let *Chrysanthemums* be securely staked; train out plants in pots, and make them neat and tidy for blooming; give plenty of water. When required to take the place of bedding plants, get them into their places without delay, and lift carefully with good balls. *Chrysanthemums* in the borders should be looked over without delay, to see that they are sufficiently staked, for heavy rains and winds play terrible havoc with them when they are not well supported, owing to the profusion and weight of their blooms. Where they are required to take the places of bedding plants, they should be got to their places at once, and be lifted with good balls, and well watered in. Choice and delicate sorts are best flowered in pots under glass, and for this purpose they ought to have been potted one or two months ago, and shifted as required, and trained out so as to give effect to their beauty when in bloom. The bulbs to be planted this month are *Ilyacincths*, *Crocuses*, *Scillas*, *Crown Imperials*, *Liliums*, *Iris*, *Narcissus*, *Jonquils*, *Daffodils*, and early *Tulips*. Next month is soon enough for late *Tulips*, and *Anemones* and *Ranunculuses* are best kept out of the ground till February, except in places where autumn planting has been proved to answer for them, in which case it is preferable. Herbaceous spring flowering plants may also be got into the borders, to bloom at the same time as the bulbs—such as *Wallflowers*, *Primulas*, *Polyanthuses*, *Arabis*, *Alyssum*, *Aubrietia purpurea*, *Pansies*, *Dielytras*, *Iberis*, &c. Get all plants of questionable hardiness, and any that are liable to suffer from wet or the attacks of snails, under cover. Choice alpine are more easy of preservation if potted and put in frames. *Auriculas*, choice *Pansies*, *Carnations*, *Penstemons*, *Brompton* and *Intermediate Stocks*, *Myrtles*, and even *Hollyhocks*, if the situation is a damp one, must go to similar quarters for the winter, and have plenty of air in mild weather. Remove decayed leaves wherever they occur, to prevent the formation of moulds about growing plants.

BULBS of all kinds to be planted in beds and borders. *Pot Hyacinths* in succession, so as to prolong the season of blooming.

CHRYSANTHEMUMS to be attended to, so that they may have a fair chance of making a good bloom. Give them clear liquid manure, and stake them securely, as their blossoms being heavy, often weigh down the stems, or cause frail sticks to snap with a gale of wind. Do not house any so long as they are safe from frosts, except any that require forwarding to get them in bloom by a certain date. Artificial heat will do wonders to bring them out quickly; we have known them submitted to a temperature of 80° or 90° at this time of the year; but it should never be resorted to if it can be avoided, for it has some prejudicial effect on the colours of the flowers.

TULIPS to be sorted over, and arranged for planting. In a bed of fancies, be particular as to heights, as it spoils a bed to get first or second row flowers into third or fourth rows. Contrasting the colours is of far less consequence than getting the heights correctly, and some sorts grow taller or dwarfer than they are marked in the catalogues, where any peculiarity of soil affects them. Border and bedding *Tulips* should be ordered in quantity at once.

CARNATIONS potted last month will require to be looked over to remove dead leaves, and to see that mildew is not attacking them. Keep them well aired.

AURICULAS to have plenty of air, and be protected against damp, which is apt to injure them as the weather grows chilly.

DAHLIAS require a good deal of care now to keep them trim, and as flowers are getting scarce, let the *Dahlias* have necessary attention to keep them gay to the last. Make up your list of varieties for next year while the varieties are in bloom, and throw out every one that has not realized your expectations. When there are so many good ones, it is a folly to tolerate any that are of questionable merit.

EVERGREENS planted now will make better growth next spring than those planted in February and March. Give orders at once for all trees and shrubs required, that there may be no delay in obtaining them as soon as the nurserymen begin to take them up. All small subjects may be taken up at once in full leaf.

HOLLYHOCKS of the best sorts to be propagated to keep up a good stock. They should be renewed by cuttings every year.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Towards the end of the month, gooseberries, currants, and raspberries may be moved. New plantations should be made on ground deeply trenched and manured; gooseberries and raspberries need a richer soil than currants; and black currants and raspberries will thrive in more marshy ground than any other of the bush fruits. In all removals, whether of trees, bushes, or herbaceous plants, let the roots be examined, and all diseased or mouldy portions cut clean away.

CURRENT AND GOOSEBERRY canes may be put in to increase stock, and for this purpose two-year old wood is better than the shoots of the season if disbudded a foot or eighteen inches from the base. Drain and trench the ground where fruit-trees are to be planted next month. Moss on apple-trees generally disappears when the ground is drained. Root-pruning and planting may be commenced the last week; but root-pruning should only be resorted to in the case of over-luxuriant, unfruitful trees. In planting fruit-trees, unless the soil is poor and exhausted, use no manure whatever; pure loam is preferable to an enriched soil for all trees intended to bear early and live long. You need not wait till next month if your ground is ready; trees may now be moved, even if they have not shed their leaves, and will make fresh roots immediately.

APPLES to be carefully gathered as they ripen, and to be stored at once without wiping them. This is a convenient time to cut out dead wood.

Greenhouse and Conservatory.

GREENHOUSE.—House at once whatever is to be wintered under glass. Remove the shading, give plenty of air, and whenever green-fly or thrips appear, resort to effectual methods at once, and much future annoyance will be saved. Plants that are to bloom during the winter should have the best place as to warmth. Give plenty of air, day and night, and remove the shading, so as to let in all the sunshine that can be had. Avoid making up fires; but when it becomes necessary to do so, make a brisk fire so as to dry the house and promote a current of air; otherwise, push nothing into growth more than may be needful to ensure vigorous health and plenty of stamina. If mildew appears, use flowers of sulphur; for green-fly, tobacco smoke. If aphides get possession of the tender crowns of cinerarias and fairy roses, and smoke fails to dislodge them, turn the plants upside down into weak tobacco water, and then lay them on their sides, and syringe them well with soft tepid water.

FUCHSIAS may be kept in bloom till very late in the season by keeping them rather close and warm. Plants going out of bloom, and which are to

be grown another season, should be put out of doors to harden them, and left unpruned till they have tasted a very slight frost; then cut them in slightly, and house in any moderately dry place, either light or dark, till they begin to break in the spring.

GERANIUMS newly struck will require to be kept rather warm to encourage the formation of roots; those that are strong in pots may have plenty of air, and be kept rather dry to check growth. If more geraniums are wanted, put in the ripest shoots you can get, five or six round the sides of 5-inch pots, and place them on a top shelf. They will root in time, though slowly. Of course they must be kept moderately dry.

CINERARIAS should be kept growing freely, and be regularly stopped to produce good specimens. At this time of year they are very subject to mildew and green-fly. Use the proper remedies as soon as there are the least signs of such plagues, and keep the plants well aired to induce robustness. Keeping the outsides of the pots clean will do much towards ensuring their health.

PERLAGONIUMS for spring exhibition will now want another shift. Get them into their blooming pots at once, use good turfy loam and old manure, plenty of drainage, and for a fortnight after shifting give very little water.

BEDDING PLANTS may still be propagated, but the stock ought to be complete by this time. Calceolarias put in now will make good plants for bedding next summer.

AZALEAS AND CAMELLIAS standing out should be got under glass at once, but still to have plenty of air. Those coming on for bloom will require frequent syringing.

REVISE the whole stock of plants in pots as opportunities offer to remove worms from pots; renew the drainage where it has got stopped up, and otherwise prepare for the casualties of winter. Greenhouse plants that have been standing out must now be housed, and those to be forced must be repotted if needful.

Stove and Orchid House.

ORCHID HOUSE.—As the season declines, the temperature of the house must be reduced, but this must be done with great care, because many fine species will soon be showing bloom. In the first place, look to the Cattleyas, and remove them to the coolest end, and let them have a temperature averaging 70° by day and 60° by night, in order to induce a perfect state of rest. If in a higher temperature than this, there will be a further growth of the plants at the expense of the next bloom. With these group Cynoches, Lycastes, and Catasetums, which are all likely to suffer if kept growing now in too high a temperature. Orchids now pushing for bloom will require liberal heat and moisture, and these may be grouped with Dendrobiums and Aerides in a temperature of 80° by day and 70° by night. As soon as any of the Barkerias, Cynoches, Cyrtopodiums, Phajus albus, Pleione maculata, Wallichiana, and other deciduous orchids begin to shed their leaves, they should be placed in the cool end of the house in the most sunny position that can be found for them, and there have but little water. This treatment will cause them to ripen their pseudo-bulbs, and their after growth and flowering will be more vigorous. On the other hand, Vandas, Angreecums, Aerides, Saccolabiums, and Phalenopsis must never be allowed to get very dry at the roots, even when at rest, as they shrivel and lose their lower leaves. These species, moreover, require but a short period of rest. Variegated orchids require great care from this time till March; only give enough water to keep from shrivelling.

ORCHIDS THAT MAY BE IN BLOOM IN OCTOBER: Angreecum bilohum; Barkeria Lindleyana; Bletia campanulata; Burlingtonia Knowlesii; Calanthe vestita rubra oculata; Cattleya candida, guttata, Harrisonie, intermedia superba, marginata; Cypripedium Farrieanum; Dendrobium Gibsoni, Heyneanum, sanguinolentum; Huntleya Wailiesii; Lælia elegans var. Dayii, furfuracea, Perrini; Miltonia candida, Clowesii major, Morelii, Regnellii; Phalenopsis amabilis, grandiflora; Pleione maculata, Wallichiana; Stanhopea oculata; Vanda Lowii.

VINES breaking to be encouraged with a temperature of 60°. Beware of too much heat in theinery this month, for any excess will cause vines to push too fast for the amount of light they get. Give air freely on fine days, and keep a sharp look-out for vermin of all kinds, which at this time of year frequently do much damage before they are suspected. Where grapes are desired to be kept hanging, a very dry air must be maintained; hence plants in pots that require frequent watering should not be kept in the same structure till the grapes are off. Prune the vines that are to be started first, and clean the stems. Keep the sashes off till about the 20th of the month, and then put them on, and cover the border with leaves and sloping boards.

Forcing &c.

CUCUMBERS to fruit during winter should be grown strong before being allowed to flower. Do not stop them severely, but take a few strong runners along the trellis, with full exposure to the light, and with a liberal moist heat to ensure a luxuriant growth for the present. If any signs of mildew, apply sulphur without loss of time.

Literature.

Studies, Biographical and Literary. By G. Ross, M.D. Simpkin, Marshall, and Co.—This book is evidently the result of the meditations of a scholar and thinker, to whom publicity is of far less importance than the pleasure of expounding his views, and communicating his speculations to an earnest few who will be likely to appreciate them. Dr. Ross may rest assured that the few who love pure literature and original thought will discover this book, and prize it as a treasure, for, unlike the "essays" that abound in current literature, none who have read these will desire to forget them, but will pass them on from hand to hand until the circle of the most elect in literary matters shall regard Ross's "Studies" as one of the best books of modern times. The volume opens with a sketch entitled "A Scene in Hades." This is followed by an essay on the mad characters in Shakspeare's works, and there are elaborate critical papers on Dr. Johnson and Sir Walter Raleigh. The Shaksperian paper is the gem of the volume, perhaps because Dr. Ross's professional experiences peculiarly fit him to deal with so difficult a subject as the delineation of madness in dramatic character, but perhaps also because Dr. Ross is gifted with a critical insight above and beyond his own speciality in life, and knows much more of Shakspeare altogether than many a more pretentious and voluminous critic.

Pinacæ: being a Handbook of the Firs and Pines. By SENILIS. Hatchard and Co.—Having a great desire to speak kindly of this work, we long ago set it aside for a leisurely examination, in the hope of finding in it some useful information, some original ideas even, or in some way or other a com-

penetration for the absurdities that force themselves upon the attention of the reader in every attempt made at a perusal. Well, to say that the book affords no useful information would be unjust; but in this respect it gives us nothing that has not been as well done before, and there is no compensation for the twaddle, pedantry, and pompous conceit the reader must bear with who would read the book through. "Senilis" has not acquired wisdom with years, and, like a wheat-stalk that bears no good grain, we do not set a high value on his chaff.

The Floral World and Garden Guide. Edited by SHIRLEY HIBBERD. In recent issues of this monthly work have appeared papers on Window Gardens, the Uses of the Ivy, the Culture of Adiantums, Skimmias, Equisetums, Dahlias, the Orange, and other plants; also papers on the cropping of the kitchen garden, on the plunging system for villa garden decoration, and on the preservation of bedding plants during the winter. The descriptions of new plants, accompanied by figures, has become one of the best-appreciated departments of the Floral World.

The Intellectual Observer has been rather heavy of late, though fully up to the mark in scientific value. The pictures, too, are as beautiful as ever. In the August and September numbers occur papers on the Fungi of India, by the Rev. M. J. Berkeley; on the Ferns of Glen Clova, by Henry Woodward; on the "Pottery-tree" of Para, by Mr. Jackson, of Kew (with figures of the vessels formed from the siliceous bark of the tree); the Food of the Salmon, by Mr. Houghton. Besides these Mr. Proctor and Mr. Browning contribute astronomical papers, and the gatherings of scientific news are full of interest for all classes of readers.

The Gardener, edited by WILLIAM THOMSON, continues to be fresh and spirited as ever. The papers on the Flower Garden are admirably done; the Editor's notes of a Trip to Manchester will interest many. There are capital papers on Eucharis amazonica, the Yucca, Chinese Primula, Cape Heaths, Hardy Herbaceous Plants, and Fruit-tree Borders.

The Ladies' Treasury, edited by MRS. WARREN, is undoubtedly the best book of its class, and, strange to say, there are very many "ladies'" magazines and newspapers competing for the favours of the fair sex. The thought occurs to us, as it did when we were noticing a hook for Sunday reading, which was published not long since—why get up books for such special purposes? Why offer a book particularly for Sundays in one case, and for ladies only in another? It is a mystery; we leave it to some more subtle critic to prove its depths. May a Sunday book be read on a week day, and if any book is fit to be read on a week-day, is it not fit also for Sunday? Again, are men permitted to read the Ladies' Treasury? and if so, may ladies read, without dread of shame and ruin and misery, the magazines and newspapers that are commonly read by men? We simply ask these questions of any *Edipus* who happens to be passing, with a promise that he shall not be eaten if he answers them. While waiting for the answers, our readers are at liberty to purchase the *Ladies' Treasury*, and we really expect all our lady friends to do so, for we wish them to know all about the latest fashions, that fathers and husbands may renew the joys of providing for mercenary mercenary bills.

Our Own Fireside, edited by REV. C. BULLOCK, is full of life, variety, more original than in its earlier history, and aiming always at the highest culture and the purest ethics. Mrs. Ellis contributes some charming papers on home affairs, the papers on Arctic Adventure are continued, and the Rev. F. O. Morris pours out of his (apparently) exhaustless budget those charming stories of animal intelligence and sagacity, which have done so much to make *Our Own Fireside* one of the most welcome of the monthlies.

RECEIVED.—*Speculations on a Method of Extinguishing Fires without Water*. By F. W. Devey. Effingham Wilson.—*The Journal of Botany*. Edited by Dr. Sceman.—*L'Illustration Horticole*. Edited by M. Lemaire.—*The Gospel Magazine and Protestant Beacon*. Edited by Rev. D. A. Doudney, D.D.—*The Watchmen of Ephraim*. Edited by John Wilson.

Correspondence.

BIRDS AND THEIR NESTS.—Have any of your readers observed elsewhere the fewness of birds' nests this spring and summer, which has certainly been most remarkable about here? This rectory is thickly surrounded by trees, and in other years birds of various kinds, being always unmolested and undisturbed, have built their nests and reared their young in numbers—greenfinches in every corner, blackbirds only too many—the black-cap, the garden warbler, the thrush, the mistletoe thrush, the wren, the spotted flycatcher, the willow warbler, the chaffinch, the duncock, the ox-eye, and on one occasion the golden-crested wren; robins, starlings, swallows, martins, and sparrows of course, wagtails; the partridge, too, within half-a-dozen yards of the house, the white-throat till some bushes in which they built were cut down, and, just outside the fence, the chaff-chaff, the yellow-hammer, and the whin-chat. This year I do not believe a single greenfinch has built here, not more than one pair of robins, one or perhaps two of flycatchers, one of ox-eyes, one of black-caps, one of wrens, one of blackbirds, also a pair of redstarts, the first that ever built so near. I have only seen one young thrush about, and even that may not have been reared in the grounds; comparatively few sparrows, and no others except martins, starlings, and swallows. One pair of the last-named built on a rafter in the stable, but though I had the door left open all night that they might "have their exits and their entrances," and though the birds roosted close by the nest every night, no eggs were laid until September. The south side and east end of our ancient little church used to give many a "coign of vantage" to the "temple-haunting marmlet," but this year not a single pair has domiciled there. Of the several pairs which likewise used to build over the windows in the front of the house, this year, being disturbed by the painters, none returned to it again, but in the back of the house there are seven nests. Our fruit, of which we have had the most extraordinary quantity I ever saw, was well protected with nets, but there has scarce been a blackbird to run the blockade. In the winter we had one with a white tail in the garden, looking like some foreign bird, but the very hard weather we had took him away, and we have seen nothing of him since.—I am, sir, your obedient servant,

Nunburnholme Rectory, Heyton, York.

F. O. MORRIS.

SHANKING OF GRAPES.—In your issue of the 14th inst., page 400, the subject of diseased vines is treated. I beg to inform you that I have a house which is in the same position as that referred to by E. H. A. My opinion as regards shanking in grapes is that it is more to be attributed to the border being wet than any other cause yet known. In my experience as a gardener, I have practised keeping a vine border as dry as possible

with the lawn mowings, and thatched with straw, say from now until the end of April next, then taken off and a light dressing of rotten dung forked in. By so doing I believe the air can get to the roots, and the wet be quite excluded, which I consider to be the great cause of shanking, and my belief is that manure allowed to remain on the border will rather tend to increase the disease than otherwise. Am I right?

W. WHITTINGHAM.

Chedde. You are right, if the vines are in a wet soil; but suppose them to be in a thin gravelly loam over chalk, or otherwise in a permanently droughty place, then the case would be different.]

ZONAL GERANIUMS AT THE MANCHESTER EXHIBITION.—In your excellent report (page 383, Sept. 7) of the late Manchester Horticultural Exhibition, speaking of the collection of variegated pelargoniums which won the first prize, you say, "The collection contained only one variegated plant according to commonly received notions, the rest were bronze zonals, some of them with so much green in the leaf as scarcely to surpass in respect of leaf colouring the old Commander or Cerise Unique." *Bridesmaid* appeared to be the only variegated plant in the group, according to your report; but how is it that the fine plant of *Florence* is not considered variegated. This without doubt is one of the best tricolors in cultivation, and having at least four distinct colours in the leaf. It was admitted by all who saw it that there was nothing in Mr. Watson's collection to equal it. One of the plants you refer to as being so green did not belong to my collection, but to Mr. Watson. The plant was placed just in the angle of the bank between Mr. Watson's outer row and my group, which stood behind his. I was certainly annoyed at his placing it there, as I was sure it did his collection no credit, and was a disgrace to mine. What could have induced him to bring a plant having so little to recommend it all the way from St. Alban's to Manchester puzzles me. I consider there was nothing in Mr. Watson's lot worthy the recognition they received; five out of the eight kinds were so much alike as to make it impossible for any one to tell one from the other; the plants were also badly grown. Mr. Watson staged his plants in such a clumsy way, that even if they had sufficient merit to recommend them for a second prize, they ought to have been disqualified on that account. I was surprised to see so little taste displayed by an exhibitor who has travelled so much, and who has had such frequent opportunities of seeing plants staged in a proper manner both in London and in the provinces. I trust this remark may be the means of causing him to show more taste in future.

JOHN WILLS.

Huntroyde Gardens, Burnley, Sept. 11, 1867. [Mr. Will's plants were reported on precisely as they appeared. From the foregoing explanation it seems that they were in some way or other mixed up with the plants of another exhibitor. If such was the case, who was to blame? It is quite certain that when I made up my book there was but one variegated plant in Mr. Will's group. Now, Mr. Will, did you stage more than one, or did you remove some on the first day of the show? The criticism on Mr. Watson's lot is uncalled for, and by no means in good taste. It is not at all nice to see one exhibitor detracting from the merit of another in the same class. Prudence would suggest in such a case either approbation or silence.—S. H.]

NOTE ON VINE-GRAFTING.—In the vinery at Cranwells, near Bath, the seat of Jerome Murch, Esq., may be seen two vines that were grafted in the middle of March last which have made remarkable growth. The first is a Buckland Sweetwater grafted on White Frontignan; the length of growth to the present time is 20 feet, and the girth of vine 2 feet above the graft $2\frac{1}{4}$ inches, with leaves 14 inches in width. The second is Lady Downes' Seedling, grafted on a worthless vine, supposed to be a seedling. This also has made luxuriant growth, and promises well for next season. The length of vine from graft to the present time is upwards of 20 feet; the girth 2 feet above the graft 2 inches, with leaves 15 inches in width.

W. W.

SCARLET-BERRIED ELDER.—Communications have occasionally appeared in your very useful publication respecting the *Sambucus racemosa*, or scarlet-berryed elder. All your correspondents agreeing in its extreme beauty as a berry-bearing shrub, as it is met with in many parts of Switzerland and Germany, and being perfectly hardy, there seems to be no reason why it should not be extensively cultivated in England, and, it may be added, in Scotland, Ireland, and Wales—that is, generally—but the serious drawback which arises from its early flowering—with us usually in March—when, though it forms its berries freely, they too generally either fall off or are otherwise destroyed by adverse weather. For two successive years, however—that is, last year and this—some berries have remained and ripened on a shrub in my garden, in the neighbourhood of London; and not only so, but this year, in July, this shrub partially reflowered, forming little clusters of berries, which have ripened, and are now of a bright coral colour. Thus, I think, it is clear, and this mainly leads me to trouble you with this communication, that if this shrub, by cultivation in this country, should so far become acclimatized, as to the time of flowering, as to do so about the period that our common elder does, then there can be no reason to doubt that as a highly ornamental shrub it would become of that priceless value in this respect which one of your correspondents claimed, and justly, for it. At any rate, as it is easily propagated, either by seeds or from cuttings, it is well worth the experiment.

A. Z.

Replies to Queries.

Retlow maharg.—To make your pit safe you want a three-inch or a two-inch pipe round the two ends and front. No doubt some warmth is abstracted from the adjoining house, but in front it is too much exposed to the east to be safe for bedding plants. The simplest way of proceeding would be to carry a pipe from the flow on that side round the pit; the cost would be trifling, and it would not distress the boiler. It is not a pleasant task to recommend any particular boiler, now that there are so many good. One of Lynch White's upright conical boilers, set in brick-work, would suit your case admirably. You are, of course, aware that a boiler set in bricks does not cool down so quickly as one to which the atmosphere has free access.

Subscriber.—No; you cannot, with any justice to yourself, plant a bed of asparagus this autumn, and cut from it next spring, on a cold, damp, stiff soil; but you may prepare the bed now and plant next spring, and cut a few heads in the year following.

Roses.—Rosarian.—The honey-dew is the excrement of the aphides; therefore, whatever will make an end of aphides will make an end of honey-dew. Having had much practice with roses, you will not want a recipe; but if

you have not yet tried the Aphis Wash of the City Soap Company, it would be well to bear in mind that it is an infallible specific. We regret that, owing to continued absence from home, your letter did not obtain earlier attention.

Fruit Border.—Yorks.—The stone flag under each tree will be a great assistance to the growth, and will prevent the roots going down into the mischievous clay. The fifteen inches' depth of loam will not be enough; increase it to twenty-four inches by adding turf, if you can get it; if not, increase the depth by adding more of the same loam, and with it a liberal dressing of manure. The breadth should be six feet at least.

Kent.—Plant your trees in the houses six feet apart, and by pinching back keep their heads from mixing. Hayco's Constant Stove would afford enough heat for a house 30 feet by 14 feet to mitigate the effects of frost in spring. But the best mode of keeping frost out would be a small conical boiler and four-inch hot-water pipes.

W. H. K.—Your seedling from Souvenir de Chiswick has the character of an improved Alpha, and that is not a bad character. The flower is large, sepals broad and thick, coral-red, corolla inclining to sugar-loaf shape, petals broadly overlapping, reddish purple. Get some friend to grow a specimen plant of it, and in the mean time do the best you can with it in the window.

Mr. James Kirtland, Albion Nursery, Stoke Newington.—Your seedling dahlia, "Australian Gold," is a large flower, of fine symmetrical form, and capital centre; the colour clear pale yellow, quite distinct from others in its class, and very nearly the same shade as the Australian sovereigns that have lately come into circulation.

Piney.—Keep your house at about 45° to 50° all winter. It is very difficult to remove scale from a fern-house. One of the first steps should be the cutting and burning of all old fronds that are much infested. The next business should be the removal by hand of all the scale that can be found on the young fronds that remain. The next process is to fumigate with tobacco; this must be done frequently and cautiously.

Constant Subscriber.—It would be well to consult the "Garden Oracle" for 1866 before ordering any ferns.

G. B., Bradford.—From your account, we think your garden is much more in need of abundant manuring than of liming. But if you intend to apply lime, let it be done just before trenching the ground up for winter, and again just before making up seed-beds in spring. You may be pretty sure the lime will do more good than harm; in fact, it cannot do harm. The waste of the soap factory is a good manure, but it must not be allowed to come into contact with growing plants.

G. O.—Order it of any bookseller. Our copy has gone the way of all newspapers, and we cannot now discover the publisher's name.

H. G.—The "stout but flowerless rods" that rise from "own-root roses" should be allowed to remain their full length till the following spring, and then be cut down about a third of their length, or to any height that may be consistent with their position in the garden, and they will flower abundantly. The whole subject shall have immediate attention.

Working Man.—Four to six inches of good peat, with a fifth-part of silver-sand added, will make a good bed for the ferns. Do not attempt to heat the case, because you can have plenty of beautiful ferns that require no heat. Look to the "Garden Oracle," 1866, for a suitable selection.

Beds. Cottageer.—1. The best carrot for your clay soil is the Scarlet Intermediate. Trench the ground two spits deep at once, and lay it up in ridges, and in April next level down and sow. 2. Common hollow-crown parsnip will be the best, and the cultivation to be the same as for the carrot. 3. For what purpose do you want the potato? If for summer use, Grimsdale's Early and Smith's Early are the best; if for storing, White Radical and Flour Ball. 4. Enfield Market cabbage. We never recommend seedmen.

C. V.—It is most likely that the pest you have to deal with is red-spider; and we strongly suspect you keep your plant too hot and too dry. Alter your practice in these respects, and no doubt you will have better fortune. Your other query can be answered by reference to our advertising columns.

Books.—S. B.—Purchase Thomson on the Vine, price 5s., and do not look after any other book on the subject till you have mastered its contents. Hibberd's "Rose Book," price 5s., will give you every needful information on every method of propagating. The "Hortus Kewensis" you must inquire after among the second-hand booksellers. Try Wheldon, Paternoster Row.—Sigma.—The botanical articles in the "English Cyclopaedia" are of no use to one who proposes to engage in a thorough study of botany. We have been much disappointed with them, even for the most ordinary purposes of reference.—W. W.—Do not waste your money on the Fleet-Street books; they are sad trash. Secure Mr. Smith's book on Ferns, published by Hardwicko.

PROMOTION OF THE TURNIP.—A great promotion has fallen on the turnip. A little while since its destiny was to furnish lantern-heads for ghosts. Now it is to supplant the pine-apple. Some ingenious Parisian confectioner has devised a syrup which changes the ordinary turnip into a pine! What next? We shall have apples turned into apricots and potatoes into plums. This comes of the democratic tendencies of the age! If we can make baronets out of WENTWORTH DILKES and C.B.'s out of COLES, why not pine-apples out of turnips?—*Fun.*

THE LESSON OF THE GARDEN.—A garden is a beautiful book, writ by the finger of God; every flower and every leaf is a letter. You have only to learn them—and he is a poor dunce that cannot, if he will, do that—to learn them and join them, and then to go on reading and reading. And you will find yourself carried away from the earth by the beautiful story you are going through. You do not know what beautiful thoughts grow out of the ground, and seem to talk to a man. And then there are some flowers that seem to me like over-dutiful children; tend them but ever so little, and they come up and flourish, and show, as I may say, their bright and happy faces to you.—*Douglas Jerrold.*

RATS PLAYING AT MAGPIES.—About five years ago Mr. Robert Starkie, of Higham, in the forest of Rossendale, having to leave home for the day, as a matter of caution, placed a bag containing £65 amongst some potatoes stored in one of the rooms. On returning the following day he found that the bag had disappeared, although everything else seemed just as when he left; and subsequent inquiries having failed to elicit anything respecting the missing treasure, he had long given it up for lost. A few days ago, however, owing to a marriage celebration, it was decided to have the room whitewashed, and while this was being done a string was discovered hanging from a hole in the wall. On the string being pulled, out came the missing bag, containing the money. It is supposed the bag had been conveyed to the hole by rats.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun riser.				Moon sets.				WEATHER NEAR LONDON, 1866.				M. Imp. with of 43 yrs. Gravh	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D		
			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	Barometer.	Thermometer.						Rain	
1867																			
6	S	16th Sunday after Trinity	6 10	5 27	2 10	p.m.	11 15	p.m.	30.41	30.37	51	49	50.0	.00	50.1	Angræcum bilobum, 1 ...	Cape Coast	6	
7	M	Length of day, 11h. 8m.	6 12	5 25	2 47	"	a.m.		30.42	30.26	68	44	56.0	.00	49.8	Dendrobium discolor, 1 ...	Java	7	
8	T	Eddystone Lighthouse finished, 1759.	6 14	5 23	3 20	"		0 14	a.m.	30.35	30.26	66	45	55.0	.00	49.6	"	Philipp	8
9	W	Day breaks, 4h. 20m.	6 16	5 20	3 49	"		1 16	"	30.17	30.00	59	45	52.0	.00	49.4	"	Guinea	9
10	Th	Oxford Michaelmas Term begins.	6 17	5 18	4 15	"		2 22	"	30.01	29.98	65	39	52.0	.00	49.2	Huntleya violacea, 1 ...	Guayana	10
11	F	Old Michaelmas Day.	6 19	5 15	4 41	"		3 30	"	30.00	29.98	59	34	46.5	.00	49.1	Laelia Perrinii, 1 ...	Brazil	11
12	S	Hugh Miller born, 1802.	6 20	5 13	5 5	"		4 40	"	29.97	29.93	49	29	39.0	.00	49.1	Vanda gigantea, 1 ...	India	12

The Gardener's Magazine.

SATURDAY, OCTOBER 5, 1867.

THE JUDGING OF GRAPES might at any time furnish an interesting theme for discussion, and for some time past it has greatly agitated the lights of the horticultural world. No one can question its importance both commercially and socially, for under the first head the grape claims our best care as a source of wealth, and under the second, as one of the most welcome adornments of our dinner-tables, exhibition tables, and gardens. Whatever may be our short-comings in fruit-culture, we unquestionably stand first in all the world in the cultivation of the grape-vine, a consequence principally of the fact that it is here unknown as a wild plant, and therefore must always be subjected to artificial treatment. Were the pine-apple a weed of the soil, we should probably know far less about its habits and requirements than we do under the circumstance that it is a foreigner, and will not even live here unless it is the subject of constant care. So, but in a less degree, with the grape-vine. It will live on the bleakest hill-side; it will produce tolerably good fruit if fully exposed to the elements with the aid of the shelter of a wall, but it is only when assisted by glass, and more or less of artificial heat, and with careful tendance in other ways, that the fruit attains to that nobility of size and colour, and that richness of flavour by which the best examples of English grape-culture are characterized. We may well be jealous of our fame, which has been hardly earned, and anxious to save it from tarnish even when foreigners are not observing us. Assuredly the fair fame of English gardeners as grape-growers must be more or less affected by the official decisions of judges at exhibitions on grapes submitted for competition. There is a difference of opinion amongst growers of grapes as to the rules by which judges should be governed; and, with a view to assist in a settlement of the difficulty, we propose to offer a few observations and suggestions.

A bunch of grapes is valued—if valued at all—for two reasons. It is beautiful to look at, and it is good to eat. We look first, and eat afterwards; we never—as a rule—approach it with our eyes shut, and eat what we have not seen; and to see it after we have eaten it is impossible. Between the two opposite poles of appearance and flavour the judges have been long oscillating and vacillating, unable to arrive at any general conclusion or unanimity. We shall not attempt to review or recapitulate the arguments employed on either side, but will just submit to our readers a few facts which may serve to furnish arguments towards a code of judging.

A bunch of grapes of small size, in which the berries are small, in which some of the berries are shanked, in which all the berries are of a bad colour—i.e., green in the case of white grapes, red or rust-colour in the case of black grapes, and wholly deficient of bloom, will not improve the appearance of the house in which it has been grown, the exhibition or dinner-table on which it may be placed, and in the market will be unsaleable.

Grapes are grown to eat; therefore, if grapes are deficient of flavour,—that is to say, of such flavour as is peculiar to good examples of the particular variety tasted,—the value at which they may be appraised in the first instance, on account of size and beauty, is seriously depreciated. We must have flavour, therefore, as well as appearance.

When grapes are judged at exhibitions, the greener samples of white grapes are never so richly flavoured as the yellowest

samples of the same class, and the more the yellow hue predominates in white grapes the better is their flavour; therefore colour is a good criterion in the judging of white grapes. But the blackest samples of black grapes, and those especially that have the most perfect bloom, are not always the best flavoured. Sometimes the reddest bunch of Hamburgs in a competition of a score of examples, from as many exhibitors, will be the best in flavour and the worst in appearance. Therefore colour must not be relied on solely in determining relative value or merit.

In respect to the relation subsisting between colour and flavour, this point must always be borne in mind, that black grapes in perfect condition, as to colour and bloom, but deficient of flavour, will, if allowed to hang on the vines, continue for a long time to improve. In these cases colour and bloom are attained before the flesh is fully ripe, and when the eye has pronounced them perfect, the palate presently declares them imperfect, and therefore flavour as well as appearance should be included in the category of qualities to which we apply the term FINISH. On the other hand, black grapes that are not black, that perhaps are red, but possessing a good flavour, will, if allowed to hang on the vines, continually deteriorate. In other words, they will not hang; they contain more water than black samples, and have already stored up as much sugar in their cells as they are capable of secreting, and the next, and a not far off, stage of their career is decomposition. The same red grapes are deficient of bloom, which is a natural accompaniment of a healthy skin and a firm pedicel, and therefore while their interior pulp is in a condition to undergo speedily a destructive change, so the skin of the berries, having none of the protection which a bloom affords—for that is the use of the bloom—is in a condition to become speedily mildewed, and the pedicels being loosely attached, soon allow the berries to fall. As a matter of fact, red grapes soon become watery if kept on the vines, and on the slightest touch the berries fall to the ground in showers. As a matter of fact, black grapes—grapes of good size, deep colour, and with a plentiful bloom—will hang on the vines for a considerable time without becoming mildewed, without becoming loosened from their pedicels, without changing their contents from sweet mucilage to water, but indeed with a change always augmenting up to a certain point of their keeping, from a less rich to a more rich condition, and to a condition at last far surpassing the condition of highest perfection ever attained by the red grapes. As a rule, grapes that are perfect in colour, but imperfect in flavour, are simply not yet ripe; but grapes from very young vines, produced by rapid systems of cultivation, never have so good a flavour as grapes from old vines, that are neither highly fed nor forced in haste. There is but one way to sum up these considerations with a view to judging, and it is this: that although colour may not indicate what a grape is, it is usually indicative of what it will be, and in the end we shall find, *malgré* occasional exceptions, that colour is of much more importance than it has been commonly regarded in the judging of grapes.

Let us now dismiss quickly a few absurdities that have become entangled with the discussion. One authority protests that it does not matter what the colour provided the flavour be agreeable. We have shown first that colour enhances the market value, enhances the home value, and is to a great extent a criterion of the capability of a grape to keep and improve. Therefore the doctrine that flavour alone should be considered is absurd.

Another asserts that the bloom on a grape is a filthy superfluity, suggestive of mildew, and possibly poisonous. We will not disfigure this page by using an epithet that might betray our lack of politeness, else we should prefer to settle this critic with a single word. But it will suffice to say that Nature puts a bloom on many of our best fruits, and we prefer her ways to the ideas and prejudices of men, even if they happen to be learned men. Somehow we fancy Nature knows best, and if we be pushed for a reason of our faith in this particular instance, we say the bloom on the skin of a grape or a plum has a preservative property, and is intended to keep for our use to-morrow what we cannot eat to-day.

It is urged, again, that appearance is everything, and that the tasting of grapes at exhibitions is a sort of sacrilege. Some very respectable men have taken their stand on this proposal for a basis of judging, and the facts we have advanced

above will show that they are right nearly. They know that however good the flavour, if the colour is bad the grapes will fetch a miserable price if sold at once, that they will soon spoil if kept, and that, except for a blind man's luncheon, they are scarcely capable of affording gratification to any human being. It is no use to beat about the bush; if people possess any sentiment that lifts them into any higher region of aesthetics than that inhabited by pigs, they will take pleasure in the beauty of fruits, and the most beautiful, if good at all, will be the most valued. But we say to the propounders of this doctrine that there are apparent exceptions to the rule, and that to discover the law of such exceptions is of the utmost importance; and, lastly, whatever we may infer as to the flavour of grapes by their colour, an inference is never to be preferred to the determination of a fact, except where the determination is impossible. Now in the case before us there is no impossibility, and we conclude that IN JUDGING GRAPES TASTING SHOULD BE RESORTED TO, AND FLAVOUR SHOULD BE CONSIDERED AN IMPORTANT TEST OF MERIT.

Now let us come to the practical part of the business. It is alleged that many gentlemen object to their grapes being touched, and will cease to show if tasting be continued. To this allegation we reply that competent judges will not handle grapes in a way to injure them, and will not remove more berries than are needful for a determination of relative flavour. If there are three judges, every bunch submitted to competition must be robbed of at least three berries, a small loss, to be sure, and scarcely worth considering as an objection to the ordeal of the palate. The practised judge will not allow one of his fingers to touch the berries; he will carefully raise the bunch by the stalk, and remove a berry from beneath, and if the bunch is of a size to justify its being shown, the depreciation of its value and beauty thereby will be infinitesimal in quantity. But as some persons attach importance to infinitesimal quantities, there is a possible way out of the difficulty. Let the gardener cut his bunch or bunches, and fix them as intended for exhibition. Let him cut from the same vine a small bunch or a small shoulder, and stage this with his bunch or bunches expressly for the use of the judges. We commend this proposal to all exhibitors and judges of grapes. There may be found perhaps two objections to its adoption. The berries in a small bunch will sometimes have a better flavour than those in a large bunch, and it may occur that an exhibitor, knowing his large bunches to be deficient of flavour, may cut a little bunch for tasting from another vine. But these objections do not appear to us to be very weighty, for we must take the exhibitor's word for the *bona-fides* in this case, as we do in every other; and the berries put up for tasting must agree in size, colour, and style of finish with the bunches, or the judges will question if they are from the same vine, and proceed at once to remove berries from the bunches. We propose, therefore, that *exhibition bunches should be accompanied with berries for tasting*; a portion of a bunch from the same vine will, of course, be all that is required.

We now have to consider that the awards of judges at exhibitions should be, as far as possible, of an intelligible nature. If the reason for an award is apparent to every spectator, it is a great advantage; but that cannot be, because every spectator does not possess knowledge sufficient to appreciate the judgments. Well, we cannot initiate the visitors to a horticultural exhibition in all the mysteries of the art, but in respect of grapes something in that way might be done, which would at least be useful to cultivators, and would prevent many a storm of indignation in reference to the decisions of judges. It might be done in this way: The card appended to an exhibition of grapes should give not only the name of the exhibitor, and specify the class in which the grapes are shown, but also the several points allowed by the judges for size, colour, and flavour. In other words, the announcements of the awards should be accompanied by a few particulars, showing the grounds on which they have been made; then, if the first prize goes to a bunch of red Black Hamburgs, and the third prize to a bunch of black Black Hamburgs, the public will know that the red samples are better flavoured than the black ones; and if the judgment is not acquiesced in, it will at least be removed from the domain of mystery.

We come at last to the final application of the principles we have thus far enunciated. It is not so desirable that bunches should be large, or that berries should be large, but it is desirable that the berries should be intensely coloured, and with a heavy bloom; or in other words, that they should have as much colour as is possible for good samples of every particular variety shown. It is also desirable that they should be well flavoured, for young vines that have been grown rank and fast will give handsome bunches and berries deficient of flavour. We propose, then, to distribute the several qualities, in their relationships to the standard of perfection, in three groups of

five each, thus: Colour and Bloom, 5; Flavour, 5; Size of Bunch, 2; Form of Bunch, 1; Size of Berry, 2; Total, 15. Let us now apply this rule to a hypothetical case.

ALL ENGLAND HORTICULTURAL SOCIETY.
CENTENARY EXHIBITION.

CLASS 100.

BEST SINGLE BUNCH OF BLACK HAMBURGH GRAPES.

FIRST PRIZE.

Awarded to Mr. Pampinator (Weight, 4 lbs. 6 oz.).

Colour and Bloom	4
Flavour	5
Size of Bunch	1
Shape of Bunch	1
Size of Berry	1
Total	12

ALL ENGLAND HORTICULTURAL SOCIETY.
CENTENARY EXHIBITION.

CLASS 100.

BEST SINGLE BUNCH OF BLACK HAMBURGH GRAPES.

SECOND PRIZE.

Awarded to Mr. Vitisator (Weight, 3 lbs. 10 oz.).

Colour and Bloom	4
Flavour	2½
Size of Bunch	1
Shape of Bunch	1
Size of Berry	2
Total	10

ALL ENGLAND HORTICULTURAL SOCIETY.
CENTENARY EXHIBITION.

CLASS 100.

BEST SINGLE BUNCH OF BLACK HAMBURGH GRAPES.

THIRD PRIZE.

Awarded to Mr. Vindemiator (Weight, 6 lbs.).

Colour and Bloom	2
Flavour	2
Size of Bunch	2
Shape of Bunch	1
Size of Berry	1
Total	8

Lastly, we must declare our conviction^s that judges should not be severely bound by codes or rules. Diversity of opinion and taste are advantageous; the chief qualifications required in a judge are ability, experience, and honesty. The ablest men will make mistakes, as may be seen at every exhibition; but there is only one safe mode of procedure, and that is to secure men known to be competent, and in whom exhibitors have confidence, and then leave them as large a margin of freedom as possible. Holding such views, we do not urge the adoption of our code as final and unalterable, we offer it simply and solely in aid of the settlement of a much vexed question, of far too important a nature to be set aside, or disposed of carelessly.

SIGNS OF A HARD WINTER.—Every year about this time the newspapers teem with paragraphs bearing some such heading as we have attached to this. Somebody finds a good crop of berries on his holly or hawthorn-tree, and at once sees therein a presage of a dreadful winter. Another observes that an elder-tree has acquired a deeper tint of red than usual, and he knows thereby that on the 10th of January all the rivers will be covered with three feet depth of ice, and blocks of brandy will be retailed in the taverns by a process of chopping fragments from frozen puncheons. Here is a sample of the prevailing weakness. A correspondent of the *Hants Advertiser*, who dates from Shirley, about two miles from Southampton, states that "he noticed the congregating of swallows the third week in August last, as if preparing to migrate, and now not one is seen. He attributes their early departure either to symptoms of an early winter or to the rain-floods, which must almost have drowned them wherever they roosted. He says that there are a few martins remaining. He heard a nettle-creep and saw a nightingale on the 12th, but he has not heard the blackbird and thrush since the 24th of June; whitethroats have been more numerous than usual this summer, and robins are now in full song and very plentiful. Birds of passage are said to have begun their annual migration southwards through Belgium a month earlier this year than usual. Already long lines of storks have taken flight. Bustards have been killed in the neighbourhood of Paris, and wild ducks have passed in such numbers that the eye cannot follow them. This is a presage of a hard winter." This correspondent at Shirley, who illuminates our Hampshire contemporary with a sage presage of a hard winter, is evidently not sage enough to know that birds are governed in their actions by what they feel in the present, and not by what they know of the future. This attribution of prophetic wisdom to animals is as absurd, if not so nasty, as the old priestly process of divining events from the entrails of animals killed for the purpose, or, as sometimes happened, disembowelled without being killed, that the priest might have the entrails extra fresh. There was a migration of birds from northern towards southern parts of Europe a fortnight ago. No wonder, for just at that time there came from

the north pole (or some other objectionable place thereabouts) a wave of cold air which pervaded Europe, and made man and beast equally afraid that winter had already come. When the temperature falls suddenly and greatly over a large tract of country, birds, having such perfect command of all climates, invariably make some migrations more or less extensive because they feel uncomfortable, but we do not learn thereby that they know anything of what is to happen six months hence. But the prediction of a hard winter from the appearance of trees is still more ridiculous, and should be expected only from philosophers in the last stage of drivelling and softening of the brain. A holly-tree knows it will be very cold in February, 1868, and so in May, 1867, it forms an extra crop of berries! Sensible doctrine that, to be sure, and very creditable to the free and independent press that gives it currency. We poor darkened horticulturists attribute good crops of fruits, whether holly-berries or grapes or apples, in great part to the temperature and other influences the trees *have been* subjected to, and would be inclined to attribute a large crop of holly-berries in 1867 to a good growth and perfect ripening of the wood in 1866; certainly not to the foresight of the tree in reference to the events of 1868. As to the movements of swallows, we saw millions on the 1st of this month—that is to say, on Tuesday last—near the village of Walthamstow, in Essex. Perhaps those were the flocks that the Hampshire sage saw congregating in the third week of August last, and which, having anticipated a hard winter, went away, but since then have adopted the opinion that the winter will be a mild one, and so have quietly returned. "Wild ducks have passed in such numbers that the eye cannot follow them." How wonderful, to be sure! Had we not better fly to the tropics to escape the death by frigidity next winter which is thus predicated? We believe we are indubbed to our usually sober contemporary, *The Farmer*, for this bit about the wild ducks. If the "Farmer's" eye could not follow them, how intensely intense must be the cold in store for us! Dreadful consideration—"the eye cannot follow them"! Then let every wise man lay in an extra store of seals.

A CALIFORNIA CUCUMBER, raised in Rock Island county (Ill.), measures three feet two inches in length, and one foot one inch in circumference at the butt.

ONION FAIRS.—At the Chertsey Great Onion Fair, well-grown sound-harvested onions sold at 3s. to 4s. per bushel. There is an abundance of grass-feed in this part of the country, and an unusually large number of stacks of second-cut hay are up. At the Wallsall Onion Fair, there was a good supply at 7d. to 9d. per reeve, or 7d. to 8d. per peck loose.

DEATH OF MR. WILLIAM WALLACE FYFE.—Mr. Fyfe, the editor of the *Nottingham Daily Guardian*, and for many years previously editor of the *Dorset County Chronicle*, died at his residence in Hounds-gate, Nottingham, on Wednesday evening last. He was a man of considerable literary ability, and well known for his labours in scientific agriculture. The deceased gentleman was the eldest son of Mr. Peter Fyfe, R.N., of Dundee, and was fifty-one years of age.

SUCCESSFUL INTRODUCTION OF THE SKYLARK IN AUSTRALIA.—At a recent meeting of the Acclimatization Society of New South Wales, it was stated that the skylarks introduced from England have bred freely, and that numbers are now to be seen in the fields in some parts of the colony. At the same meeting Dr. Bennett stated that Lieutenant Marchetti, of H.I.M. ship *Magenta*, had presented to the society two Manchourian pheasants from the north of Pekin—the species known as Swinhoe's eared pheasant (*Crossoptilon Manchouricum*), the "Ho-ky" of the Chinese—and it is the first time that this fine kind of pheasant has been introduced into Australia. Three birds arrived alive at Sydney, but one unfortunately died on board.

CAMBRIDGE HORTICULTURAL SOCIETY.

The concluding exhibition for the season of this society took place in the Corn Exchange, Cambridge. There was a good display of dahlias, gladioli, and other cut flowers, with an abundance of fruits of admirable quality. The arrangements comprised a well-filled central table for fruits, with banks of flowers and plants all round. On the table were several beautiful plants of variegated Japanese maize, contributed by Mr. Chater, of the Gonville Nursery, which made an attractive feature. One of the best filled classes was that for twelve plants in bloom, in which the prizes were divided between Mr. Chater and Messrs. Hudson, both nurserymen of Cambridge. In the class for single plants, the exhibitors were Messrs. Chater, F. Butler, and E. Smith. Several fine examples of liliuns, heaths, fuchsias, and geraniums were shown in these two classes; one of the best specimens was a *Brugmansia*, finely grown and flowered, from Mr. Chater. In the class for six zonal geraniums, Mr. F. Butler stood first with splendid round-headed and very flowery bushes of *Roi d'Italie*, *Beauté du Suresne*, *Adonis*, *Rose Rendatler*, *Clipper*, and *Amelina Grisan*. Mr. Chater, second, with *Roi d'Italie*, *Etendard des Rouges*, a second-rate scarlet; *Madame Vaucher*, *Monsieur Barré*, very fine; *Adonis*, *Marion*, a seedling of Chater's, soft rose pink, neater in habit than *Beauté du Suresne*. Third, Messrs. Hudson, with *Adonis*, *Prince of Hesse*, a nice salmon-flesh variety; *Madame Rendatler*, fine; *Souvenir de 8 Juin*, *Rose Rendatler*, and *Madame Lefebvre*. In the class for three zonals, a pretty group from Mr. F. Butler first.

Dahlias took the lead amongst cut flowers, and there were some truly fine stands. The awards were, in the class for twenty-four, first, Mr. W. Chater, of Saffron Walden; second, Messrs. Wood and Ingram; third, Mr. John Fryer, of Chatteris. In the class for twelve, first, Mr. Fryer; second, Mr. T. Webb, junr.; third, Mr. Petfield. The last-named exhibitor put up a splendid stand of twenty-four dahlias, which through some accident or error obtained no place at all. There could be no doubt, as a subsequent look over the stands sufficed to prove, that Mr. Petfield was in justice a winner; but the merits of his flowers were evidently not noticed until it was too late. Such occurrences are to be regretted, but it appears to be quite impossible always to guard against them. Asters were middling, and, as a rule, reflexed flowers were alone worthy of positions; the incurved flowers were, generally speaking, worn-out and dirty. The principal exhibitors were Messrs. Chater, Petfield, Wellsford, Webb, R. Heady, W. Chater, W. C. Smith, and J. Jones. Gladioli were fine; the twelve from Mr. Richard Heady equal to any we have seen this season. Messrs. Clarke, Webb, and Cross also competed, and presented beautiful groups of flowers. Roses were poor. Messrs. Wood and Ingram, Lawrence, J. J. Chater, Qyles, Webb, Wellsford, Heady, and Fryer, sent the best, and of course amongst so many stands there were many good flowers. Considering the season, the roses were perhaps better than could have been expected. A grand display was made of cut flowers in baskets by Messrs. J. J. Chater, Messrs. Hudson, and Mr. Jones. The first-named of these three put up a gorgeous group, consisting

almost entirely of choice subjects, such as *Tacsonia Van Volxemi*, *Lilium auratum*, *Stephanotis floribunda*, &c. The hardy flowers were scarcely good; the best baskets of these came from Messrs. Jones and Hudson; *Marigolds*, *Zinnias*, and some other less important flowers, were shown in tolerable plenty.

The best basket of fruit came from Mr. F. Butler; it contained a pine, some fine grapes, peaches, plums, nectarines, oranges, &c. Mr. Richard Heady had second place with a beautiful basket containing some fine Muscat and *Hamburgh* grapes, ripe *Noblesse* peaches, plums, &c. Some fine grapes were shown, comprising *Black Hamburghs*, *Muscat of Alexandria*, *Muscat of Lunel*, *Muscat Hamburghs*, &c. The principal exhibitors were Mr. W. Hurrell, Mr. Richard Heady, Mr. F. Butler, and Mrs. Finch. Pines from Mr. F. Butler and Mr. Heady were fine. Melons were not good in any case, though plentiful; the principal exhibitors were Mr. Finch, Mr. Webb, and Mr. Fisher. Here, as usual, the green-fleshed varieties were highest in the scale. The best twelve peaches came from Messrs. Hudson; they were fine samples of *Walburton* Admirable in perfect condition of ripeness; second, Mr. Hurrell; third, Mr. W. C. Smith. In the classes for sixes and threes, the exhibitors were Messrs. Fisher, Hurrell, Heady, *Wilderspin*, and *Clarke*. Nectarines were also fine; Messrs. Hudson's *Flrugo* grand for size, colour, and flavour; other good dishes came from Mr. F. Butler, Mr. W. Hurrell. Plums were fine; Mr. J. J. Chater first in the class for purple, with a fine dish of *Kirke's*, and again first in the class for yellow, with *Magnum bonum*; Mr. Lawrence second in both classes. *Greengages* from Mr. J. J. Chater and Mr. Lawrence, fine. *Table pears* were plentiful and fine, especially the examples of *Bon Chrétien*, *Bergamot*, and *Dunmore*. The principal exhibitors were Messrs. Barrett, Basham, Chater, Heady. Apples were shown by Messrs. *Wilderspin*, Chater, Giddins, Barrett, and Fisher. Some good samples of celery, salads, onions, and miscellaneous subjects.

THE PEOPLE'S GARDEN, PHOENIX PARK, DUBLIN.

Throwing open the Botanic Gardens, at Glasnevin, to the working man on those days when relaxation from his weekly toil enables him to enjoy their beauties was a great boon; a boon largely appreciated, and never, we believe, abused. Allocating a considerable portion of our noble park for the purpose of "The People's Garden" is another step in the right direction, and for which we feel largely indebted to those who initiated it. We have been to "The People's Garden" on two or three occasions this season, and it was most gratifying on each to witness the interest taken in them by the working classes, and the large amount of pleasure they seemed to derive from the examples of gardening, as a decorative art, which the grounds afford.

As many of our country readers may not have seen, and some may not even be aware there is such a thing at all, we purpose saying a few words to-day on the subject of "The People's Garden" in the Phoenix Park. The portion of the park set apart for it is well selected, being conveniently and advantageously situated, and well adapted for the purpose. It comprises an area of about twenty-five acres, and takes in that portion of the park from the right of the principal entrance from Parkgate Street to the road leading to the Zoological Gardens, and the entrance from the North Circular Road; the wall and grounds of the Royal Infirmary forming the other boundary. Its shape is thus somewhat triangular. It is divided by a dell, which forms a basin for the small lake or sheet of water, communication between both sides being available by means of a small bridge that spans the water where it is narrow.

The larger portion, that between the main road of the Park and the sheet of water, is what may be called the dressed ground, and comprises a large expanse of verdant turf, a considerable share of shrubbery, intermixed with flowering plants, not a little "bedding out," a frame ground for striking and growing geraniums and other bedding stuff, and a low span-roof house for wintering it. This house is about fifty feet long, and is heated by a small boiler and a four-inch pipe flow and return. A very handsome and substantial Swiss cottage is being erected beside the frame ground for the manager, Mr. M'Hugh, who has contrived, even during the present year, with his resources scarcely yet available, not only to have his grounds in beautiful condition, but wonderfully gay. During the early spring and summer months there was quite a display of spring bulbs and early-flowering annuals. Since June their place has been taken and well and gaily filled by bedding plants, the arrangement of which we shall briefly notice. The bedding runs parallel to, and only a short distance inside, the railing that separates the people's garden from the main road of the Park, and is continued by that which cuts it off from the road which leads to the Zoological Gardens, with the addition of some very large irregular beds on the slope that declines to the water's edge. The first bed of those next the main road is a large oblong. It is arranged thus: next the grass a row of blue *Lobelia*, then a belt of variegated *Alyssum*, a double row of zonal *Geraniums*, then one of *Perilla*, then a row of *Golden Chain*, a double row of *Tom Thumb Geraniums*, and a row of variegated *Geranium* down the centre. The *Perilla* is misplaced here, as it grows too high, and shuts from view the row of *Golden Chain* inside it. A large circular bed succeeds. The centre a mass of yellow *Calceolaria*, encircled by a ring of white flowered zonals, then one of scarlet do., succeeded by one of white and another of scarlet, then one of mixed single *Petunias*, and next them the pretty, and in its place most useful, *Tagetes signata*, all finished with a belt of blue *Lobelia*. They and the *Petunias* have grown quite out of proportion, and spoil what would otherwise be an effective bed. This is succeeded by another oblong bed, corresponding in size with the first, but more effective in arrangement. The centre row is yellow *Calceolaria*, then *Tagetes* with scarlet *Geranium* on either side, and these framed in with *Perilla*, then a row each of *Madame Vaucher* and *Christine Geraniums*, the variegated *Alyssum* and blue *Lobelia* being the finish. The bedding is here interrupted by a group of *Hollies*, *Arbutus*, &c., dotted over the grass. After which we meet with a large and effective bed, in botanical language somewhat cordato-lanceolate in shape, planted in patch-work fashion, with various coloured geraniums, &c., and belted with blue *Lobelia*. Then we have a very large quatrefoil bed, and one of the most striking of the whole. The centre is composed of white zonal and scarlet *Geraniums*, with a band of *Christine* running from it to the points of the four indented portions of the figure, the foliations being filled with *Gazania splendens*, about the finest surfaces of it we have seen, the whole edged with a broad border of variegated *Mint*. There appeared to be a little weakness about the centre. We would rather have the white-flowered zonal away; it is washy-looking. With the centre better this would be a most telling bed. To this succeeds a large bed of single *Stocks*, bordered with *Petunia*. The *Stock* is run to seed now, and the whole an ugly affair. This brings us to the shrubbery and flower border next the road leading to the Zoological

Gardens. In front of this border there is a raised cinquefoil bed, flanked on either side with oblong pointed beds of dwarf Asters. The centre bed is filled thus: in the centre, dark *Calceolaria*, circled with yellow do; running from this to the indentations of the figure are fine rows of *Perilla*; two of the foliations are filled with scarlet zonals, two, if we remember rightly, with pink, and one with white do.; the whole finished with a broad belt of *Lobelia*. On the slope descending to the water are two or three large beds, one of them filled with young plants of *C. toneaster*, and the other with various small shrubs. These were, about this time last year, sown over their entire surfaces, the one with *Saponaria* and the other with *Nemophila*, both forming very striking and effective sheets of floral beauty during the present year. When at the Garden last week, these beds were in course of preparation for again sowing them with these beautiful and effective annuals. Mr. M'Ingh, with four assistants, keeps the whole in very nice order. The views from the grounds are very fine; but to our mind the most charming of any is to see hundreds of the children of toil, who, but for this boon, would have been strangers to gardening effects, gazing upon them with mingled pleasure and astonishment. We have no doubt but the people's garden will be a powerful agent in creating and promoting a taste for gardening and its pure enjoyments among all classes, and otherwise, physically and morally, of the greatest benefit to the humbler denizens of our metropolis. We can well fancy what genuine pleasure our friend, Mr. Wilkie, must feel as he gazes now and then on the daily and Sunday throngs of happy faces that crowd the spot his truly kind heart and benevolent disposition took delight in beautifying for them.—*Irish Farmer's Gazette*.

ON THE GROWTH OF TROPÆOLUMS AND YELLOW CALCEOLARIAS AS BEDDING PLANTS.

A few collected ideas relating to bedding plants may perhaps aid the efforts of our horticultural friends to improve in the forthcoming year their out-door displays of colour. The beauty of the flower garden for the present season has not yet faded so far as to prevent us from noting defects or otherwise in our past arrangement. So, if we have not previously embraced the opportunity, the doing so at the present time will enable us to complete our intended plans for the future. Our first note will be to briefly consider the influence soil and situation have in the production of flowers and growth of plants when bedded out. Within the last week I had an occasion to visit a very extensive flower garden belonging to a private establishment. In the course of my survey, I came upon two beds of dwarf *Nasturtiums*, or, to speak more correctly, *Tropæolum compactum coccinea*. They were planted in a direct line within a few yards of each other, and although they were so closely allied, yet the effects from surrounding influences on their position was decidedly unfavourable to the one as compared with the other. The marked difference was that bed No. 1 had abundance of flower with moderate growth, while bed No. 2 produced very luxuriant but weak growth, with very little bloom. So opposite in character were they, that I had some doubts as to whether they were one and the same variety, till my friend the gardener assured me that they were indeed the same. To what cause are we to attribute the defective flowering of one bed as compared with the other? Bed No. 1 was fully exposed to the benefits of the solar rays during the whole of the day, while bed No. 2 was partially screened from those advantages by trees. Here was a lesson to be derived—never to be too hasty in your judgment to condemn the flowering qualities of any plants that you may have bedded out without first taking into consideration the influence of surrounding objects and circumstances on vegetation. It is not uncommon to hear that a gentleman has said to his gardener, "My neighbour So and so has a certain bed of plants (naming them), and that in perfection, while our bed cuts but a miserable figure in comparison." The gardener to some extent is then blamed for the difference, whereas, on inquiry, it would be found in ninety-nine cases out of one hundred, that it was situation, and that alone, that either retarded or promoted the blooming qualities of the plants. Having thus alluded to the *Tropæolum*, we would say something respecting its treatment, with the view of checking undue luxuriant growth, and the obtaining of plenty of blooms. This species of plants more particularly demands our attention, because as bedders they are tractable, showy, and require but little care; and in the next place the number of new varieties that are being annually introduced somewhat confuses the cultivator in his selection, as there is a degree of sameness among many of them in their colour as well as habits; in fact, you can hardly judge of their relative merits by single plants, it is only as you see them cultivated in groups or lines that you can decide as to their respective fitness for flower-garden decoration. The great value of the varieties raised by Mr. George, of Stamford Hill, is their compactness of habit; nor must we underrate the additional advantage of their preserving a healthy foliage till the close of their blooming season, while some of our older bedding varieties, whose growth is more loose and straggling, too often show a disposition to yield decayed foliage long before the flowering season has terminated.

The best means of obtaining abundance of flower with moderate growth, is never to plant them in light rich soil, nor to give them too much water at their roots during their growing season, and in whatever spot of the garden you may plant them, make choice of that which is fully exposed to the sun's influence.

The yellow *Calceolarias* and their varieties next claim our attention. Within the past few years the *Calceolaria* as a bedding plant has been very uncertain as to its existence. After they have been planted out in their beds, many have been the blanks created here and there in the beds, owing to their sudden death just at a period when we anticipated a mass of bloom. The consequence has been that numbers have despaired of ever succeeding with them again; this has led to several kinds of plants being recommended as substitutes for them. Now, to be candid, I must say that not a plant that I have seen adopted has even approached, much more equalled, the *Calceolaria* for brilliancy and constant effect, independently of its use for cutting from for bouquets. The first plant that I remember to be recommended was *Gazania splendens*. This makes a very brilliant bed during the day, yet it is a blank towards evening, owing to the flower closing when the sun goes down.

The pretty *Marigold*, *Tugetes signata pumila*, has been highly lauded in the seed catalogues as being every way on a par with the *Calceolaria* for effect; but its flowers are perfectly insignificant in comparison, and, besides, the odour of the foliage is anything but pleasant, so that it is not adapted for bouquets. As the season has now arrived for commencing the propagation of the *Calceolaria* in earnest, a few words on the best method to be adopted may be acceptable. Our object must be to check the almost universal evil complained of, and thus go on increasing instead of lessening their number for next year.

I will, then, just simply describe my practice and success this year, without any preface beyond stating that the means adopted by me have been repeatedly advised in these columns by our worthy Editor. Before planting out, the plants should be subject to repeated fumigation of tobacco, so that not a green-fly is allowed to nestle among them. Having then arranged my plants in their pots on the beds at the respective distances I required previous to planting, I have placed beside me a box-barrow full of good decayed manure; then with a small spade, about six inches in width, I make the holes, filling up the same with the rotten manure; into this the plants are inserted, and as a proof of the value of the practice, I will refer to two beds of *Aurea floribunda*, containing nearly a hundred plants each, which were planted by me in the spring of this year. Not one plant has failed, and for abundance of flower and general health they have been the admiration of all who have seen them. Not a red-spider has fixed its abode among the foliage, an insect to which this variety is very subject in very dry and hot weather. In whatever part of the garden they are planted, there the manure has been used with equal success, excepting to *Calceolaria amplexicaulis*, which does not require it, as it is seldom a plant of this beautiful variety fails. I really cannot understand why it is not more generally cultivated. I have two large beds of it in flower at the present time, surrounded by the dwarf blue *Ageratum*, and the effect is brilliant in the extreme. For cut flowers, on account of the length of their stalks, they are invaluable.

JNO. F. McELROY.

THE NEW HARDY CLEMATISES.

We have long known, and ere this spoken, of the great merit of some new hybrids and varieties of *Clematis* recently raised, but we had no sufficient idea of their capabilities till we visited the nurseries of the raisers, Messrs. Jackman, of Woking, in the early part of this month. The *Clematis* is a well-known genus, often very pretty, from exhibiting a multitude of small flowers, like *C. campaniflora*; often showy, from a profusion of handsome ones, like *C. montana*; and frequently rampant, like the common Traveller's Joy; but it is only of late that it has become magnificent, or rather that its magnificence has been rendered available for flower-garden ornamentation and general use. There has long been a splendid species of *Clematis* (*lanuginosa*) in cultivation, with flowers of noble proportions, often six, seven, and eight inches in diameter. This, though finer as regards its size than any of the new ones, and having in addition to the normal blue form two exquisite snowy white varieties, was generally so slow to produce flowers, and leaves too, that it remained almost an unused plant. Hardy enough to do some good in nice positions, it was almost useless for general open-air culture. But, fortunately, Mr. Jackman succeeded in crossing a very hardy free-growing species with this *lanuginosa*, and the result is a breed with the vigour of a common *Clematis* and the large and splendid flowers of the *lanuginosa*. But the colour was also changed: rich purplish and plum hues were imparted to the pale lavender-blue or white of *lanuginosa*, and some of the richest hues of purple to be found in any flowers are now displayed by the varieties of this race, while one or two of the new kinds are of a fine soft blue or mauve, with stiff petals and handsome form. Not only are they distinguished by immense size and the richest colour, but their profusion of bloom is something quite remarkable. Imagine a mass of foliage five feet high, supported on stakes, bearing flowers nearly as large as tea-saucers, and so profuse that their leaves are quite obscured. We have seen the plants shown in pots and in a cut state, but had no idea of their profuse way of blooming, and consequently of their great value, till we saw them at home, growing in various positions in the open air, and flourishing there as freely as British weeds could do. They were arranged in various positions—planted in beds and pegged low down, like verbenas or ordinary bedding plants, or supported on stakes, up which they grew to a height of five feet or thereabouts, and then fell down in wreaths of the richest purple. However, few can have an idea of their beauty till they see them well grown. We believe them to be the noblest hardy hybrids that have been introduced for many years, and likely to effect much for the flower-garden, pleasure-ground, or rockwork. Being perfectly hardy, they are, of course, a great help in saving us from the perpetual expense for protection so much needed now. In fact, so satisfactory are they, that the only thing we have to settle about them is their position, and how they may be used most gracefully. Firstly, they will be of the highest value as purple bedding plants—our present colours in this way being poor indeed compared to these. They may be used effectively at about the same height, or a little higher, than the verberna; and near the earth, well pegged down in this way, they are less exposed to danger from storms, and enjoy a greater degree of heat. Eventually a beautiful harmony may be presented by beds planted with them, if the various shades of purple, plum-colour, &c., are associated in lines or circles; but it is needless to attempt the enumeration of the many ways in which they will be found effective and beautiful when associated with other good things. To pass from their use as bedding plants, we have next to consider them as the noblest obtainable ornaments for low walls, trellises, &c. To such they must, of course, be nailed or tied; and, once firmly fixed, if allowed to fall down in rich masses so much the better. We, however, consider that the most simple and grand use of all to make of them would be to plant them on large rockwork, giving them a good depth of rich, light, and sandy earth, and allowing their shoots to fall over the face of the larger rocks without training, pruning, or any other attention whatever. Of course, almost the same words will apply to rustic banks, &c., with a warm exposure. For drooping over the margin of those raised beds with edgings of wood or stones, they will look superb.

As to soil, it is important to note that they do best of all in a very sandy light one. They will not refuse to grow freely in any good soil, not too stiff; but we have always observed them do famously in very sandy loam, and in any case in light stuff—deep as you like, however. Mulching the ground—or, in other words, covering it with an inch or two of loose, half-rotten manure during the summer—they like very much. It keeps the ground open and agreeably moist to the very surface. As to pruning, it is simply managed by cutting the plants back to within four or five inches of the ground in early spring—that is, if they are used for bedding, or in any way in which they may spread out low upon the ground. But when we wish to cover walls, &c., with them, the case is altered, and the stems may be allowed to go as high as they like, merely cutting them back and thinning them out a little. In banks, rockwork, &c., they might with advantage be left "to nature," no pruning, no attention being required after the first planting in good free soil. The best of the class of Clematisses of which we speak, and it must not be confounded with any others, are *C. Jackmanni* and *rubro-violacea*. Both these kinds are now cheap. But since their appearance many new kinds have been raised, of which the best are *rubella*, Prince of Wales, Lady Bovil, Thomas Moore, and Mrs. Bateman.—*The Field*.

CONCERNING FRENCH RAISERS OF ROSES.

A few facts about raisers of our pot flower may be useful just at this time, when our neighbours on the other side of the Channel are furbishing up their most florid adjectives for descriptions of their—for the most part—so-called new roses. These descriptions, in which the elegant tints of the rose are variously compared to the aurora, to jasper, to tender flesh, &c., &c., are snares and gins to the unwary; for as Mr. Cranston, and our Editor, and other practical rosarians have most truly urged, not one in five of our French friends' new roses are worth propagating.

Perhaps even Horatius Flaccus, that ancient intimate of our Editor, was himself taken in some 1,900 years ago by a wily Asiatic catalogue maker. Listen to him—

*Persicos odi, puer, apparatus,
Mitte sectari, rosa quo locorum
Sera moretur.*

Carm. xxxviii. lib. i.

Translated,

These gorgeous worded catalogues I hate;
These Persian roses will not vegetate:
You rascal, cut your stick—no! wait!—
Cut me a really good rose that blooms late.

As therefore the sublimity of description of new roses is no adequate test of the rose's worth, we must find some other test. Probably the best test is the results of past years, as compared with the promises in the catalogues. Hence it will be found, after much trouble and painful analysis by the anxious inquirer, that there is just one Frenchman out of twenty-four, or thereabout, from whom we may confidently expect good new roses. Let his name be printed in large and lovely type—

Monsieur Lacharme.

This gentleman is quite the senior wrangler in rose raising.

Next to him in order of priority come Guillot (*père*), Jamain (sends out very few and very good), Guillot (*filis*), Marest, Granger, Charles Verdier, Levêque, Portemer, and Pernet. I should like to have included Eugène Verdier and Margottin; but I fear that the latter lives too much on the fame of Jules Margottin, and the former occupies so anomalous a position that he ought to be made sensible of it. His custom is to send out yearly some eight or nine so-called varieties, of which at the most three or four are good, and occasionally extra good, while the rest are bad, really too bad. And yet this raiser is a most thorough rosarian, and well knows the worth of such roses as satisfy the mind of us simple English folk, whose very nature it is to be taken in by such enticing catalogues as his. Now, will he be satisfied with a reasonable offer. It is this: If he will yearly send out only such roses as he knows are good, without that unhappy *addendum* of hollow-eyed unsubstantial ghosts of roses, I will undertake to place him in this list next to M. Guillot (*père*), and reform my opinion.

Next to M. Eugène Verdier, as he now stands at the bottom of my list, come the *profanum vulgus* of rose-growers, perfect pyrotechnical artists in catalogue making; but taking the test-percentage of their productions, I find that not more than one-tenth, taken collectively, is good enough to be retained in the lists. These stand as follows in order of merit: Liabaud, Gonod, Fontaine, Ducher, Oger, Damaizin, Gautreau, Touvais, Trouillard (foreman of Leroy d'Angers), Moreau et Robert, and Souppert et Notting.

Besides all the foregoing, there are Lecompte, Baumann, and Cechet, of whom I know nothing beyond this, that they have respectively raised *Maréchal Vaillant*, *Marie Baumann*, and *Comtesse de Jaucourt*, very first-class roses; so that if I hear that they are at all likely to send out other roses, I should like to try them.

VIATOR.

THE BEECH.—The beech (*Fagus sylvatica*), if it be not the most magnificent of all British trees, certainly rivals the oak itself in size and majestic beauty; a grove of stately well-grown beeches on chalky loam is at once graceful and grand; the effect on the spectator is thoroughly awe-inspiring; the massive, smooth, upright fasciculated trunks, and the far-spreading groin-like branches call to mind some huge cathedral nave; the trunks are pier-like, massive, bossed, and chamelled; the branches like arches interlacing, curving, and entangling; and the roots, moulded, curved, grotesque, and snaky, help to complete a scene of the most impressive character. The body of the tree is frequently stained of a vivid grass-green, produced by the growth of a parasitic lichen, the beauty of which is enhanced on a summer's day by the bands of pure gold projected on the limbs where the struggling sunbeams find a temporary passage through the dense umbrage above. The value of the wood for building purposes is by no means equal to the beauty of the tree; for whether in a living state and full of sap, felled for use, or dried and made up into furniture, beech-wood is invariably riddled by a parasitic worm; this is one of the principal reasons why the wood is seldom or never used for floors and roofs.—*Builder.*

REPORT ON TRIAL CULTURE OF LETTUCES AT STOKE NEWINGTON, 1867.

Having determined to investigate a few points of some interest in respect of the distinctions of character amongst certain varieties of lettuces, I applied to Messrs. Barr and Sugden in the early part of the present year to supply me with the purest possible samples of seeds of the kinds intended to be grown for comparison. Messrs. Barr and Sugden kindly engaged to obtain pure samples of the kinds required, and while so engaged secured for me several other kinds; so that in the end, instead of receiving seeds of about a score varieties, they sent a collection of no less than eighty! Considering that a large proportion of these must be nearly alike or absolutely identical, and finding increasing interest in the subject, a selection was ultimately made of sixty-five sorts, and these were sown for summer culture, the remaining fifteen varieties being set aside for autumn sowing, to test their several values as winter lettuces. The cold wet spring of 1867 was peculiarly unfavourable to an enterprise of this kind, and, therefore, after waiting some time for suitable weather for sowing the seeds in the open ground, it was found necessary to sow them under glass. One of the borders of the Paxtonian house in the experimental garden, on which mushrooms had been grown during winter, was covered with a few inches of fresh friable loam, and on the 15th of April the seeds were sown in drills across the bed very close together. In the mean time a bed in the trial-ground was prepared by deep digging and liberal manuring, both with good stable-manure and a top-dressing of wood-ashes. As soon as large enough, the whole collection was planted out in rows averaging a foot apart, but a breadth of two feet was allowed between the rows of the strongest-growing varieties, such as Bath Cos, and less than one foot between some of the diminutive kinds. One row each of all the varieties was thus secured in a bed sixty-six feet long, and the growth from first to last was perfectly satisfactory, in fact, a finer lot of lettuces had never been seen in the district before even by the "oldest inhabitant." None of the samples were tied, and only a few were bleached by other methods. The rule followed was to thin them out as much as needful to allow of perfect development, but otherwise to leave them to grow in their own way, to allow of a fair study of their several characters. I made an inspection every three or four days from the time they were growing freely until they were in great part run to seed, and the following notes are transcribed from the book in which the entries of observations were made from time to time.

Lettuces may be primarily divided into two classes:—1. CABBAGE LETTUCES. 2. COS LETTUCES. The varieties in the first section are more or less round-headed and spreading, and in flavour less sweet and succulent than the Cos varieties, though many of them are notable for a delicate nutty or buttery flavour, and all of them are good for mixed salads. The varieties in the second section are usually upright or oblong, and when well blanced, either by tying or by their naturally close growth, are generally elegant in appearance, and of a welcome, crisp, and sweetish flavour. There are some very badly-flavoured varieties to be found in this class, but as a rule they are the best lettuces to eat without dressing *pur et simple*; whereas the drier and more nutty flavoured cabbage varieties are better adapted for dressing, and especially for mixed salads. These two classes may be again subdivided in order to separate the coloured varieties from the green, and again they may be subdivided in order to present to the cultivator groups of varieties adapted for particular purposes, some being well suited by their hardness for autumn sowing; others, by their capability of enduring heat without hastening into flower, being well suited for sowing in spring to afford supplies during the hottest period of the summer. We shall endeavour to direct attention to all these several points, intending first to describe the varieties.

CABBAGE LETTUCES (seed sown April 15).

BERLIN WHITE.—A green variety; leaves very broad, wavy, and spreading; growth medium, quite compact, forming a round, rather loose heart. Fit for use June 27th, and continued good till July 20th, at which date it began to run for flower. This is a tender, mild, buttery lettuce, of first-rate quality and elegant appearance.

BATAVIAN WHITE.—A green variety of robust habit; leaves broad, wavy, curled, and wrinkled, slightly tinged with red at the edges. In growth very spreading, and covering too much ground. Ready for use July 15th, and lasting a fortnight. Tender, nutty, and agreeable. A second-rate lettuce.

BERLIN KING'S HEAD.—A green variety, of spreading habit and medium growth; the leaves slightly wavy, of a light green colour. Ready for use June 27th, and lasting ten or twelve days. This is a dry-textured, nutty lettuce, well adapted for the salad bowl, but not sufficiently succulent to make a grateful dish without dressing.

BIGOTTE.—A red variety; leaves roundish, wavy, and wrinkled, the edges of the leaves smooth; the bases of the leaves a bright green colour, the upper half bright reddish bronze, shading to rose. This is one of the handsomest of the coloured lettuces, and might be allowed a place in the flower garden. It is comparatively valueless for the table, being tough and tasteless, but it is extremely beautiful when cut through, and may occasionally be used for garnishing. Ready for use June 25th, and lasting about ten days. It differs from Blood-red Dark chiefly in a prevailing rosy tint, but otherwise is almost identical with it. A third-rate variety.

BLOOD-RED DARK.—A red variety; leaves roundish, wavy, and wrinkled; grass-green at the base, thence shading to bronze and brownish red. Ready for use July 5th, and lasting only eight or nine days. It is tough and tasteless, fit only for the bowl or for garnishing. A third-rate variety.

BATAVIAN BROWN.—A brown variety, intermediate between cabbage and Cos. Leaves large, oblong, curled and wrinkled; deeply pitted, so as to appear warty on the inner side; dull green, with tinge of brownish bronze at the edges. Growth large and loose; does not require tying; forms a large loose heart, which is juicy, mild, crisp, and slightly sweet. Ready July 6, and lasting fifteen days. A good lettuce, but covers too much ground. A second-rate variety.

BROWN GENEVA.—A brown variety. Leaves large, round, curled, and wavy; light green, with decided tinge of brownish bronze, by which chiefly it is to be distinguished from Green Cabbage, Coquille, and many others. Ready for use June 24th, and continued good till July 20th. A tender, juicy, almost tasteless lettuce, deserving to rank only as third-rate in quality.

BLOOD-RED.—A red variety. In leaf, growth, and general character, resembling Blood-red Dark and Bigotte, but darker in colour than either of them, and a neater grower. It is the best of this series, being mild, buttery, and nutty in flavour. Fit for use July 5th, and lasting good about ten days. A second-rate variety.

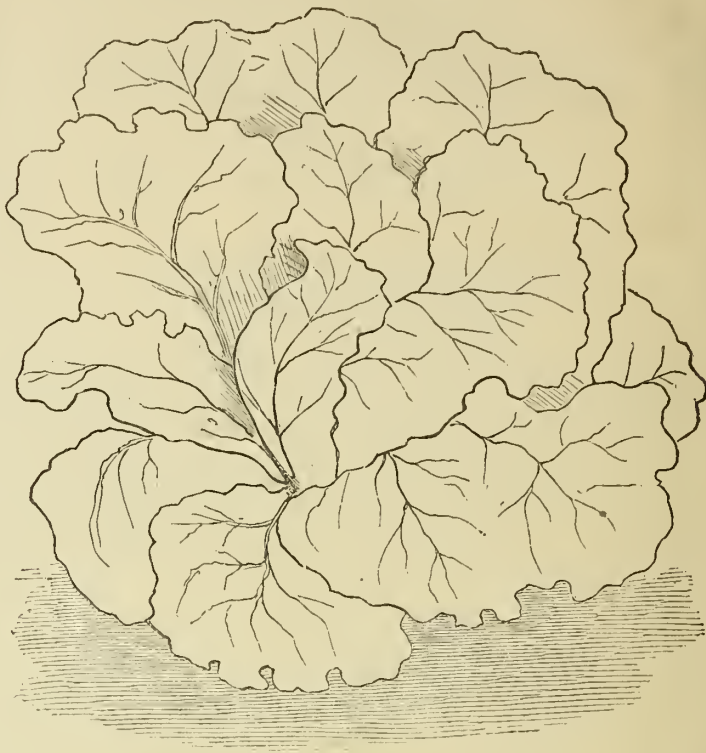
BRUNZUL EARLY.—A green variety. In general character closely resembling George's Early, Berlin White, Small Cutting, and Prince's Head; but the two last-named are of smaller growth. It is, however, a distinct variety, having a neat compact appearance; the leaves broad, wavy, and yellowish green. It forms a rather loose heart, which is tender, buttery and nutty. Ready June 27th, and lasting twenty days. A good second-rate variety.

COUILLE.—A spotted variety of medium size and spreading habit; the leaves curled and wavy, light green, with a few brown blotches. This

eating undressed. Ready for use July 1st, and lasting twenty days. In other parts of the ground were samples of Drumhead from Messrs. Sutton and Sons, of Reading, Messrs. James Carter and Co., of High Holborn, Messrs. Wheeler, of Gloucester, Messrs. Smith and Simons, of Glasgow, Messrs. Drummond Bros., of Edinburgh, and Messrs. Stuart and Mein, of Kelso. Minute differences of character were traceable amongst these, a proof that the stocks were from different sources; but it was not possible to detect any differences of value, they were all good and true, and none of them surpassed the sample from Messrs. Barr and Sugden. A first-rate variety, which may be obtained



GREY PARIS COS.



DRUMHEAD.

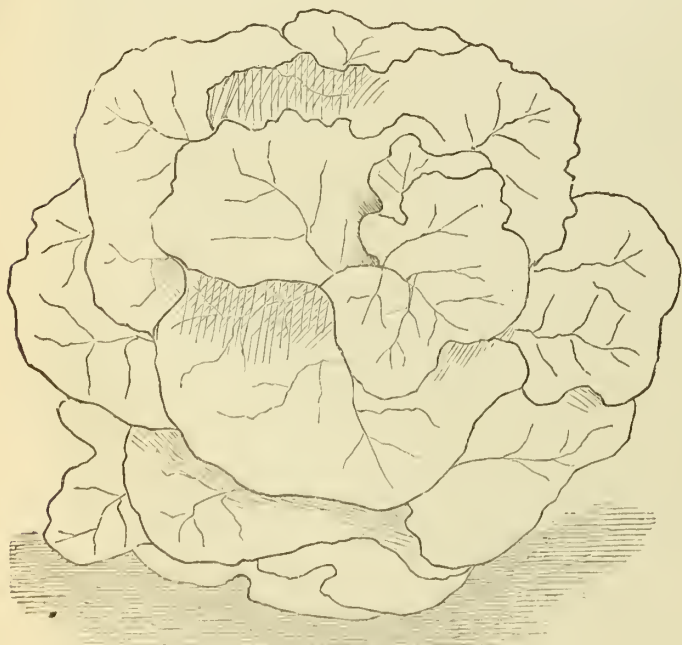
variety forms a compact heart, which is mild, buttery, nutty, and sometimes slightly bitter. Ready June 30th, and lasting ten days. A good second-rate variety.

CRISP SMALL EARLY.—A green variety like Drumhead, forming very little heart, but being nearly all eatable, even to the outside leaves. It is mild, buttery, and juicy, and is improved by being blanched; for this purpose it should be covered for a few days. Ready June 24th, and quite past in twelve days. A serviceable second-rate variety.

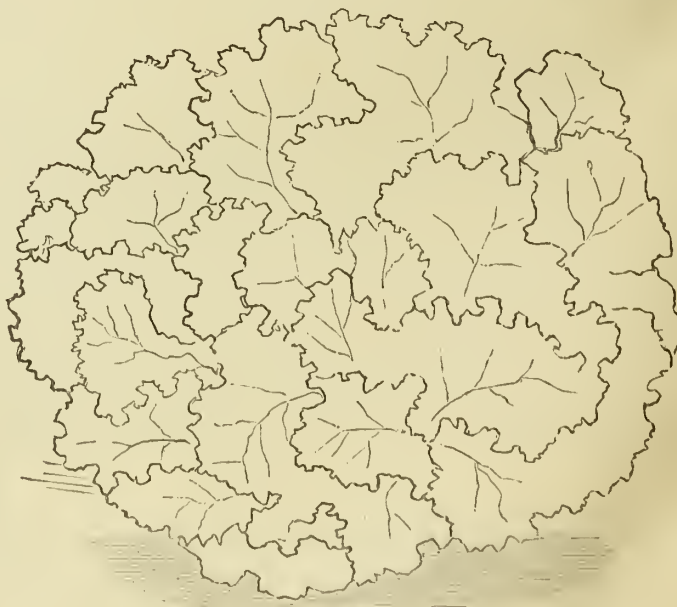
CRISP GERMAN.—A green variety of robust habit spreading in a round flat

in perfect condition from the beginning of June to the end of November, and even till after Christmas in extra mild seasons. This is to be accomplished by sowing early in a gentle heat, and planting out when the season is sufficiently advanced to allow of it, and continuing to sow successional rows in the open ground until the middle of July.

EARLY WHITE SPRING.—A green variety of minute growth, very much curled and wrinkled, compact, bright yellowish green. It forms a firm dense heart, which becomes perfectly blanched, is dry, bracy and almost tasteless; hence is best adapted for the bowl, and is in fact one of the best salad lettuces



TRIATOR LARGE GREEN.



SILESIA.

tuft, the leaves broad, wavy, curled, wrinkled, and pitted, bright light green; exceedingly pretty. It is one of the best kinds in the class of which Drumhead may be regarded as the type, but is more spreading in growth and more curly than Drumhead. Ready for use July 1st, and continuing good about fifteen days. It is mild, very buttery, and nutty in flavour, and may be considered in every respect first-rate.

DRUMHEAD.—A green variety; leaves broad or oval, deeply wrinkled, pale cheerful green, rather upright in growth, and forms a large loose heart, which is always crisp, sweet, succulent, and equally good for the bowl or for

known, and well adapted for frame culture. Ready June 20th, and lasting twenty days. A first-rate variety for salads, and well adapted for supplying the market early in the spring.

EARLY SIMPSON.—A green variety of the Drumhead section, most nearly resembling the crisp German. The leaves are ovate or roundish, slightly wavy and very much wrinkled, slightly notched and crisped on the edges, the colour bright yellowish green. It forms a small loose heart, which is mild, buttery, and nutty in flavour. Ready July 2nd, and lasting ten days. Second-rate.

EMPEROR'S HEAD.—A green variety of medium growth, spreading; the leaves much curled and waved; light green overspread with dull brown, changing to red at edges. Quite distinct in character; forms a compact heart, which is dry, scarcely tender, and tasteless. Worthless.

EARLY SILESIAN.—A green variety of spreading habit, forming a round flat tuft; the leaves broad, much curled, and pitted; bright light green, extremely elegant. It forms a loose heart, and the outer leaves are nearly as good as those within, so that if used at all, it is nearly all fit for use. This is a dry, tough, and almost tasteless lettuce, good for the bowl, but unfit for any other purpose. Ready July 10th, and lasting fourteen days. A third-rate variety.

ENDIVE-LEAVED (No. 1).—A green variety, very distinct and elegant; the leaves deeply lobed, waved, curled, and crisped like endive. Ready for use June 17th, but needing to be carefully blanched for a few days, after which they quickly rot. The flavour is mildly bitter, the texture rather tough. The only use possible for this variety is as an ingredient in a salad, and for that purpose there are many other varieties far better. The plants left to finish their growth formed pretty pyramids of bright green crisped leafage as elegant as ferns, and quite worthy of a place in the flower border. Except for garnishing, and to serve as a substitute for endive, this variety is of no value.

ENDIVE-LEAVED (No 2).—A green variety, differing slightly from the foregoing, but like it needing to be blanched, and then having the flavour and texture of endive. It is of a pale green colour, extremely beautiful, and might be useful in the flower border as well as for garnishing.

GEORGE'S EARLY.—The same as Small Cutting.

forms a loose heart, which is dry, buttery, and slightly nutty in flavour. Ready July 1st, and lasting ten days. A good second-rate variety, closely resembling Stonehead, Switzerland, and several others.

NEAPOLITAN.—A green variety, and the type of a most excellent class. It is of medium growth, but if required may be grown to a great size. The leaves are broad, much curled and wrinkled, and the edges frilled; colour dull grass-green. It forms a good but loose heart, which is juicy and sweet, and fit for any purpose. Ready June 27th, and lasting fifteen days. An elegant first-class lettuce, the only fault of which is that it covers rather too much ground.

NORMANDY.—A green variety of spreading habit, growing close to the ground, and covering a considerable space; the leaves are waved and wrinkled, with smooth edges, grass-green. Forms a loose heart, which is mild, buttery, and slightly nutty in flavour. Ready July 4th, and lasting about twenty days. This is an ugly and rather coarse variety, which we must class as second-rate, but in doing so we are bound to call attention to its long-lasting properties.

IMPERIAL.—A green variety and one of the oldest in cultivation. It is distinct in growth, large, spreading, the leaves very broad and roundish, pale grass-green. Forms a large loose heart, which is coarse and tasteless. Ready July 16th, and lasting twelve days. A third-rate or quite useless variety.

ROYAL WHITE SUMMER.—A green variety of medium size, and spreading habit; the leaves are roundish, deeply waved, and slightly wrinkled, pale green. Forms a loose heart which is not tender, but juicy, buttery, and nutty. Ready June 30th, and lasting twenty days. A second-rate variety



BROWN BATAVIAN.



SPINAGEE OR OAK-LEAVED.

LARG BROWN BEST.—A brown variety, differing from 'Brown Geneva only in a degree that may be accounted for by considering it a good stock of that variety.

LARGE GREEN.—A green variety, of larger growth than the Coquille, which it resembles in general character, but is coarser, and covers too much ground. It is, however, a good second-rate variety.

LARGE VERSAILLES.—A green variety, bearing a near resemblance to the Early Silesian. It is of spreading habit, the leaves much waved and wrinkled, but the edges are smooth, pale grass-green, forming a loose heart, which is mild and buttery, but almost tasteless. A second-rate variety, covering too much ground for the return it makes. Ready July 1st, and lasting good about fifteen days.

LARGE RED.—A red variety of great size; leaves broad, spreading, much wrinkled, grass-green overlaid with patches of bronzy purple; forms a large, round, solid heart, which is tender, juicy, and slightly bitter. Ready June 30th, and continuing good twenty days. This is not a handsome lettuce, and will never have many admirers in this country. But on the Continent it is much esteemed for dressed salads, and is especially valued as a market-lettuce, being adapted for hotels and restaurants, its great bulk and slightly bitter flavour being recommendations. It is good also for hot climates and dry soils. As compared, however, with other lettuces in use in this country, we must not assign it a higher place than the second class.

MALTA.—The same as Drumhead.

MOUSSERONNE.—A red leaved variety; small, coarse, the leaves reddish or bronzy, the heart small, tough, tasteless. A worthless variety.

MOGUL LARGE YELLOW.—A green variety of medium size and spreading habit, the leaves broad, curled, waved, and wrinkled, bright yellowish green;

SMALL CUTTING.—A green variety of small neat growth; the leaves are curled and slightly wrinkled, pale green. Forms a very compact solid heart, which is buttery and slightly bitter. Ready for use June 20th, and lasting at the utmost eight days. This is a good salad lettuce, and probably well adapted for market, as a large number of good solid hearts may be grown on a comparatively small extent of ground, and when in their prime they are neat and tempting in appearance; but its tendency to "bolt" is much against it, and we must not class it higher than second-rate.

SNEDESHEAD EARLY.—A spotted variety of medium growth; the leaves very broad, slightly waved and wrinkled, grass-green, with a few blotches of purplish bronze and an occasional tinge of red. Forms a large compact heart, which is mild, buttery, and agreeable, but not sweet. Ready June 27th, and continuing good twenty days. A second-rate variety.

SPOTTED RED CABBAGE.—A red variety of medium growth, and very distinct in the class of coloured cabbage lettuces. It spreads freely, covering a large extent of ground. The leaves are broad, much wrinkled, dull green overspread and suffused with reddish bronze, and sometimes richly tinged with carmine. It is the most handsome of the coloured class, and eminently attractive. Forms a small loose heart, which, when cut through, is whitish at the base and otherwise bright red, and suggesting a white-fleshed lettuce spoiled through having been dipped in blood. By some this may be considered a recommendation, but we must confess our dislike of its appearance, except when on the ground, where it is decidedly handsome. The heart is of a dry-bready texture, slightly bitter, moderately tender. Ready for use July 12th, and continuing fit for cutting about fifteen days. A third-rate variety.

STONEHEAD FRAME.—A green variety of small size, very compact

not in growth; the leaves broad, much wrinkled, pale green. Forms a pretty and somewhat compact heart, which is juicy and sweet, and fit for bowl or table. Ready June 27th, lasting fifteen days. A first-rate variety.

PAS DE CALAIS.—A green variety of medium size, spreading, pale green. Forms a loose heart, which is buttery and nutty in flavour. Ready July 10th, and soon over. A second-rate variety.

PERIGNON.—A green variety of a pale green colour, forming a round, compact, cabbage-like heart, which is buttery and bitter. Ready July 12th, and lasting fifteen days. A third-rate variety.

PRINCE'S HEAD.—A green variety of medium size; the leaves waved and curled, forming a large loose heart, which blanches perfectly without tying. It is mild, very buttery, with slight trace of bitterness. Ready for use June 27th, and lasting good about fifteen days. Second-rate.

SPOTTED WHITE CABBAGE.—A spotted variety of robust habit and spreading growth; the leaves broad and deeply wrinkled, pale green lightly speckled with rosy purple. Forms a large loose heart, which is mild and buttery, but not sweet. Ready for use June 25th, lasting twenty days. A second-rate variety.

SPOTTED LARGE WHITE CABBAGE.—A spotted variety, closely resembling the last, but differing in colour, being speckled with dull purple, and in flavour being more dry and inclined to bitterness. Ready for use June 25th, and lasting about twenty days. A second-rate variety.

TURKISH BUTTER.—A green variety of medium size, resembling the Perignon, but not identical with it; leaves broad, almost smooth, curling back, light grass-green. Forms a very cabbage-like loose heart, which is breadly and bitter. Ready for use July 1st, and lasting about twelve days. Third-rate.

SPOTTED LARGE.—A spotted variety, distinct from others in the list bearing the same or a similar name; in growth spreading, the leaves very broad, roundish, and deeply waved and wrinkled, the edges smooth, colour grass-green much covered with patches and dots of reddish brown. Forms a good rather loose heart, which on the 27th of June was in perfection, being then slightly sweet and buttery; on the 12th of July the heart was still good, but had acquired a bitter flavour; began to bolt twenty-seven days from the time the hearts were first fit for tasting. A good lettuce for hot climates, but for English gardens quite second-rate.

TRIATOR, LARGE GREEN PALE.—A green variety. Resembling in every respect the Turkish Butter lettuce, except that this is of smaller growth and a few days later. In flavour dry and nutty. Ready for use July 5th, and lasting about ten days. Third rate.

SPINAGEE OR OAK-LEAF.—A green variety, curious and distinct, the leaves being long and deeply lobed and remotely resembling the leaves of the common oak; pale green. This variety does not form a heart and appears to be utterly useless, though when shredded with other vegetables it may make a bearable ingredient in a salad. Previous to flowering it was almost ornamental. It was in flower July 15th, and then had the appearance of a worthless weed. It is the *Lactuca quercina* of the botanists, a plant altogether distinct from *L. sativa*.

STONE TENNIS BALL.—A green variety of small growth, forming a neat, round, rather spreading tuft of a cheerful light green colour. The leaves are much wrinkled. Forms a close compact heart, which blanches perfectly, and is of a tender texture, dry, breadly, and comparatively flavourless. Ready June 25th, and lasting good about twenty days. A first-rate variety.

WHITE TENNIS BALL.—Forwarder and paler colour than the Stone Tennis, being ready for use June 20th, and lasting only twelve days.

TOM THUMB.—The best strain of the Tennis-Ball section, and the best of the small, close-hearted, dry-textured cabbage lettuces. When well grown, it is an elegant vegetable, and though less palatable when eaten alone than some of the sweeter and more succulent varieties, or than the best of the Cos section, is nevertheless universally esteemed for the table, the salad bowl, and for soups; strictly speaking, however, these are salad lettuces and are especially adapted for winter culture.

SWITZERLAND.—A green variety of large growth, the leaves wavy, pale yellowish green, large loose heart of a coarse texture, watery and tasteless. Ready for use July 12th, lasting but a short time. Third-rate.

RED-EYED OR VICTORIA.—A red variety of small growth, spreading, leaves roundish, slightly waved, smooth-edged, bright grass-green with a slight rosy tinge. Forms a small loose heart; flavour nutty and agreeable. Ready June 27th, and lasting fifteen days. Second-rate.

WHITE STONE.—A green variety of medium size and spreading habit. Leaves broad, curled, waved, and wrinkled, light grass-green. Forms a loose heart, which is dry, flavourless, and somewhat coarse. Second-rate.

Cos Lettuces.

BROWN BATH.—A brown variety. This is a typical lettuce of the highest repute, serving equally well for spring and autumn sowing, and well adapted to supply lettuces throughout the year. There is no essential difference of appearance between the true White-seeded Bath and the Brown-seeded Bath, but in growth they differ, the White-seeded being quicker and less hardy than the Brown; the latter therefore is better of the two adapted for winter culture, and is less likely to bolt in the event of hot weather occurring when it is in its prime. Growth large, the leaves oblong and nearly the same width throughout, slightly wrinkled, and the edge of the leaf crisped or waved. The colour is light green overspread with a tinge of brown or purplish brown, which becomes more decided towards the edge. Forms a fine white heart without tying; is very crisp, buttery, juicy, sweet, and delicate. Ready July 19th, and lasting in perfection eight days. A first-rate variety.

MONSTROUS BROWN Cos.—A brown variety. A quick-ripening and large-growing variety of the Brown Bath. It attained the largest size of any lettuce on the ground. The leaves the same width throughout, slightly waved and wrinkled, not crisped or waved on the edges; light green overspread with purplish brown, which deepens towards the edge of the leaf. This forms a large, close, conical-shaped heart, needs no tying, is tender, sweet, crisp, and buttery; a most delicate and delicious lettuce. Ready July 12th, and lasting in perfection eight days.

FLORENCE Cos (Black-seeded).—A green variety of large growth, leaves long and narrow, distinct and handsome, uniform pale green. Forms a close heart without tying, but is better if tied for a few days. It is delicate in texture, tender, buttery, sweet, and nutty; the perfection of a lettuce for eating unpressed, and making an extremely handsome dish. Ready for use July 19th, and lasting fourteen days. It is of the Brunoy strain, and agrees with Brunoy except in some very minute particulars. A first-rate variety.

FLORENCE Cos (White-seeded).—A green variety. This does not differ in any essential from the foregoing.

GIANT GREEN.—A green variety of immense growth, belonging to the Brunoy section. Leaves nearly the same width throughout, neatly rounded at the summit, smooth and convex or shell-like, pale dull green. This turns

in well without tying, forming a large handsome heart, which is very buttery, tender, and delicate; less juicy and sweet than some other varieties. In perfection July 12th, and lasting eight days. First-rate.

GRAY PARIS Cos.—A green variety, with long rugose leaves of a light green colour on the inner side, grayish green on the outside; growth peculiarly upright and compact. The leaves of this variety are shell-shaped, and they turn in round the heart and render tying quite unnecessary. The heart is large and close, crisp, tender, and delicate. Ready July 12th, and lasting eight days. A peculiarity of this variety by which the genuineness of a sample may be tested in addition to the tests furnished by the foregoing description, will be found in the peculiar rugosity of the leaf, which, when viewed across the surface, presents an almost regular zig-zag line, thus AAAAAA

GIANT WHITE.—A green variety distinguishable from Gray Paris only as being rather more upright in growth, and the leaves less distinctly surfaced with the zig-zag rugosity. It is a strong stock of Gray Paris, but in no respect an improvement.

BRUNOY BLACK.—A green variety, the basis of the section to which belong the Florence and the Giant Green, the description of either of which will serve for this. Requires tying and forms a fine close heart. Ready July 19th. A first-rate variety.

BRUNOY WHITE.—A green variety, identical with the last, with the sole exception that it is white-seeded.

IVERY'S NONSUCH.—A green variety. A well-selected stock of the true Brunoy and the best strain of this section on the ground. If kept true to its present character, Ivery's Nonsuch may be regarded as the best known model of a Cos lettuce.

IMPROVED SPOTTED.—A spotted variety of large growth, fine habit, and extremely handsome. Leaves oval, broadest at the summit, dark green heavily spotted with black, the outer leaves sometimes richly coloured a bright reddish bronze. Hearts well without tying. Fit for use July 30th, and lasting fourteen days. The heart is not tender, and is almost flavourless, like moist tissue paper rather than the heart of a lettuce. This variety is worthless in an English garden unless it is valued for its fine appearance, but in a hotter climate it has its uses, supplying a grateful salad when little else of the kind can be obtained.

SPOTTED Cos (Black-seeded).—A spotted variety of robust habit and spreading growth, with oval leaves, which are much curled and waved; dark green heavily splashed and spotted with reddish brown and bronze; forms a good heart without tying. The heart when cut open is of a pale yellow colour heavily spotted with bright red, and decidedly elegant; never suggesting, as some of the spotted kinds do, the idea of their having been dipped in blood. Ready for use July 12th, and still good on the 1st of August. In texture coarse and tough, and invariably bitter or tasteless; therefore of no value except desired for its appearance.

SPOTTED Cos (White-seeded).—A spotted variety distinct from others bearing the same name. Growth large and spreading, the leaves broad, much wrinkled, dark green heavily patched, blotched and spotted reddish brown. Sometimes the inner leaves are wholly coloured a rich chocolate hue, and glisten as if varnished. This needs tying; it then forms a large compact heart, which is tender, buttery, nutty, and agreeable. Ready July 16th, and lasting fourteen days. Though far inferior to the green Cos varieties, this is not to be despised; and probably on hot soils, and in hot dry seasons, it would be found serviceable, when the more delicate kinds were useless, otherwise we must class it as third-rate.

MAGDALEN Cos.—A brown variety quite distinct, the leaves very narrow and smooth, pale green suffused with a brown tinge. Requires tying. Forms a rather loose heart. Ready July 20th, and lasting eight days. In texture and flavour inferior to the best varieties of Cos, but useful for its lateness, as it comes in when the best kinds are past, or nearly so. A second-rate variety.

RED Cos.—A brown variety. Very large leaves, light green at the base, remaining part bronzy brown. Forms a large close heart without tying. Ready July 27th, and lasting twenty days. In texture coarse, and in flavour neither bitter, sweet, nor nutty; the only term we can find to indicate the flavour is an indefinable soapiness. Third-rate for English gardens, but useful in hot climates and on thin hot soils. S. H.

Calendar.

WORK FOR WEEK COMMENCING OCTOBER 5.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—If the advice we have given of late years has been followed, all vacant plots will by this time have been dug over, and left as rough as possible, to be mellowed by the weather. Now is the time for the cultivator to plan his system of cropping, so as to take full advantage of the benefits of a proper system of rotation, and according to the shape that system is to assume should be the preparations made during autumn and winter. Practical gardeners very well understand the importance of rotation. Grow cabbage on the same plot all the year round, and every year, and the ground will get so sick of cabbage, and so full of the woevil that causes ambury or club, that the produce will at last be insufficient to pay the cost of carrying it to the kitchen. But there is no occasion to follow an elaborate system; it will suffice to let the crops on the same piece follow each other so that there shall be a thorough change in the families. Thus, after potatoes, which do best without manure, plant a crop that needs heavy manuring, as broccoli or cauliflower, preparing the soil meanwhile by deep trenching, and laying it up for the full influence of winter frost, and (forget it not) for autumn sunshine, for the very light fertilizes by assisting in the decomposition of organic and disintegration of inorganic substances. Lands that lie high and dry may be heavily manured now, and left rough to be sown with early peas, salads, spinach, and other vegetables, to come on quick in the spring of the year. Ground subject to be flooded should not be manured till spring, or the goodness will all be washed away.

MUSHROOM Beds to be spawned. It will be loss of time to hurry the operation by inserting the spawn while heat is too high. The safe temperature is 60° to 70°, if the bed is a few degrees above that, wait a few days without disturbing it, for any disturbance will give a fresh start to the fermentation, and run it up again to a high pitch; and, besides, the more solid the bed, the better, so long as it is not quite as hard as a brick. It is a pity this delicious esculent is not more commonly grown. Every amateur should have a mushroom bed; the whole culture is nearly as simple and certain as growing mustard and cress.

Root Crops.—In storing potatoes, be sure they are dry first; if taken up in wet weather, spread them out in a shed or hothouse, but do not expose them to the light more than can be helped. Parsnips keep best in the ground, to be dug as wanted. Beet to be taken up at once; cut off the leaves an inch above the crown, and avoid bruising or cutting the roots; carrots treat the same; store both in sand or dry earth. Earth-up cardoons; take up scorzonera and salsify, and preserve in sand.

WINTER GREENS.—As there is now much ground vacant, another hunt of the seed-beds will show some plants worth moving to plant out; if they do not make great hearts, they will nevertheless be useful in the spring, and as the weather is very favourable, use up all that can be found, and encourage them by manuring the ground before planting. Collards, savoys, kale, and York cabbage will all pay even now, if plants of any size are to be had.

CAULIFLOWER plants to be put out under hand-lights and in frames; some to be potted for early growth. None of these must be far from the glass however they are kept, and the more often the glass is taken off them the better.

SPINACH.—Thinnings of the winter crop will make very acceptable dishes on the table now. Early-sown spinach is rather too luxuriant this season; probably the latest sown will be the best next February.

Flower Garden.

RHODODENDRONS, AZALEAS, KALMIAS, and other peat plants should be planted at once. They can be selected now with bloom-buds perfected, so that a display next season is ensured. Let there be no stint of proper stuff to plant them in; they are expensive in the first instance, and it is absurd to plant them in such a way that in a few years they are sure to perish. What is said in another note about keeping the balls of roots intact in planting does not apply to these shrubs.

AURICULAS to go to winter quarters. Water sparingly, and give plenty of air.

SEEDS OF GREENHOUSE PLANTS.—This is a good time to sow such things as Pelargonium, Fuchsia, Gazania, Centaurea, Heliotrope, Lantana, Petunia, and other such seeds, as, if the plants are grown on carefully all the winter, they will flower early enough next season to allow of the determination of their true characters and values. When sown in spring it invariably happens that a number of plants have to be housed through the next winter, the ultimate destiny of which is the rubbish-heap. By sowing now, the seed pans are pretty well all that we have to deal with for a few months to come. The practical breeder will perceive how great is the advantage of autumn sowing. But it can only be done where there is a spare shelf in a light dry stove or intermediate house, for in an ordinary greenhouse the seedlings would have no chance at this time of year.

EVERGREEN SHRUBS will move now better than in spring: the earth is warm and the air moist, and they will make fresh roots at once. This is the best time of the whole year to plant American beds, and to make alterations in shrubberies and wildernesses. Not the least occasion to wait for trees to be quite at rest before moving them; the fact is, if they are still growing, and are to be lifted, the sooner they are lifted the better, if only to put a stop to their activities. Hollies will move now with safety, as will aucubas, laurels, thujas, and all kinds of conifers.

FLORISTS' FLOWERS.—Pansies to be protected against slugs, and the ground trod firm between them. Auriculas to be kept moderately moist, and every pot in which the soil has any moss or liverworts to be considered defective in the drainage, and rectified forthwith. Carnations to be smoked if any fly is about them, and to have full exposure to all weathers for the present. Pelargoniums to be kept quiet; let them grow slowly, and use fire-heat only to dry the house in foggy and damp weather. Cinerarias in large pots to have weak liquid manure water; those in small pots to be shifted on, and to be fumigated directly fly is seen about them. Primulas to have a shift if they have filled their pots with roots. Tulip beds to be made ready for planting.

PLANTING.—Extraordinary pains are taken to keep the root-balls of trees intact in the process of transplanting, which we are firmly convinced are needless. In fact, we would always prefer to shake the earth off the roots entirely sooner than plant any tree with a complete ball. The reason why we cannot make room for in this space, but the reminder may be useful to planters who from past experience have doubts about the value of keeping masses of earth about the roots in transplanting. When stripped bare, and every fibre exposed, a tree must be planted with much more care than when lifted with a ball by a machine and dropped into a hole, and that extra care is a gain and an argument for the better practice. Of course this remark does not apply to Americans; they must be moved with balls.

GARDEN PLANTS IN FLOWER.—*Aster fulvis*, *A. foliolosus*, *A. laevis*, *A. eminens*, *A. dumosus*, *A. pulcherrimus*, *A. Nova Angliae*, *A. amplexicaulis*, *Vernonia altissima*, *V. praerata*, *V. scaberrima*, *Teucrium lucidum*, *T. hyrcanicum*, *Salvia virgata*, *S. verbenacea*, *Pyrethrum Chinense*, *Astragalus chlorostachys*, *Campanula stricta*, *Aconitum Chinense*, *Actinomeris proceras*, *Oxytropis brevisstris*, *Hieracium maculatum*, *H. heterophyllum*, *Funkia undulata*, *Oxybaphus chilensis*, *Fumaria leucantha*, *Coreopsis crassifolia*, *C. ferulifolia*, *C. incisus*, *Erodium serotinum*.

THE SEASON AND ITS WORK.—Much now must depend on the weather, and the gardener must make the best of all circumstances. From this time till frost comes, it is the gardener's duty to take advantage of every ray of sunshine, so as to promote the ripening of all kinds of stock, and to keep greenhouse plants exposed to the air as long as it is safe to do so. It is not the cold but the heavy rains which do most injury to tender plants at this season; hence, many things besides true greenhouse plants are all the better for the protection of a frame or cold pit, where they can have shelter, but plenty of air and light. This is a busy month; nearly every kind of winter work may be commenced, and indeed completed, if weather permits. Roses may be moved at once in full leaf, and if left unpruned will soon get root, and be well established before spring. Deciduous trees and hardy fruits may be planted towards the end of the month, for there is no need to wait till every leaf has fallen. Get them into their places while the ground is warm, and a season is saved, and the tree will always be the stronger for it, for the fate of many a tree is sealed in its original planting. Earthwork, too, may now be commenced, and drains laid, turf stacked for forming composts, and deep soiling practised on ground suited to such treatment, so as to have it in ridges in good time to be acted on by frost. The whole of the arrangements for next season should be determined from this time; and in taking up bedders and decorative plants from the borders, their good and bad qualities should all be noted down, so that things that have proved inferior, or that evidently do not suit the soil or situation, may be substituted next season for subjects of higher merit. Every soil has its peculiarities, and one great secret of success, especially in ornamental gardening, is to select varieties that have been proved to succeed in the place; for even geraniums or

calceolarias do well or ill according to the effects of soil or climate upon them. Pits, frames, and houses ought now to be clean and free from the smell of paint and putty. If any repairs have been neglected, see to them at once, and get all sweet and dry without a day's delay; for when we get to October, we are never sure for a week together but that our appliances and manual skill may have a sudden trial. Usually we have mild weather till Christmas, and there seems every probability that this season will be no exception; but the prudent gardener works by anticipation, and is always ready for emergencies.

Fruit Garden and Orchard House.

FRUIT TREES that are making gross shoots may often be compelled to direct their energies to better results by some disturbance of their roots. We have had before now to heel over a whole plantation of plums when a warm autumn and moist winter set them growing again late in the season. Of course large trees must not be so dealt with, but they are more obedient to the wish of the cultivator, and rarely grow too much when in a good bearing state. Make station; ready at once for all trees to be planted. A deep hole opened at the time of planting is a mere mockery; the ground should be deeply stirred now, and left in a very rough condition, but the holes should not be made till wanted, as by that time they might happen to be full of water. It is a good plan when about to purchase trees, to go to the nursery while they are in leaf, and mark all the trees selected with the purchaser's name. We ought not to have to say anything more at present about drainage, but the fact is, so many fruit plantations are everywhere to be found in a miserable condition through the wet state of the soil all winter, that we must repeat the advice to growers of fruit of all kinds. If the heaviest rain does not soon soak away from your fruit borders, and leave the soil so that you can soon after walk on it without sticking to it, then your first business should be to drain! drain! drain! Let no fruit hang after this date; those not ripe must ripen indoors; it is too much to risk to leave them out any longer.

STRAWBERRIES.—Few people suppose that the crowns of strawberry plants require to be ripened as much as the young wood of peach-trees. Yet such is the case. Hence plants potted for forcing are often taken into greenhouses in September, and set growing freely to afford time for the ripening of the crowns; for locked up in them are the embryo fruits. To promote the maturation of the crowns in the open ground, let the plantations be carefully weeded and all the runners removed, and odd plants between the rows be spudded out as weeds; and, lastly, give a light sprinkling of lime, to make an end of the myriads of slugs that now infest the leaves.

WALL TREES will be the better for losing their leaves. But they must not be removed with violence. Pass over them occasionally a new pliable birch-broom, to brush off leaves that are loose at the point. This will expose more and more of the wood to the hardening influence of the sun and atmosphere.

Greenhouse and Conservatory.

AZALEAS must now be put into the coolest places, to have a perfect rest before being again started into growth. Put a mark on those selected for the first bloom, in order that they may have special attention. It is too early, however, to begin forcing any of them yet.

CAMELLIAS that have been out of doors must be housed. Do not allow any of them to go very dry, or the blooms will fall after they have fully expanded. Thin them of the medium-sized buds, leaving the forwardest and the smallest to give a long continuance of bloom.

ERICAS lately housed will be subject to mildew, consequent on the closer air they are compelled to breathe. Apply dustings of sulphur at the first appearance of the pest, and give abundance of air.

BEDDING PLANTS lately housed must have water enough to prevent them flagging till they become somewhat established in their pots, but everything possible must be done to discourage growth. Avoid as far as possible all pruning of soft shoots, and keep the plants as far as is convenient their full length; this will promote the perfect ripening of the lower parts, whereas severe cutting in, combined with the shelter they are now enjoying, would cause them to start in a new growth at the bottom, which at this time of the year is undesirable.

HERRACEOUS CALCEOLARIAS will be full of fly now unless kept scrupulously clean. Look over them carefully. Give them plenty of air, but keep them warm, and always growing near the glass.

PRIMULAS are in many places full of flowers now, though they are scarcely wanted. If there be a lot of old plants about, as there are in most gardens, put them in a warm place to furnish a few flowers for cutting. If no room for them anywhere but in a frame, they will do very well if kept rather close. When flowered out, destroy them, as they are of no use as plants. Keep the young plants near the glass, and regulate the warmth according to their forwardness, and the time when you want them in bloom; of course the colder they are the better.

FUCHSIAS are still in fine condition; at least ours are, and we conclude other people's are. Plants struck in June are now blooming beautifully, and old plants that bloomed early are now in a free second bloom.

ORANGE TREES to be put into winter quarters, and have a thorough cleansing, and the soil in the tubs or pots to be renewed on the surface with something good.

GREENHOUSE PLANTS IN FLOWER.—*Statice Holfordii*, *Bilbergia purpurea*, *Arctotis decumbens*, *Blandfordia intermedia*, *Brugmansia suaveolens*, *Drimia altissima*, *Dumasia pubescens*, *Pleroma elegans*, *Tacsonia molissima*, *Witsenia corymbosa*, *Chirona linoidea*, *Disporum fulvum*, *Passiflora Colvillii*, *P. racemosa*, *Nerine sarniensis*, *Malva campanuloides*, *Salvia splendens*, *Solanum Tweedianaum*, *Thea Bohea*, *Othonna Virginea*, *Adesmia viscosa*, *Dyckia altissima*, *Xanthoxylon piperitum*, *Stenochilus viscosus*.—*Ericas*: *Aurea*, *Pulchella*, *Acuminata*, *Sulphurea*, *Bowieana*, *Pinea discolor*, *Pinea favoidea*, *Pinea pulchella*, *Banksia purpurea*, *Pedunculata*, *Retorta*, *Declifordii*, *Halicababa*, *Tenuiflora alba*, *Comosa rubra*, *Hartnelli*, *Droseroides*, *Rupestris*, *Ovata*, *Pyramidalis*, *Vestita alba*, *Vestita coccinea*, *Hispidula*, *Assurgens*, *Cupressina*, *Eriocephala*, *Mundula major*, *Nivalis*, *Minutiflora*, *Leptocarpa*, *Cerinthoides*, *Glomiflora*, *Lutea*.

Stove and Orchid House.

BEGONIAS for winter flowering deserve the little attention they require now. A nice free soil, containing some proportion of loam—say at least a third—and a warm moist position, are their chief requisites. They never flower freely unless they first grow freely, in which they resemble nearly all other plants under the sun.

STOVE PLANTS.—We suppose that shading was taken down some weeks ago. If any remains up now, it is certainly doing mischief, except in the case of newly imported orchids, and other such special cases. Generally

speaking, stove plants do not need much water now, but they must not go dust-dry. Be not afraid to use fire to keep up a circulation of air in the house, and to prevent damp and mildew, but do not push things into growth by heat; rather promote a resting state as much as possible. Climbers may be slightly cut in for the sake of tidiness, and to favour a free circulation of air; and it would be well to tie and train in pretty close all the well-ripened wood of the season.

ORCHIDS generally are resting, but where growth is proceeding vigorously it must not be checked, or spot will be the result. Keep the house scrupulously clean, and be particularly careful in the use of syringe and water-pot. Do not allow anything to go dust-dry; it is a most unnatural condition for any orchids. Cattleyas and Stanhopeas must have but small supplies of water now, and the temperature must be reduced.

Forcing Pit.

FORCING to be prepared for according to the demand for asparagus, sea-kale, rhubarb, &c. Take up all the roots that are to be used in the first batch, and lay them in by the heels; the roots force better if taken up some little while beforehand, especially for the earliest supplies, for which the plants are still in a somewhat active state, and needing to be artificially rested. This method answers also to afford an opportunity for trenching the ground, as every piece cleared of roots can be deeply stirred, manured, left a little to sweeten and pulverize, and be planted if necessary with roots for succession crops.

PEACHES.—Make ready to start the earliest house. The preliminaries are clean glass and woodwork; spiders away; flues fit for fire, and water-pipes cured of leaking; the trees pruned in and tied out, and all the stems and branches washed with sulphur and tobacco. As "everybody knows" how to make this wash, the following recipe is quite superfluous, nevertheless we insert it:—

Wash for Peach, Apricot, and Nectarine Trees, Vines, &c.—Take 2 lb. soft soap, 2 lb. flowers of sulphur, 1 lb. strong shag tobacco, 3 oz. nux vomica, in powder. Boil the tobacco for an hour in a gallon of water. Pour off the liquor, and squeeze the tobacco of the last drop. Add the other ingredients, and mix them thoroughly. Add five gallons of water. You will have about six gallons in all, costing less than a shilling a gallon. It is cheaper than Gishurst, and more effectual.

FIGS that have ripened off their fruit must be allowed to go rather dry at the root, to promote a perfect ripening of the wood; but where the trees are still swelling their fruit, they must have the aid of manure-water.

PINES.—It is full time now to separate fruiting plants from successional, as they no longer do well together. The fruiterers are to be valued much, and they are pretty sure to command proper attention. They require a steady heat of 5° to 10° more than the successional; the latter will do well at 60° night and 70° day, with a rise of 7° in sunshine. Be very cautious in giving liquid manure to plants swelling fruit, as at this time of year, when solar light is deficient, an extra dose of manure-water will cause blackness at the heart of the fruit, and render it worthless.

VINES to be forced early must now be robbed of every leaf, if they are absurd enough to have any leaves on them. Some people invite the red spider to clear off the leaves, which is a very good plan, barring the fact that the spider takes also a little strength out of the vine, and usually stays till spring to thin the crop. Vines that have properly lost their leaves, and that have nice hard brown canes, may be pruned, but if there are signs of bleeding wait another week or two. Grapes not yet ripe must be ripened off at once. It will not do to delay the process. Let them hang after they are ripe if you like, but do not allow them to ripen at a pace so slow that rotting will overtake it, and presently produce pulp instead of berries. Nor can any grapes be expected to ripen now without fire-heat, and plenty of fresh air; give them both, and the result will be perfect finishing and a good flavour.

Replies to Queries.

Thomas Eames—It is better always for the pipes to rise, but we have often shown that they may be laid at a dead level. The man who says it is not material whether they rise or fall talks nonsense. We do not undertake to reply to letters privately; when we are mad enough to offer to do so, will be time enough for correspondents to expect it.

Cyclamen Europæum—J. D. P., Gloucester.—The only way to multiply this pretty species is by seeds. Secure them as soon as ripe, and sow them directly in pans filled with sandy peat, covering the seed very slightly. Place the pans in a cold frame, and, if quite convenient, grow the plants in a cold frame the whole year round. Pot them separately when large enough; never allow them to get quite dry; and, generally speaking, treat them much the same as hardy ferns.

Tree Ferns—Scotch Gardener.—The seedling ferns on your tree-fern stems will do no harm at all; when they begin to be fruitful they may be named, and not before, with any certainty. You will probably not find anything rare amongst them. The spores were no doubt deposited on the stems before the latter were removed from their native sites, therefore you may consider the little plants to be genuine importations. In answer to the second question, we are bound to say that we have no faith at all in collections of seed made in foreign parts by persons unskilled in collecting. They generally send home dead samples of subjects already in cultivation, and the postage amounts to more than the same seeds (fit for use) can be purchased of the seedsmen. Of course, it is not for us to discourage you or your friend; but as you ask for advice what seeds he should look for, our advice is, none at all.

Cerastium tomentosum.—Constant Reader.—Your soil must either be too poor for the plant, which is very unlikely, for it is very accommodating, or it is injured by the wire-worm or the larva of Tipulaeacea. Take up a few plants and search amongst their roots, and probably the cause of the early dying-off of the plant may be discovered. As to which of the two popular kinds of cerastium is the best, must depend on taste and circumstances. Mr. McElroy declared in one of his papers lately in favour of *C. Biebersteinii*; but we are of opinion that for all ordinary purposes *C. tomentosum* is the best: the first is woolly gray, the second silvery gray. In many instances the first might be the best, but we think the second will always take the lead. *C. tomentosum* is usually clipped close back at the end of June in gardens where it grows freely, and it immediately presents a second and very beautiful growth. Pray do not apologize; it is a pleasure to answer so far as we are able such plainly-stated questions as yours.

W. C.—Messrs. Jackson and Son, Nurserymen, Woking, Surrey.

T. W. H.—The plants will certainly need a little more attention beyond watering to fit them for a good position at a show in November. The fact is, specimen chrysanthemums are never quite finished as to tying, training,

&c., &c., until they are actually staged; but from the present time what they demand is watching more than working.

Young Propagator.—We have never known the necessity of grafting the Crowea, as when on its own roots it grows freely enough. Perhaps you mean Correa; the varieties of this genus are generally grafted on Correa inflata. The choicer kinds of rhododendron, such as Nuttall, Falconeri, &c., are usually grafted on the common Pontic stock. There is an easy way of obtaining all the choicer kinds on their own roots, and that is to raise them from seed, which may be obtained good from the first-class seedsmen. These finer kinds come pretty true from seeds, and when they vary slightly from typical forms, the variation is as likely to be an advantage as otherwise.

E. J.—Your plant is the Golden Rod, *Solidago altissima*, a good shrubby plant.

Correspondence.

LABELS AT EXHIBITIONS.—When at an exhibition lately, there was one thing which struck me as needing some improvement, and the fault is common nowadays. I mean the imperfect way in which the labels are written, betraying such a want of knowledge of spelling as almost to destroy identity. Would it not be better for the promoters of exhibitions to undertake this task, and prepare beforehand legibly written cards (the sorts exhibited do not vary much in each show), which would be an immense relief to visitors, who would not be obliged to unravel a mystery contained in the hieroglyphics one constantly sees on a narrow slip of paper. I am not finding fault with gardeners, who have enough to do in preparing the things for the show; but it is in little matters of detail, as you have often said in your papers, that the success of shows in general depends. I have seen lately such labels as the following: "Emperor Allick," for Emperor Alexander; "Glore de Monday," for Gloria Mundi; "Seelenar," for Cellini; "Gloridijon," for Gloire de Dijon, &c., &c. CORRECT LABEL.

[Printed labels would go a great way to cure this evil if prepared beforehand under the direction of persons versed in the business; but the perfect cure is the schoolmaster, or, in other words, the education of gardeners. Those of them who read learn also to spell; the writers of the ridiculous labels are, generally speaking, men who never read, consequently never see the names of plants, flowers, &c., &c., in print; but having caught the name imperfectly by hearing, spell it out to the best of their ability.]

CATALOGUES.

E. G. HENDERSON AND SON, WELLINGTON ROAD, ST. JOHN'S WOOD. *Catalogue of Bulbs, Flower Roots, Roses, &c. &c.*—This is an enlarged form of the usual autumnal list from this house. It contains the usual lists of bulbs, admirably arranged, and accompanied with notes on cultivation, &c. Next, lists of roses, fruit-trees, hardy climbing plants, hardy spring-flowering plants, descriptions of some new variegated trees, new pelargoniums, new fuchsias, new verbenas, &c., &c., finishing up with well-engraved portraits of some of the principal novelties now in course of distribution. One of the most important catalogues of the season.

WILLIAM WOOD AND SON, MARESFIELD, NEAR UCKFIELD, SUSSEX. *General Catalogue of Trees and Shrubs. Select List of Dutch Flower Roots. Descriptive Catalogue of Roses.*—Three well-prepared and beautifully-printed lists, adapted for all classes of cultivators and purchasers, and comprising in every class the best varieties known. In the catalogue of roses occurs the following advice on planting them: "When they are to be placed out singly on lawns, or in beds amongst other plants, a hole should be made, about eighteen inches deep, and large enough to contain half a wheel-barrowful of compost; two-thirds of this should be strong turfy loam (if it can be procured from an old pasture it is preferable), and one-third well-decomposed animal manure; these should be thoroughly mixed together; should the ground be dry at the time of planting, or if it is done in spring, a liberal watering should be given before the soil is all filled in around the plants; and Standards should be securely staked, to prevent the winds from moving them, which is very injurious. When beds are to be planted, the ground should be deeply trenched, and afterwards a good dressing of manure should be applied; a small quantity of the compost recommended above may also be added around each plant. As roses seldom thrive well in soils that have previously grown them for a number of years, it is advisable that when old beds are renewed, the soil should be removed to the depth of eighteen inches, and its place supplied with the above mixture. When a piece of ground is set apart for the exclusive cultivation of roses, the most open situation that is available should be selected; if wet, it should be drained; if it is inconvenient to use tiles, a layer of from four to six inches deep of broken stones, or any other coarse material, will answer the purpose. This done, the ground should be trenched as deeply as the nature of the soil will admit; the beds may then be formed according to taste or circumstances, and the planting may be proceeded with as recommended above. November is the best month for transplanting; but it may be safely done from October to March; it is not advisable to prune at the time of, nor immediately after, planting. The first season the plants should all be headed back to two or three buds upon each shoot; this will ensure a vigorous growth."

BUTLER, McCULLOCH, AND CO., COVENT GARDEN MARKET. *Autumn Catalogue of Dutch and Cape Bulbs, Flower, Vegetable, and Agricultural Seeds.*—A large list, containing many valuable subjects for the kitchen and flower gardens, besides the usual Dutch and Cape roots. In the bulb lists are several rarities, such as *Triteleja uniflora*, *Camassia esculenta*, *Zephyranthes candida*, &c. There is a good list of Gladioli.

A. VERSCHAFFELT, RUE DE CHAUME, GHENT. *Price Current for Autumn, 1867, and Spring, 1868.*—A very handy review of M. Verschaftolt's collections, comprising good selections of arborescent and herbaceous peonies, ornamental trees, rhododendrons, camellias, azaleas, together with the usual lists of stove and greenhouse plants.

R. EDWARDS AND SON, NITHALL, NEAR NOTTINGHAM. *Priced Catalogue of Exotic and British Ferns*—This admirably arranged catalogue will be found of great service to cultivators of ferns, both on account of the numerous interesting varieties described, and the complete view it affords of the British species. The list of stove and greenhouse species is sufficiently extensive for all ordinary purposes.

SCENE—COLLEGE GARDEN.—Head of College.—"I really cannot understand, Parsley, how you manage to get the celery so white." Gardener (deliberately).—"I tell you what it is, sir—take away yer Greek and Latin and you knows nothink."—*July.*

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun		Moon		WEATHER NEAR LONDON, 1866.				M.tmp. avg of 43 yrs.	Orchids that may be in bloom, I, Indian House; M, Mexican House; G, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	Baromet.	Thermomet.	Rain.	Growth.					
1867			h. m.	h. m.	h. m.	h. m.	MX.	MIN.	MX.	MIN.	MB.			1867	
13	S	17th Sunday after Trinity	6 22	5 11	5 34	p. m.	29 91	29 85	62	40	51 0	06	48 9	Cattleya gutta' n, M	Brazil
14	M	Full Moon 13th at 1h. 24m. p.m.	6 24	5 8	6 3	"	30 01	29 86	55	27	41 5	00	48 0	" Leopoldii, M	"
15	T	Length of day, 10h. 41m.	6 25	5 6	6 36	"	30 12	30 00	58	27	42 5	00	48 3	" labiata, M	"
16	W	Marie Antoinette executed, 1793.	6 27	5 4	7 15	"	30 14	30 06	53	26	39 5	00	47 9	" atropurpurea, M	"
17	Th	Lord Palmerston died, Oct. 18, 1865.	6 28	5 2	8 2	"	30 04	29 93	57	41	49 0	14	47 5	Pleione maculata, M	India
18	F	Wolverhampton Poultry, Pigeon & Root Show, [18, 19, & 21.	6 30	5 0	8 57	"	29 95	29 85	55	46	50 5	78	47 4	" Wallichiana, M	"
19	S	Dean Swift died, 1745.	6 31	4 58	10 0	"	30 08	29 94	60	47	53 5	00	47 2	" lagenaria, M	"

The Gardener's Magazine.

SATURDAY, OCTOBER 12, 1867.

SUB-TROPICAL GARDENING has been subjected to a severe test in the season now closing, and there cannot remain, in the mind of any one competent to form an opinion on the subject, a single doubt of its adaptability for our climate, when its requirements are judiciously observed, and the risks attending it are duly weighed beforehand. We are indebted to Mr. Gibson, the talented and largely-experienced superintendent of Battersea Park, for many grand lessons in this system of out-door embellishment, and we have been once more privileged to testify, by our report on the Battersea Park embellishments, to the complete success of his experiments, and the splendour of the results attained. We should have nothing to say in praise of this system did its chief merit consist in merely keeping tropical or sub-tropical plants alive during a short period of the summer in the open air of this country. The merit of the system, when science and taste are conjoined, is that it imparts to our garden scenes a richness and novelty wholly unattainable by other means. The flat carpet colouring, which is the bane of the bedding system as ordinarily practised, is broken up, the eye is carried away from the monotony of surface and the satiety of colour to grand towering masses of the richest forms of vegetation. There may be, and there is something of bizarre perceptible in many of the features of the system as we are best accustomed to its developments, but after heavily discounting its total value, the residuum is glorious and compels our admiration and eulogy. The great sin of the bedding system as commonly understood and practised is sameness. Gorgeous masses of colour surprise at first and satiate at last. In the public promenade garden many things are allowable that would be quite out of place in a private garden, and the prevailing folly is the imitation in quiet places of effects adapted only to gardens visited by crowds, where surprises are called for, where colour is sometimes more attractive than beauty, where a hundred thousand scarlet geraniums will give more satisfaction than half a dozen grand groups of the noblest plants in the world. The million twinkling coloured lamps employed to make "fairytowns" in the old Vauxhall gardens were a constant success, people went there in thousands to see them; but, in this particular, common sense so far prevailed that very few of the thousands ever attempted to imitate the vistas in their own private retreats, for the simple reason, perhaps, that it was out of their power. In respect of bedding effects, however, the lack of power has not always been sufficient to deter people from attempts at imitating the bedding displays at Kew or the Crystal Palace, and hence we find in many gardens where variety would be a boon, because of the unfailing interest arising out of the presentation of many forms of vegetable beauty, a miserable repetition of a dozen or so varieties of bedding plants served up *ad nauseum*, on the plan of a little book lately published under the title of "A Thousand Ways of Cooking Yarmouth Bloaters." Now the sub-tropical system will tend to cure this wherever it is practised in a broad manner. The first necessity is an assemblage of valuable and beautiful plants, differing in character from the vegetation we are most accustomed to, and furnishing of necessity food for the mind, while affording to the eye an intensity of delight. We have been cautious of recommending the adoption of this system in private gardens; indeed, it is our custom to be cautious in respect of everything new, for in no other department of art has the mere love of novelty been accompanied with so much mischief as in horticulture. But we have no more scruples on the subject. This system is adapted for any place within the boundaries of the isle, provided the persons who elect to practise it possess the needful means, ability, and taste to carry it out in its integrity, and in doing so desire to depart from the common carpet colouring which for many years past has satisfied so many of our garden-loving countrymen.

We are indebted to Mr. Gibson not only for the development of the system as a whole, but for some curious results in detail. Battersea Park, for example, might have been extremely grand this year (as it was) without a bed of Musas; No. 128, NEW SERIES.—VOL. X.

but no practical horticulturist could traverse the ground, making note of individual features, without experiencing a delightful surprise at seeing the Banana *flowering and fruiting* in the open ground with the health and vigour of a British plant; yet it might have been seen there, and was seen by tens of thousands of people, a large majority of whom were, of course, quite uneducated to the perception of something wonderful in this case. The idea of a bank of *Nootopteris Australasica* in the open air may cause some fern-growers to take a deeper breath than ordinary; but here it passed out of the region of ideas into that of fact. *Cannas* and *Erythras* we have become accustomed to as bedding plants, but we must never forget the establishment of these as nearly hardy plants, for many of the *Cannas* remain from year to year untouched, and the plants live through the winter in the open ground, with only the protection of a few inches of litter, and actually supersede geraniums in respect of hardiness. *Aralias* take an important place, too, as nearly hardy trees, the paper *aralia* being quite capable of enduring the severities of a British winter unhurt in this southern latitude; and as for *Wigandias*, *Dracenas*, and *Caladiums*, they occasion no more trouble to propagate them in quantity, and plant them out annually, than years ago was bestowed upon subjects of most trivial importance and insignificant value—or, to put the case in another way, than the ordinary run of half-hardy plants.

A peculiar advantage of the breaking up of the flat system of colouring, is that many hardy plants become available for embellishment that cannot be made to harmonize with the established geranium, *calceolaria*, and *verbena* system. Why should we lose from our parterres and borders the splendid *lobelias* of the *Cardinale* section? Why should we shut out from the most richly-dressed grounds the many noble grasses and bamboos, that lend such peculiarly graceful outlines to relieve masses of colour? The hardy and nearly hardy plants available for embellishing the garden, where the carpet system has been voted tame and tawdry, are far too numerous for classification in this place; but we can take comfort of the fact that hardy plants have had a considerable share of attention in these columns, and the lovers of such good and cheap things only need to read what has been written to be fully informed of the species and varieties that are best adapted for grand displays. The sub-tropical system is not without its difficulties, and that is an advantage. It demands skill and taste, and we desire to see these attainments encouraged, for they are directly associated with the exaltation of human character; to a certain extent, too, means are necessary, and this is not an evil, for those who are not blessed with means have but to be content with cheaper methods; and we have done our best to show that the garden may be made a place of delightful resort without the aid of the purse of *Cræsus*.

THE ROYAL GARDENS AT KEW are acquiring an unenviable notoriety by the number of young men whose health is shattered by short terms of service there. Four assistants in the herbarium have in succession resigned on account of ill-health, three of whom are dead, and the fourth, Mr. Hemsley, is quite incapacitated. The plant-houses ruin many young men of spirit and promise. They go there strong and hopeful; they soon after leave, with constitutions ruined, and with little other hope than a quick consignment to the grave. There must be something wrong, and worth inquiring into. In all gardens the health of practical cultivators is exposed to a certain degree of risk, and the risk is usually in a direct ratio with the extent of glass and heating apparatus. Orchid growers do not calculate on attaining to a great age; industrious plantmen anticipate disablement some time ere they make their threescore and ten; but Kew Gardens appear to a great disadvantage, in respect of the health of persons employed there, when compared with any similar establishments. We trust Mr. Hemsley may yet have before him many years of happiness and usefulness, though he has left Kew with a constitution apparently ruined. A pension of sufficient amount to enable him to rest and seek physical repair, is undoubtedly his due for the health and energy he has given in the service of science at the Kew herbarium, and this we may suppose it possible for Government to bestow, if proper representations are made, and the claim is pressed with prudence.

A "NAPOLEON'S WILLOW" AT KEW HAS BEEN CUT DOWN. This tree was planted about forty years ago, and has ever since been one of the most attractive objects in the gardens, hundreds of Englishmen looking upon it as a national historic trophy, whilst Frenchmen might be seen reverently taking off their hats, and even going down on their knees before it. Some years ago, a frenzy of enthusiasm in respect of this tree seized the London public; and on several Sundays in succession swarms of people went to Kew to see it; once, indeed, in so demonstrative a manner that the crowd forced their way through a closed gate in quest of the object of their curiosity. "St. Helena Willows" abound; there are, in fact, thousands in the suburbs of London alone, to say nothing of examples in almost every

good garden throughout the country. But the Kew willow was one of the most worthy, because it was not, like many called Napoleon and St. Helena willows, reared from a cutting taken at one or two removes from the original, but came direct from one of the trees that overshadowed Napoleon's tomb prior to the removal of the last stumps of those trees in 1840.

THE SHOOTING OF SONG-BIRDS.—At the annual meeting of the Western District Cottage Gardening Society, held at Penzance, Mr. Bolitho, the high sheriff of the county, said: "Whoever is an admirer of gardens must be an admirer of song-birds; and I am very grieved to say that in this neighbourhood there is a large diminution in our best songsters. The thrush, if we don't take care, will become extinct. So many guns are levelled against every thrush, and so many boys look after the nests, that we are actually threatened with the extermination of this charming bird of song. It was but a little time ago that I met a man in the country—a very respectable man, and well known to some of you—and said to him, 'What have you got there?' He replied, 'Only a couple of greybirds I have shot for the ferret!' I do ask all who take an interest in our gardens to show some sympathy for our song-birds, not only by taking care not to buy any blackbirds or grey-birds, but if you happen to know a thrush's nest, or a blackbird's, or a black-cap's, by not telling your neighbours where it is. Don't follow the example of a very excellent friend of mine, who put it in the newspapers that a blackcap's nest was in a certain neighbourhood, so that all the boys of the place were directed to it, and this beautiful little warbler was lost to us. Why, even the robins are getting scarce; yes, the little robins who were our early companions, and in whom all take such delight—the little birds who have been immortalized by so many poets, but by none more than one of our county—Coleridge, of Kenwyn—

The blackbird's song is sweet at night;
And hers, who gay ascends,
Filling the heavens far and wide, are sweet;
But none so blends as thine
With calm decay and peace divine.

THE SALE OF UNSOUND FRUIT.—A correspondent of the *Morning Star* says there is a wise law prohibiting the sending to market for sale of meat unfit for human food, and imposing a penalty of fine or imprisonment for so doing. Why is there not a similar enactment for the fruit trade? Physicians inform us that a proper quantity of ripe and good fruit, eaten in season, is good for health; but that unripe or decayed fruit is almost as bad as taking poison. What says the Registrar-General's last report? In the eleven weeks from July 6th to September 23rd, no less than 1,867 children, besides many adults, died of diarrhoea! Now, from the quality of the fruit I see retailed to the poor in many districts of this metropolis, I can have no hesitation in saying that the greater number of those deaths took place in consequence of eating unripe and decayed fruit, and yet the law takes no means to prevent this unwise waste of life! Recollect these 1,867 deaths represent but a third or fourth of those who were attacked! Will you bring this subject under the notice of the proper authorities, and confer a favour on the public?

THE VALUE OF NETTLES.—Sow and plant nettles, says Mr. Xavier Garenne, a French writer, and all the lands in the south and the wastes in other parts of France will be converted into green and profitable fields. He wonders that the world is so slow to learn the great economic value of this robust plant, which will grow everywhere. Raise nettles, and in the young tops thereof you will have a delicious and early vegetable for your dinner-table, and abundance of early green food for your cattle. The milk of cows is improved by a diet of nettles, and the beef of cattle fed on nettles is superior to all other. Nettles, too, are of remarkable efficacy in restoring broken down horses to vigour. And in commerce their value is great; for they can be treated as hemp, and spun into lines and ropes, and woven into cloth. France has grand schemes of planting in contemplation, and it may be that the long-neglected *Urtica* will be taken into favour.

CULTIVATION OF PERFUMES.—From a paper upon the cultivation of flowers and the manufacture of perfumery at Nice, by Mr. A. O. Aldis, United States Consul at that port, we learn that the export of perfumery from Nice, Grasse, and Cannes to the United States last year amounted to about 40,000 dollars. There are six or seven manufactories at Nice, the same number at Cannes, and at Grasse about sixty. These manufacturers supply perfumers in all quarters of the world. There is a distinction between the manufacturer and the perfumer. The business of the former is to extract from the flowers their essential oils. The perfumer buys these oils, pomades, and extracts, and compounds them in various ways.

TOWN HALL AND PARKS AT PRESTON.—On Thursday the opening of the Town-hall and two new parks was inaugurated by the Duke of Cambridge with considerable public ceremony. The new Town-hall has been about five years in building. The architecture is Gothic, of the early style of the fourteenth century. The entire cost of the Town-hall will be about £70,000. The new parks are situated on the south-western side of the town, and can easily be seen by parties entering the town from the south by railway. One of them is called Avenham Park, and the other Miller Park. The land for Miller Park has been given on certain conditions to the town by the late Alderman T. Miller, of Preston. Both parks have been beautifully laid out according to designs by Mr. Milner, landscape gardener. It appears that in the ceremonies and speeches connected with the opening of the Preston Town-hall and Parks, some injustice was done in the total omission of reference to the grant of money under the provisions of the Public Works Act of 1863, and the labour of the distressed operatives during the years of the cotton famine, to both of which their formation is largely owing. It is true that the Corporation and Mr. Miller have acted generously, and deserve all the praise that has been bestowed upon them for their joint labours in the improvement of Preston; but the Preston Parks are in great part the result of the cotton famine, and that fact must be kept in remembrance.

SUPERB PENNY-A-LINING.—A country contemporary, describing a village school treat, indulges in the following bit of "tall writing": "The weather was most lovely the greater part of the day, but towards the evening his Pluvial Highness shed tears of joy on the happy occasion, and with pearly drops besprinkled the grass. Seeing such feeling manifested by the gods, although of dawning tendency, the spirits of the participators and the enthusiasm of the spectators rose in proportion; and although portentous clouds cast their shadows, yet, ere the zephyr kissed the twilight beams, the sun burst forth in all his splendour, gladdening the lovely landscape, and adding lustre to the scene."

A WORD TO THE WISE.—A remarkable word of warning has just been furnished by the death of a gentleman, who, while staying in Killarney, was killed by a falling tree. He was last year insured with the Accident Insurance Company, but he did not renew his policy this year.

THE PHILOSOPHY OF BIRDS' NESTS.

BY ALFRED R. WALLACE, F.Z.S., ETC.

Birds, we are told, build their nests by *instinct*, while man constructs his dwelling by the exercise of *reason*. Birds never change, but continue to build for ever on the self-same plan; man alters and improves his houses continually. Reason advances; instinct is stationary. This doctrine is so very general that it may almost be said to be universally adopted. Men who agree on nothing else, accept this as a good explanation of the facts. Philosophers and poets, metaphysicians and divines, naturalists and the general public, not only agree in believing this to be probable, but even adopt it as a sort of axiom that is so self-evident as to need no proof, and use it as the very foundation of their speculations on instinct and reason. A belief so general, one would think, must rest on indisputable facts, and be a logical deduction for them. Yet I have come to the conclusion that not only is it very doubtful, but absolutely erroneous; that it not only deviates widely from the truth, but is in almost every particular exactly opposed to it. I believe, in short, that birds do *not* build their nests by instinct; that man does *not* construct his dwelling by reason; that birds do change and improve when affected by the same causes that make men do so; and that mankind neither alter nor improve when they exist under conditions similar to those which are almost universal among birds.

Let us first consider the theory of reason, as alone determining the domestic architecture of the human race. Man, as a reasonable animal, it is said, continually alters and improves his dwelling. This I entirely deny. As a rule, he neither alters nor improves, any more than the birds do. What have the houses of most savage tribes improved from, each as invariable as the nest of a species of bird? The tents of the Arab are the same now as they were two or three thousand years ago, and the mud villages of Egypt can scarcely have improved since the time of the Pharaohs. The palm-leaf huts and hovels of the various tribes of South America and the Malay Archipelago, what have they improved from since those regions were first inhabited? The Patagonian's rude shelter of leaves, the hollowed bank of the South African Earthmen, we cannot even conceive to have been ever inferior to what they now are. Even nearer home, the Irish turf cabin and the Highland stone shanty can hardly have advanced much during the last two thousand years. Now, no one imputes this stationary condition of domestic architecture among these savage tribes to instinct, but to simple imitation from one generation to another, and the absence of any sufficiently powerful stimulus to change or improvement. No one imagines that if an infant Arab could be transferred to Patagonia or to the Highlands, it would, when it grew up, astonish its foster-parents by constructing a tent of skins. On the other hand, it is quite clear that physical conditions, combined with a degree of civilization arrived at, almost necessitate certain types of structure. The turf, or stones, or snow—the palm-leaves, bamboo, or branches, which are the materials of houses in various countries, are used because nothing else is so readily to be obtained. The Egyptian peasant has none of these, nor even wood. What, then, can he use but mud? In tropical forest countries, the bamboo and the broad palm-leaves are the natural materials for houses, and the form and mode of structure will be decided in part by the nature of the country, whether hot or cool, whether swampy or dry, whether rocky or plain, whether frequented by wild beasts, or whether subject to the attacks of enemies. When once a particular mode of building has been adopted, and has become confirmed by habit and by hereditary custom, it will be long retained, even when its utility has been lost through changed conditions, or through migration into a very different region. As a general rule, throughout the whole continent of America, native houses are built directly upon the ground—strength and security being given by thickening the low walls and the roof. In almost the whole of the Malay Islands, on the contrary, the houses are raised on posts, often to a great height, with an open bamboo floor; and the whole structure is exceedingly slight and thin. Now, what can be the reason of this remarkable difference between countries many parts of which are strikingly similar in physical conditions, natural productions, and the state of civilization of their inhabitants? We appear to have some clue to it in the supposed origin and migrations of their respective populations. The indigenes of tropical America are believed to have immigrated from the north—from a country where the winters are severe, and raised houses with open floors would be hardly habitable. They moved southwards by land along the mountain ranges and uplands, and in an altered climate continued the mode of construction of their forefathers, modified only by the new materials they met with. By minute observations of the Indians of the Amazon Valley, Mr. Bates arrived at the conclusion that they were comparatively recent immigrants from a colder climate. He says:—"No one could live long among the Indians of the Upper Amazon without being struck with their constitutional dislike to the heat. . . . Their skin is hot to the touch, and they perspire little. . . . They are restless and discontented in hot dry weather, but cheerful on cool days, when the rain is pouring down their naked backs." And, after giving many other details, he concludes, "How different all this is with the Negro, the true child of tropical climes! The impression gradually forced itself on my mind that the Red Indian lives as an immigrant or stranger in these hot regions, and that his constitution was not originally adapted, and has not since become perfectly adapted to, the climate."

The Malay races, on the other hand, are no doubt very ancient inhabitants of the hottest regions, and are particularly addicted to forming their first settlements at the mouths of rivers or creeks, or in land-locked bays and inlets. They are a pre-eminently maritime semi-aquatic people, to whom a canoe is a necessary of life, and who will never travel by land if they can do so by water. In accordance with these tastes, they have built their houses on posts in the water, after the manner of the lake-dwellers of ancient Europe; and this mode of construction has become so confirmed, that even those tribes who have spread far into the interior, on dry plains and rocky mountains, continue to build in exactly the same manner, and find safety in the height to which they elevate their dwellings above the ground.

These general characteristics of the abode of savage man will be found to be exactly paralleled by the nests of birds. Each species uses the materials it can most readily obtain, and builds in situations most congenial to its habits. The wren, for example, frequenting hedgerows and low thickets, builds its nest generally of moss, a material always found where it lives, and among which it probably obtains much of its insect food; but it varies sometimes, using hay or feathers when these are at hand. Rooks dig in pastures and ploughed fields for grubs, and in doing so must continually encounter roots and fibres. These are used to line its nest. What more natural! The crow, feeding on carrion, dead rabbits, and lambs, and frequenting sheep-walks and warrens, chooses *fur* and *wool* to line its nest. The lark frequents cultivated fields, and makes its nest, on the ground, of grass lined

with *horse-hair*—materials the most easy to meet with, and the best adapted to its needs. The kingfisher makes its nest of the *bones* of the fish which it has eaten. Swallows use clay and mud from the margins of the ponds and rivers over which they find their insect food. The materials of birds' nests, like those used by savage man for his house, are, then, those which come first to hand; and it certainly requires no more special instinct to select them in the one case than in the other. But, it will be said, it is not so much the materials as the form and structure of nests that vary so much, and are so wonderfully adapted to the wants and habits of each species; how are these to be accounted for except by instinct? I reply, they may be in a great measure explained by the general habits of the species, the nature of the tools they have to work with, and the materials they can most easily obtain, with the very simplest adaptations of means to an end quite within the mental capacities of birds. The delicacy and perfection of the nest will bear a direct relation to the size of the bird, its structure and habits. That of the wren or the humming-bird is perhaps not finer or more beautiful in proportion than that of the blackbird, the magpie, or the crow. The wren, having a slender beak, long legs, and great activity, is able with great ease to form a well-woven nest of the finest materials, and places it in thickets and hedgerows which it frequents in search for food. The titmouse, haunting fruit-trees and walls, and searching in cracks and crannies for insects, is naturally led to build in holes where it has shelter and security; while its great activity, and the perfection of its tools (bill and feet), enable it easily to form a beautiful receptacle for its eggs and young. Pigeons, having heavy bodies, and weak feet and bills (imperfect tools for forming a delicate structure), build rude flat nests of sticks, laid across strong branches which will bear their weight and that of their bulky young. They can do no better. The *Caprimulgide* have the most imperfect tools of all, feet that will not support them except on a flat surface (for they cannot truly perch), and a bill excessively broad, short, and weak, and almost hidden by feathers and bristles. They cannot build a nest of twigs or fibres, hair or moss, like other birds, and they therefore generally dispense with one altogether, laying their eggs on the bare ground, or on the stump or flat limb of a tree. The hooked bills, short necks and feet, and heavy bodies of parrots render them quite incapable of building a nest like most other birds. They cannot climb up a branch without using both bill and feet; they cannot even turn round on a perch without holding on with their bill. How, then, could they inlay, or weave, or twist the materials of a nest? Consequently, they all lay in holes of trees, the tops of rotten stumps, or in deserted ants' nests, the soft materials of which they can easily hollow out.

Now I believe that throughout the whole class of birds the same general principles will be found to hold good, sometimes distinctly, sometimes more obscurely apparent, according as the habits of the species are more marked, or their structure more peculiar. It is true that, among birds differing but little in structure or habits, we see considerable diversity in the mode of nesting, but we are now so well assured that important changes of climate and of surface have occurred within the period of existing species, that it is by no means difficult to see how such differences have arisen. Habits are known to be hereditary, and as the area now occupied by each species is different from that of every other, we may be sure that such changes would act differently upon each, and would often bring together species which had acquired their peculiar habits in distinct regions and under different conditions.

But, it is objected, birds do not *learn* to make their nest as man does to build, for all birds will make exactly the same nest as the rest of their species, even if they have never seen one, and it is instinct alone that can enable them to do this. No doubt this would be instinct if it were true, and I simply ask for proof of the fact. This point, although so important to the question at issue, is always assumed without proof, and even against proof, for what facts there are, are opposed to it. Birds brought up from the egg in cages do not make the characteristic nest of their species, even though the proper materials are supplied them, and the experiment has never been fairly tried, of turning out a pair of birds so brought up into an enclosure covered with netting, and watching the result of their untaught attempts at nest-making. With regard to the song of birds, however, which is thought to be equally instinctive, the experiment has been tried, and it is found that young birds never have the song peculiar to their species if they have not heard it, whereas they acquire very easily the song of almost any other bird with which they are brought up. It is also especially worthy of remark that they must be taken out of hearing of their parents very soon, for in the first three or four days they have already acquired a knowledge of the parent notes, which they will afterwards imitate. This shows that very young birds can both hear and remember, and it would be very extraordinary if they could live for days and weeks in a nest and know nothing of its materials and the manner of its construction. During the time they are learning to fly and return often to the nest, they must be able to examine it inside and out in every detail, and as their daily search for food invariably leads them among the materials of which it is constructed, and among places similar to that in which it is placed, is it so very wonderful that when they want one themselves they should make one like it? Again, we always assume that because a nest appears to us delicately and artfully built, that it, therefore, requires much special knowledge and acquired skill (or their substitute, instinct) in the bird who builds it. We forget that it is formed twig by twig and fibre by fibre, rudely enough at first, but crevices and irregularities, which must seem huge gaps and chasms in the little eyes of the builders, are filled up by twigs and stalks pushed in by slender beak and active foot, and that the wool, feathers, or horsehair are laid thread by thread, so that the result seems a marvel of ingenuity to us, just as would the rudest Indian hut to a native of Brohddignag.

But look at civilised man! it is said: look at Grecian and Egyptian and Roman and Gothic and modern architecture! What advance! what improvement! what refinements! This is what reason leads to, whereas birds remain for ever stationary. If, however, such advances as these are required to prove the effects of reason as contrasted with instinct, then all savage and many half-civilized tribes have no reason, but build instinctively quite as much as birds do.

Man ranges over the whole earth, and exists under the most varied conditions, leading necessarily to equally varied habits. He migrates—he makes wars and conquests—one race mingles with another—different customs are brought into contact—the habits of a migrating race are modified by the different circumstances of a new country. The civilized race which conquered Egypt must have developed its mode of building in a forest country where timber was abundant, for there is no possibility of the idea of cylindrical columns originating in a country destitute of trees. The pyramids might have been built by an indigenous race, but not the temples of El Uxor and Karnak. In Grecian architecture, almost every characteristic

feature can be traced to an origin in wooden buildings. The columns, the architrave, the frieze, the fillets, the cantilevers, the form of the roof, all point to an origin in some southern forest-clad country, and strikingly corroborate the view derived from philology, that Greece was colonised from north-western India. But to erect columns and span them with huge blocks of stone or marble is not an act of reason, but one of pure unreasoning imitation. The arch is the only true and reasonable mode of covering over wide spaces with stone, and, therefore, Grecian architecture, however exquisitely beautiful, is false in principle, and is by no means a good example of the application of reason to the art of building. And what do most of us do at the present day but imitate the buildings of those that have gone before us. We have not even been able to discover or develop any definite mode of building best suited for us. We have no characteristic national style, and to that extent are even below the birds, who have each their characteristic form of nest, exactly adapted to their wants and habits.

That excessive uniformity in the architecture of each species of bird which has been supposed to prove a nest-building instinct we may, therefore, fairly impute to the uniformity of the conditions under which each species lives. Their range is often very limited, and they very seldom permanently change their country so as to be placed in new conditions. When, however, new conditions do occur, they take advantage of them just as freely and wisely as man could do. The chimney and house swallows are a standing proof of a change of habit since chimneys and houses were built, and in America this change has taken place within about three hundred years. Thread and worsted are now used in many nests instead of wool and horse-hair, and the jackdaw shows an affection for the church steeple which can hardly be explained by instinct. The Baltimore oriole uses all sorts of pieces of string, skeins of silk, or the gardener's bass, to weave into its fine pensile nest, instead of the single hairs and vegetable fibres it has painfully to seek in wilder regions; and Wilson believes that it improves in nest-building by practice, the older birds making the best nests. The purple martin of America takes possession of empty gourds or small boxes stuck up for its reception in almost every village and farm in America, and several of the American wrens will also build in cigar boxes, with a small hole cut in them, if placed in a suitable situation. The orchard oriole of the United States offers us an excellent example of a bird which modifies his nest according to circumstances. When it is built among firm and stiff branches it is very shallow, but when, as is often the case, it is suspended from the slender twigs of the weeping willow, it is made much deeper, so that when swayed about violently by the wind the young may not tumble out. It has been observed also that the nests built in the warm Southern states are much slighter and more porous in texture than those in the colder regions of the north. Our own house-sparrow equally well adapts himself to circumstances. When he builds in trees, as he no doubt always did originally, he constructs a well-made domed nest, perfectly fitted to protect his young ones; but when he can find a convenient hole in a building or among thatch, or in any well-sheltered place, he takes much less trouble, and forms a very loosely-built nest.

A curious example of a recent change of habits has occurred in Jamaica. Previous to 1854 the palm swift (*Tachornis phainopeba*) inhabited exclusively the palm-trees in two districts in the island. A colony then established themselves in two cocoa-nut palms in Spanish Town, and remained there till 1857, when one tree was blown down, and the other stripped of its foliage. Instead of now seeking out other palm-trees, the swifts drove out the swallows who built in the piazza of the House of Assembly, and took possession of it, building their nests on the tops of the end walls and at the angles formed by the beams and joists, a place which they continue to occupy in considerable numbers. It is remarked that here they form their nest with much less elaboration than when built in the palms, probably from being less exposed.

A fair consideration of all these facts will, I think, fully support the statement with which I commenced this article, and show that the mental faculties exhibited by birds in the construction of their nests are the same in kind as those manifested by mankind in the formation of their dwellings. These are essentially imitation, and a slow and partial adaptation to new conditions. To compare the work of birds with the highest manifestations of human art and science is totally beside the question. I do not maintain that birds are gifted with reasoning faculties at all approaching in variety and extent to those of man. I simply hold that the phenomena presented by their mode of building their nests, when fairly compared with those exhibited by the great mass of mankind in building their houses, indicate no essential difference in the kind or nature of the mental faculties employed. If instinct means anything, it means the capacity to perform some complex act without teaching or experience. It implies innate ideas of a very definite kind, and, if established, would overthrow Mr. Mill's sensationalism and all the modern philosophy of experience. That the existence of true instinct may be established in other ways is not improbable, but in the particular case of birds' nests, which is usually considered one of its strongholds, I cannot find a particle of evidence to show the existence of anything beyond those lower reasoning powers which animals are universally admitted to possess.—*Intellectual Observer*.

ABSTRACTS OF RECENT ACTS ON THE RELATIONS OF MASTERS AND SERVANTS.

An Act to establish equitable councils of conciliation to adjust differences between masters and workmen—

Gives (1) Power to her Majesty or Secretary of State to license councils of conciliation. (2) Councils to consist of not less than two nor more than ten masters and workmen, and a chairman. (3) Petitioners for council to elect first council.

(4) The council shall have power to hear and determine all questions of dispute and difference between masters and workmen, as set forth in the Act of the fifth year of King George IV., chapter 96, which may be submitted to them by both parties, and shall have, hold, and exercise all the powers and authority granted to arbitrators and referees. And any award the said equitable councils of conciliation and arbitration may make in any case of dispute or difference submitted to them shall be final and conclusive between the parties to such arbitration, without being subject to review or challenge by any court or authority whatsoever; and the said council are hereby further authorized to adjudicate upon and determine any other case of dispute or difference submitted to them by the mutual consent of master and workman or masters and workmen. But nothing in this Act contained shall authorize the said council to establish a rate of wages or price of labour or workmanship at which the workman shall in future be paid.

(7) No counsel, solicitors, or attorneys to be allowed to attend on any hear-

ing before the council or the committee of conciliation, unless consented to by both parties.

(9) Housholders and part occupiers may demand to be registered, and have a vote for the council, and may be elected thereto; but the masters shall appoint their own portion of the council, and the workmen elect their portion of the council.

The Master and Servant Act—

(4) Declares that whosoever the employer or employed shall neglect or refuse to fulfil any contract of service, or the employed shall neglect or refuse to enter or commence his service according to the contract, or shall absent himself from his service, or wherever any question, difference, or dispute shall arise as to the rights or liabilities of either of the parties, or touching any misusage, misdemeanour, misconduct, ill-treatment, or injury to the person or property of either of the parties under any contract of service, the party feeling aggrieved may lay an information or complaint in writing before a justice, magistrate, or sheriff, setting forth the grounds of complaint and the amount of compensation, damage, or other remedy claimed for the breach or non-performance of such contract; and upon such information being laid, the justice shall issue, or cause to be issued, a summons or citation to the party so complained against.

(5) The time to be appointed in the summons or citation for the appearance of the party complained against shall not be less than two or more than eight days from the date of the summons or citation.

(7) On neglect or refusal to obey summons or citation, warrant to issue.

(9) Upon the hearing of any information or complaint under the provisions of this Act, two justices, or the magistrates or sheriff, after due examination, by an order in writing under their respective hands, in their or his discretion, as the justice of the case requires, either shall make an abatement of the whole or part of any wages then already due to the employed, or else shall direct the fulfilment of the contract of service, with a direction of the party complained against to find forthwith good and sufficient security, by recognizance or bond, with or without sureties, to the satisfaction of a justice, magistrate, or sheriff, for the fulfilment of such contract, or else shall annul the contract, discharging the parties from the same, and apportioning the amount of wages due up to the completed period of such contract, or else, where no amount of compensation or damage can be assessed, or where pecuniary compensation will not in the opinion of the justices, magistrate, or sheriff, meet the circumstances of the case, shall impose a fine upon the party complained against, not exceeding in amount the sum of £20, or else shall assess and determine the amount of compensation or damage, together with the costs, to be made to the party complaining, inclusive of the amount of any wages abated, and direct the same to be paid accordingly; and if the order shall direct the fulfilment of the contract, and direct the party complained against to find good and sufficient security as aforesaid, and the party complained against neglect or refuse to comply with such order, a justice, magistrate, or sheriff may, if he shall think fit, by warrant under his hand, commit such party to the common gaol or house of correction within his jurisdiction, there to be confined and kept until he shall so find security, but nevertheless so that the term of imprisonment, whether under one or several successive committals, shall not exceed in the whole the period of three months: provided always, that the two justices, magistrate, or sheriff may, if they or he think fit, assess and determine the amount of compensation or damage to be paid to the party complaining, and direct the same to be paid, whether the contract is ordered by them or him to be annulled or not, or, in addition to the annulling of the contract of service and discharge of the parties from the same, may, if they or he think fit, impose the fine as hereinbefore authorized, but they or he shall not under the powers of this Act be authorized to annul, nor shall any provisions of this Act have the effect of annulling, any indenture or contract of apprenticeship that they or he might not have annulled or that would not have been annulled if this Act had not been passed.

(18) Nothing in this Act shall prevent employer or employed from enforcing their respective civil rights and remedies for any breach or non-performance of the contract of service by any action or suit in the ordinary courts of law or equity in any case where proceedings are not instituted under this Act; nor shall anything in this Act affect the provisions of the Act of the fifth year of King George IV., chapter 96, "to consolidate and amend the laws relative to the arbitration of disputes between masters and workmen," or of any Act extending or amending the same.

(26) This Act shall continue in force until the expiration of one year after the passing thereof (Aug. 20, 1867), and to the end of the then next session of Parliament, and no longer.

SELECTIONS OF ROSES FOR THE AUTUMN OF 1867.

A selection of the best roses, new and old, exclusive of those for the current season, arranged according to colours.

NOTE.—The varieties marked with an asterisk are suitable for cultivation in the neighbourhood of towns.

Abbreviations.—H. P., Hybrid Perpetual; B., Bourbon; B. P., Bourbon Perpetual; N. P., Noisette Perpetual; N., Noisette; C., China; T., Tea.

VERY DARK, in various shades—Purple, Blackish Crimson, Dark Crimson to Crimson Scarlet exclusive.

H. P.
Black Prince (W. Paul)
*Charles Lefebvre
Claude Million
Charles Wood
Dr. Lindley (W. Paul)
Gabriel de Peyronny
*Maréchal Suohet (Guillot)
Maréchal Vaillant
Mons. Boncenne
*Pierre Notting

*President Mas
*Prince C. de Rohan
Souvenir de Wm. Wood
*Vicomte Vigier
Xavier Olibo

B.
*Dupetit Thouars
La Quintinie
*Victor Emmanuel

Crimson Scarlet, Deep Red, Crimson, Red, Carmine.

H. P.
*Achille Gonod
*Alfred Colomb
Baron A. de Rothschild
Baronne Hallez
*Colonel Cambriels
Docteur Andry
Duo de Rohan
Exposition de Brie

Fisher Holmes
François Troyve
*François Lacharme
General Washington
General Jacqueminot
*Jean Goujon
Jean Lambert
*La Brillante
*Le Rhône

*Madame C. Wood
*Madame E. Vilmorin
*Madame Moreau
*Madame Victor Verdier
Maurice Bernardin
Olivier Delhomme
*Prince de Porcia

Light Crimson, Cerise, Carmine, Deep and Bright Rose.

H. P.
Alphonse Belin
Beauty of Waltham
Comte de Nanteuil
*Duchesse de Morny
Emile Dulac
Elizabeth Vigneron
Gloire de Ducher
Gloire de Vitry
*John Hopper
La Reine
*La Ville de St. Denis
*Lafontaine
Madame Caillat
Madame C. Crapelet
*Madame Clém. Joigneaux

H. P.
Abel Grand
*Alpaide de Rotalier
*Anna Alexieff
Armide
Auguste Mie
Belle de Bourg la Reine
Belle Normande
Charles Rouillard
Chevalier Nigra
Comtesse de Palikao
Princess Mary of Cambridge
Duchesse d'Orléans
Hippolyte Flandrin
*Josephine Beauharnais
*Louise Peyronny or Lælia
*Madame E. Appert
Madame D. Douville

Rose, Pale Rose, Pink, and Peach.

H. P.
Alba Mutabilis
Caroline de Sansal
La Tour de Crouy
Madame Vidot
Madame Freeman

B.
Emotion
Comtesse Barbantanne
Souvenir de la Malmaison

C.
Mrs. Bosanquet

Princess of Wales
*Sénateur Vaisse
Souvenir de Bernardin St. Pierre

B.
Prince Albert
Rev. H. Dombrain

*Madame Domage
*Madame de Cambacérés
Madame Furtado
Madame Guinoisseau
Madame Vigneron
Madame Amélie Halphen
Marie Bauman
Prudence Besson
Triomphe de la Terre des Roses
*Victor Verdier
Wm. Griffiths

B. P.
Baron Gonella
*Catherine Guillot
*Louise Odier

Madame Fillion
*Madame Knorr
Madame Hoste
Madame Rousset
*Mademoiselle Margaret Dombrain
*Marcella
Maria Rady
*Marguerite de St. Amand
Sophie Coquerelle

B. P.
Baronne de Noirmont
Modèle de Perfection

B.
Paxton
N. P.
Pavillon de Pregny

VERY LIGHT.—Tinted White, Flesh, and White.

Mademoiselle Bonnaire
Sœur des Anges
Princess Clothilde
Virginal

N. P.
Louise Darzens
Lady E. Peel
Madame Alfred de Rougemont

N.
Aimé Vibert
Jeanne d'Arc

THE BEST YELLOW ROSES.

There has been no addition to this class worth recording since the introduction of Maréchal Niel. The list, therefore, will be much the same as last year, and will be found chiefly among the Teas and Noisettes.

TEAS.—Gloire de Dijon, the long shoots of this should be stopped back, when almost every lateral will flower; Elise Sauvage, La Boule d'Or, Madame William, Madame Falcot, Vicomtesse de Cazès.

NOISETTES.—Celine Forrestier or Lysias, Jaune Desprez, Maréchal Niel, Narcisse, Smith's Yellow (under glass), Solfaterre, Triomphe de Rennes.

AUSTRIAN BRIERS.—Harrisonii and Persian Yellow, Yellow Provence.

TWELVE BEST TEAS FOR THE GREENHOUSE, OR OUT OF DOORS WITH WINTER PROTECTION.—Alba Rosea, Devoniensis, Gloire de Dijon, Madame Bravy or Sertot, Madame Falcot, Melanie Villermoz, Nipheto, President, Souvenir d'Elise, Souvenir d'un Ami, Triomphe de Guillot Fils, Vicomtesse de Cazès.

TWENTY PERPETUALS SUITED FOR PILLARS.—H. P.: Duchesse de Morny, Glory of Waltham (W. Paul), Lafontaine, Madame de Cambacérés, Jules Margottin, Jacqueminot, Triomphe des Beaux Arts, Mrs. Rivers, Madame Souppert. Teas: Gloire de Dijon, Climbing Devoniensis, Homère, Comtesse Ouvaroff, Bourbon, Paxton, Noisettes: Aimé Vibert, Seandens, Jaune Desprez, Jeanne d'Arc, La Biche, La Marque, Solfaterre.

TWENTY FINE ROSES FOR POT-CULTURE.—Alphonse Belin, Achille Gonod, Admiral Nelson, Beauty of Waltham, Catherine Guillot, Charles Lefebvre, Elizabeth Vigneron, François Lacharme, General Jacqueminot, Jules Margottin, Lælia or L. Peyronny, Le Rhône, Madame Alfred de Rougemont, Madame C. Wood, Madame Rivers, Maréchal Vaillant, Mrs. W. Paul, Modèle de Perfection, Princess of Wales, Victor Verdier.

It may be further noted that all the teas are suited for pot cultivation, and that "Malmaison" and Mrs. Bosanquet are two of the most continuous bloomers in pots, even in windows, that can be found.

Clapton.

W. D. PRIOR.

BEE-PROOF.—In a communication received by the Asiatic Society of Bengal, and published in its "Proceedings," Mr. Horne puts the question, "To what is due the exemption that some men have from the attacks of bees and wasps? One reads of it in England, and here is another illustration. Yesterday we arrived at our camp at Soj, when an elephant disturbed a swarm of bees in a tree. Immediately there was a cry in the camp, 'The bees! the bees!' and every one was running away, beating off the bees, which attacked every living thing within seventy or eighty yards. But it was strange to see one of the men, a gardener; he lay sleeping, with only a waist-cloth on, and nearly all his body exposed, under the very tree, yet no bee touched him! This man takes a bees' or wasps' nest, brushes off the bees or wasps with his hand; none sting him. He could on this occasion have made no preparation. Why is it? The bees, after about two hours, retired to their tree, and the camp was uninhabited."

STORING THE ROOT CROPS OF THE KITCHEN GARDEN.

This is a subject that has received such little attention from modern pens, that one would think it beneath their notice. But surely if they can tell people how to grow root-crops, it would in no way be lowering their dignity to endeavour to show them how to preserve them. At all events, this is what I propose to do, as I consider it a subject too much neglected by many, and very little understood by still many more, to whose interest it would be to secure the produce of the kitchen

loud are the complaints which sometimes reach us, that an inexperienced person would think that the root crops formed the staple commodity from which the proprietor's table was supplied during winter; and yet all this anxiety and lamentation concerns certain subjects which in all probability will be half thrown upon the rubbish heap before they are consumed, simply because people will not take the trouble to make themselves acquainted with the conditions under which they should be stowed away, and because they have not a suitable structure in which to keep them. For the latter there may be some excuse, but there can be none for those whose only anxiety

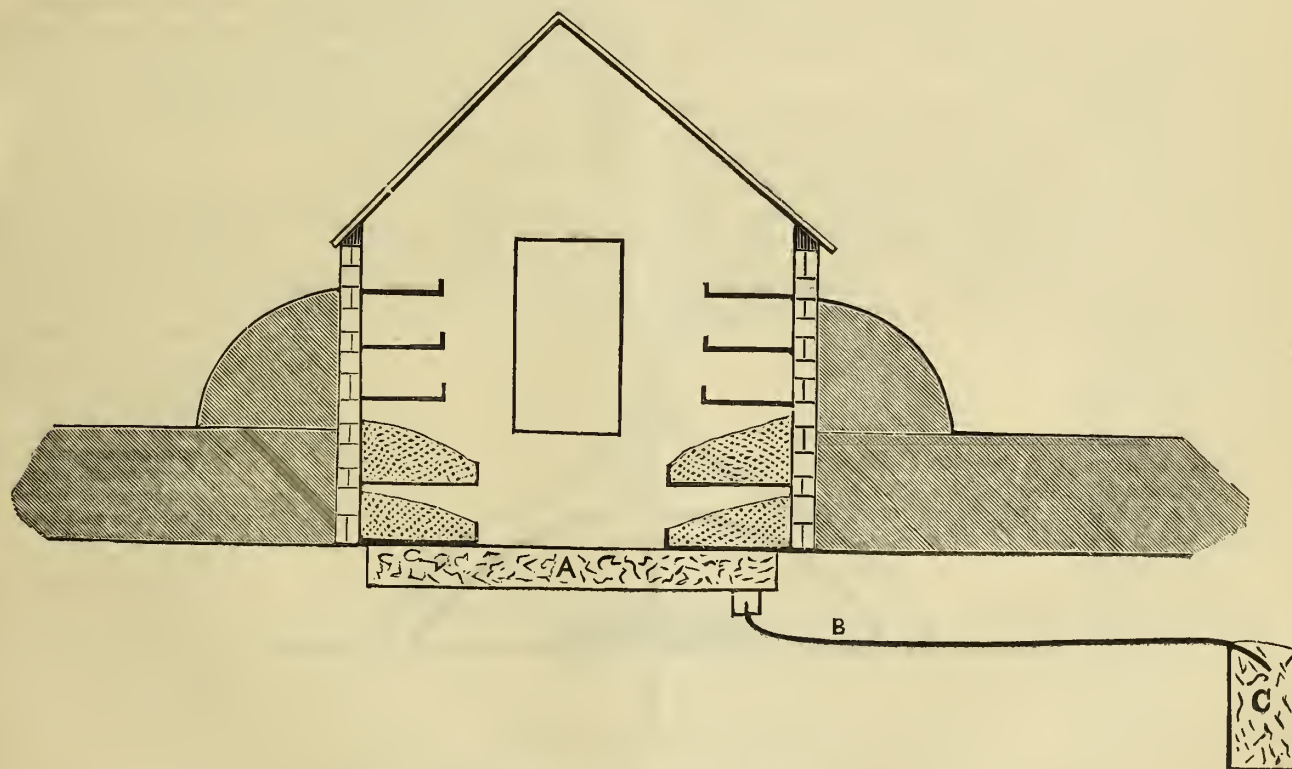


STOREHOUSE FOR ROOTS, &c. (Fig. 1.)

garden in a more satisfactory manner than generally prevails. I shall, therefore, deal with it at some length, and I hope my humble efforts will at least be the means of awakening attention to the conditions under which root crops should be stored for future consumption, for there is almost everywhere required a better provision for storing roots for winter use.

To say that half of the produce of root crops which are grown in the kitchen garden are usually spoilt will be speaking quite within bounds. To me this is such an evident piece of mismanagement—or, if you like it better, I will say a serious oversight—that I can only wonder why people express so much

about the crop is felt when it is growing. Surely, if such crops as parsnips, carrots, potatoes, &c., are worth growing, they are also worth stowing, and in such a structure as will be likely not only to keep them in good condition, but also to prolong their season of use. So great is the want of proper store-rooms in many gardens, that I have thought it requisite to furnish the printer with some sketches of the sort of store-houses required for the purpose, and I think those shown will, in one or other of the forms, meet the wants of all our readers, and the sections here given will render the remarks I have to make in my next paper more intelligible.



STOREHOUSE FOR ROOTS, &c. (Fig. 2.)

anxiety and spend so much time and labour in cultivating them, when they are conscious of the fact that they will half rot either in some damp hole called a cellar, or get frozen in some out-of-the-way place designated a loft. But nevertheless we so often hear complaints when things go a little wrong with a crop of onions or beetroots or potatoes, that if we had not constantly observed the want of a proper place in which to store them, we might be forgiven for believing that these crops were really valued and cared for in a proper manner, even after they were taken out of the ground. Indeed, so

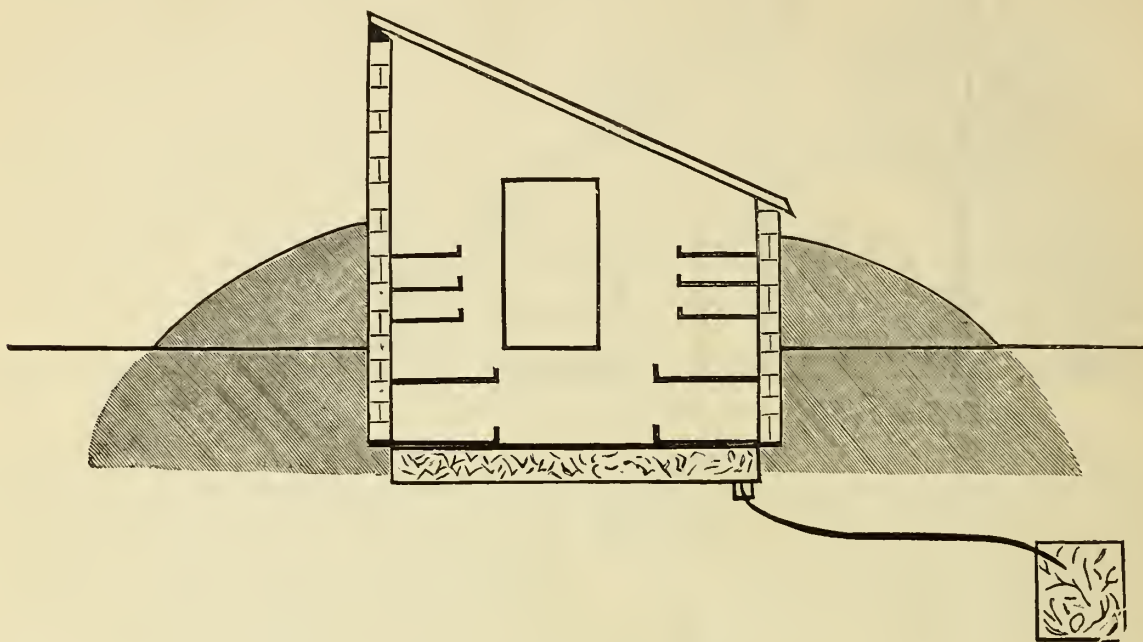
Figure 1 is a section of a lean-to store-room designed specially for small gardens, or for those places where it cannot be sunk below the level. It is represented as being hidden by shrubs and trees on both sides; indeed, this would be necessary to exclude frost unless the walls were of unusual thickness. If thickly belted on both sides by evergreen shrubs, and the roots covered over during very severe weather with straw or brakes, very little harm would come to them, even if only a fourteen-inch wall at back and nine in front were used; and as a northern aspect may be adopted for

these buildings, there are but a very few places but can furnish a back wall already for such a purpose. In general construction these buildings are pretty much alike, that is to say, brick or stone walls and tiled roofs are essential, and as the different kinds of roots should be kept separate, they should be placed on shelves which should be of oak; the shelves are shown upon the sections in each case where they are in use. The bottom shelf should be kept about three inches above the floor, otherwise it will soon rot; potatoes may go on the bottom shelf, carrots, beetroot, &c., on the next, and the onions on the top. In every case means should be secured of admitting a current of air through the building; this may be done either with a small ventilator in the front

are considered unsightly, they are easily hidden by means of small shrubs or ivy.

Figure 3 is on a smaller scale than the above; but, nevertheless, a well-arranged and suitable structure, and such as would serve the purpose of many good gardens now wholly deficient of such a building.

Figure 4 is an improvement on the old-fashioned potato clamp. D is a small raised mound of earth, over which some straw is placed. This mound serves to drain the principal part of the clamp. The potatoes occupy the space E, over which is a layer of straw. F is a vacant space beneath a rough thatched roof carried to one centre pole, and above the potatoes. With an inlet for air in mild weather at about two



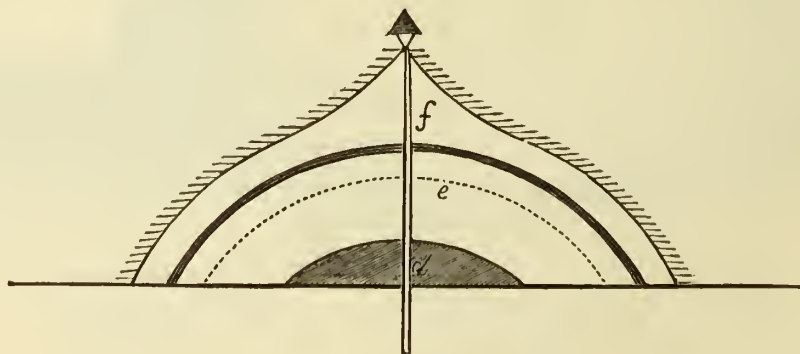
STOREHOUSE FOR ROOTS, &c. (Fig. 3.)

wall or in the door, but taking care that it can be closed at pleasure. With a similar opening at the apex, a continual current of air may be kept up, which will render the atmosphere of the place as sweet and pure as the nature of the subjects which it contains will admit.

Figure 2, if worked out, would make an admirable structure for such a purpose, and may be made capable of holding any quantity of produce. It should be sunk three feet below the level of the surrounding ground, and if in an exposed situation a bank of earth should be thrown up on each side. When this is done the internal air cannot be affected by any amount of frost. When such structures are built for this purpose, it is important to remember that drainage is necessary, as any accumulation of damp either in the house or under the floor will to a great degree render the air of the place unsuitable for the purposes for which it was intended. To guard against this I have shown (see letter A on the plan) the drainage under the floor, the water from this is taken away by a drain (B) to what we call here in the west a "dry cesspool;" that is, a hole of the size required is taken out, and in the place of the earth old brick heads

places round the bottom, and with an outlet at the apex, a small current of air may be kept up to carry off the foul air which is always generated where there is collected a mass of vegetable matter, and this open space between admits of its being carried off most effectually, while the inner covering of straw and the thatched roof are a safeguard against frost. Of other matters relating to this subject I must beg the reader to wait until another number. J. C. CLARKE.

BE CONTENT WITH WHAT YOU CAN DO.—I am not going to tell you that you can cultivate hothouse plants on a sunny border. I am not going to excite your imagination by assuring you that, under some next to impossible circumstance, *Stephanotis floribunda* may be grown without the help of a stove; but I am going to tell you that *clematis* will do just as well. What do you want? Flowers, you reply. Well, cultivate carefully such as will grow in your garden, and are suited to your soil and situation. There is nothing but folly in people of moderate means, or with other things to do with their money, breaking their hearts after *poinsettia* when *Virginian creeper* is the thing for them. You want flowers and beauty, plenty of both; yes, plenty, for the charm of plenty, the blessing of bounteous nature, cannot be described—must be felt to be comprehended and valued properly. But there are two friends necessary for success, mother earth and common sense. Of course you possess the last, so we need only discuss the first. It



IMPROVED POTATO CLAMP. (Fig. 4.)

or coarse stones are used. Into this the water is conducted, and soaks away between the stones or bricks. This is a very simple way of getting rid of water collected so far below the level, and answers every purpose for these kinds of buildings, and as the cesspool can be made within a few feet of the store-room, it does not entail any great amount of labour in moving earth to drain it effectually. Two shelves are shown on each side of the door which reach up to the ground-level. These are supposed to be for potatoes, while those above are for beetroots, carrots, &c. This, as well as figure 3, must be entered by steps inside the house, taking care to attend to ventilation as above advised. If the banks of earth

may be done shortly. A garden may be of any size, from a mignonette box to landed property; and the changes of soil from hungry to fertilizing may be done in a season if you have the power of procuring manure. If not—and farmers are often bound by their leases not to sell manure, and you may not be able to get stable soil easily—the process of improving your ground will be slower. There was an opinion once, and it was very cleverly advocated, that mere labour would improve the soil without any addition. The idea was that industrious digging between growing crops, and when they were out of the ground, would let in sun, air, and rain, and that with them would come all that the earth needed; and that earth pulverized and subjected to the action of such agents would be suited to a succession of crops, the refuse only of those crops being given to the soil. There is much practical wisdom in this when applied to the garden, where, with proper regard to the roots of the plants, the foil, as a general rule, can hardly be moved too much.—*London Society.*

YRINGA JOSIKÆA, A NEW HARDY FLOWERING TREE.

Delightful both to eye and the scent as the lilac is, and doubly charming from the early period when it comes into flower, it is scarcely what we should call a perfect shrub. Its straggling habit, its multitude of small branches, and its shiny thin leaves, combined with the considerable infusion of blue in the hue of the flowers, all give it something of a cold blue-nosed aspect, which to our mind detracts from its other charms.

All these characters have no doubt been more or less modified by cultivation, and better varieties, with a closer habit and greater warmth in the colouring, have taken the place of those less eligible; still, the original sin remains—more or less of a cold blueness subsists in even the best-coloured lilacs of the common species.

In strolling through an old-fashioned garden the other day, we were therefore agreeably surprised by stumbling upon a lilac with flowers of a depth of redness of colouring which surpassed anything we remembered to have seen. At a glance we saw that it was of a different species from the common one—the leaves were differently shaped, of a darker colour, and of a less glossy texture. The flowers were small and sparingly distributed compared with the immense trusses of flower which modern varieties of the common lilac usually bear; but the depth of the colour, which has a great deal more red and less blue in it than the other, makes it so much more effective that we preferred its sparing flowers to the rich masses of flower of the common kind. Perhaps the pleasure of change might go for something in our preference, but we have said enough, we trust, to make the reader think it probable that on one ground or other he might like it as well as we did.

The accompanying wood-cut, taken from a rough sketch, shows the appearance of the flower. At first we had no recollection of the species—it is so long since we saw it—but by and by our memory went back, and brought to mind a species which was rather a favourite some thirty years ago, which answered pretty well to this one, and which on examination proved to be it.

It was discovered in the Siebenburgen (we presume the mountains on the Rhine so named) by a lady—the Frau Baronin von Josika, after whom it was named *Syringa Josikæa* by Baron Jacquin, who exhibited it and described it at a scientific meeting in Hamburg in 1830. It was next noticed in the *Botanische Zeitung* for 1831, and living specimens of the plant having been obtained, it was sent by Messrs. Booth (the eminent nurserymen of Hamburg) to Dr. Graham, the then Professor of Botany in Edinburgh, who figured and described it in the *Botanical Magazine* in 1833. It was also figured in the *Botanical Register* and other botanical or horticultural publications of the day.

The occurrence of a distinct species of *Syringa* in the mountains of the Rhine has a wider significance than at first would appear to attach to it. It has a bearing upon the disputed place of origin of the common lilac. Persia is usually taken for granted to have been the place of its nativity, and Decandolle, in his *Géographie Botanique*, specifies it as one of those species which have by naturalization, and spreading from gardens and cultivation, given rise to what he considers the unfounded supposition that it was a native of Europe. On the other hand, there is strong evidence of its occurrence in Europe in places where it can hardly be supposed to have been introduced either by man or any of the other usual agents of dispersion. Dr. Heuffel (*Bot. Zeitung*, 1831) states that it adorns with its copious blossoms the inaccessible chalky precipices of the Coerna Valley and Mount Domaglet, in Hungary, as well as the whole group of rocks along the Danube, at the military boundaries of Moldowa, Szasz, Csiklova, and Krassova. But no stronger proof could be wished than the actual occurrence in Europe of an allied species, which is not present in Persia or anywhere else. Such is the *Syringa Josikæa*. It is perfectly hardy, and flowers in the open border simultaneously with the common species—that is, in May and June. If gardeners would bestow the same attention on this species which they have upon the common one, we can see no reason to doubt that they would obtain varieties with as large trusses of bloom (if that be desirable) as they have done with the *Syringa vulgaris*.—M., in the Farmer.



SYRINGA JOSIKÆA (Natural Size).

PRACTICAL NOTES ON STRAWBERRIES.

The strawberry is perhaps more than any other fruit a universal favourite. I cannot remember any one saying, when presented with ripe strawberries, that they were repulsive or distasteful. So, more or less, we are all interested in strawberries, and I need no more preface to these practical notes. In my desire to say anything respecting their cultivation, it may be assumed by some that I am only traversing an already beaten track. This is correct to some extent, but it must be borne in mind that the different writers who have preceded me have in many instances spoken or written of their practice from opposite directions of the three kingdoms. We have therefore to consider the respective influences of climate, soil, and surroundings apart from the mere routine of culture. In an area so restricted as Britain there is as much variation in the extreme points of the island in regard to the temperature as there would be in the atmosphere of a stove and greenhouse at one and the same season of the year. To this, then, we attribute the presence in the markets and fruiterers' shops of quantities of ripe fruits the produce of plantations in the open ground, and this several days before they are ripe in the majority of private gardens, especially in the metropolis. In this, as in many other instances pertaining to the earliness of fruits and vegetables, these results are often beyond the cultivator's control, owing to

influences which he can neither obtain nor remove, they being peculiar to the spot, and in no respect the result of his skill. As an illustration of my argument, I would say, that when filling the situation of gardener to a gentleman in the county of Kent, part of my charge consisted of a very large kitchen garden. Adjoining this was a cultivated field of about ten acres in extent. This was annually sown with early peas to be gathered for supplying the London markets. In the gardens I would sow the same variety of pea at the same period they were sown in the field; yet, strange as it may appear, the earliest gathered were the peas grown in the field. Why this should be I cannot say, further than to suppose that the open space was more subject to the beneficial influence of favourable weather, and enjoyed a larger total of sunlight as compared with the crops grown in the garden; the latter being retarded in their earliness in a degree by the closeness of the surrounding objects, such as fences, trees, &c., which some would suppose would rather hasten than otherwise. But my inference was that they only tend to encourage weak, or perhaps luxuriant, instead of a short sturdy growth. Now this is just the case with early out-door crops of strawberries. Quantities of them are gathered from plantations which are made on the slopes and banks in the open spaces of many of the market grounds of Kent. The soil, especially in the neighbourhood of Erith, is very stony, and the care with which the cultivators cover the surface assists much to maintain a genial moisture to their roots, and at the same time absorb the heat of the sun. This, then, quickens their early ripening; but it is not alone from this source that the early fruit is supplied. The mode of convey-

ing them into the London markets is very different now to what it was twenty years ago and previous to that period. You would on fine summer mornings see numbers of women following each other from Isleworth, Deptford, and other localities in the neighbourhood of London, with large round baskets on their heads packed with pottles of this delicious fruit. But the progress of time has afforded us a quicker transit; so that fruit gathered at the same period of the day, perhaps in the western or southern parts of England, will arrive in the market as early in the morning as that grown only a short distance from town.

At this season, as other kinds of crops are being cleared from the ground, their places may be occupied with fresh plantations of strawberries. It is certainly not too late to plant strawberries, but if planted earlier they will be the better prepared for producing good fruit next season. However, following an oft-repeated maxim, "better late than never," we would presume that, finding you had not space at your command earlier, you have planted your runners in nursery beds, so that you could take them up with a trowel, and in that case the effects of the change would be very slight. Or, better still, that you have layered or pegged your runners into pots, and that now you have well-established plants, exactly in the way you would prepare them for forcing, with this exception, that they are either in large 60 or 48 sized pots instead of 32 or 6-inch pots. If you have not plants so treated, then my advice is, purchase them of some respectable nurseryman who has them so prepared. Well, the next thing to consider is the best situation in the garden for the varieties you may plant. Of course your selection of sorts

A YOUNGSTER, hearing his mother remark that she was fond of music, roared, "Then why don't you buy me a drum?"

will depend on the extent of ground at your disposal. The varieties advertised at the present time are about fifty in number, and probably they all have some sort of merit. But as no one requires so many, except it be to form a collection, I shall here name only a few, which I can recommend as good for almost any soil and climate, viz. :—

BLACK PRINCE.
PRINCESS ALICE MAUDE.
KEEN'S SEEDLING.
SIR HARRY.
SIR CHARLES NAPIER.
BRITISH QUEEN.

The first on the list, *Black Prince*, is to be valued more for its earliness than for any other quality it may possess. As the berries generally are small, though produced in abundance, the best plan for obtaining large fruit is to grow them only one season, making fresh beds every year. If you are cramped for space, I should not grow many plants of them, as the other superior sorts, such as Keen's Seedling, quickly succeed it. If you have a wall or fence with a south aspect, and a border running alongside of it, then, in order to economize space and obtain very early fruit, adopt the following method: Plant a row the whole length of the wall or fence, and within (say) six inches of it. With this plan I have been very successful in obtaining early ripe fruit before the main crops were ready. This is about the best use you can make of *Black Prince*. As soon as they have ceased to yield good fruit, and you have obtained your runners for the following season, destroy them. In preparing your ground for planting, deep trenching is essential for the well-doing of all the kinds, as the roots descend a great depth, and the deeper you deposit manure, or any other kind of vegetable refuse, so much the better, as the roots are sure to find the desired nourishment. The strawberry thrives best in a mellow loam which is not of a clayey texture. Of course we must in most circumstances do the best with what soil we possess, whether it be the most suitable or otherwise. The best aspect or situation for early beds is decidedly a south border; the wider the border the better, so that a narrow pathway can intervene between it and the wall; but for general crops open plots are decidedly preferable.

Princess Alice Maude.—This is not so generally cultivated as it deserves. As an early strawberry it is invaluable. Those who grow for sale quite understand that, but gentlemen's gardeners seem to overlook its merits. It certainly does not possess the flavour of a Keen's Seedling, but, as a cropper, it is more to be depended on, being very prolific. It produces nice medium but even-sized berries, and the colour is a very rich crimson. This is the variety that is so much admired when displayed in the windows of the fruiterers' shops at the commencement of the strawberry season. It is also a more compact grower than Keen's Seedling, not requiring the room the other does for its growth, which makes it invaluable for small gardens.

Keen's Seedling, like the *Black Hamburgh Grape*, is a very popular and useful variety, and a delicious flavour when fully ripe. But in some soils great numbers of the plants will in some seasons become barren, although they have previously grown very luxuriantly. This is a sad disappointment to cultivators of limited means; but where the soil and situation are suitable to its growth, it is one of the best among the oldest of the principal varieties grown.

Sir Harry.—This with me has proved a very hardy and very useful strawberry for general purposes, being very prolific and of good size, but it requires a warm situation in order to ripen it thoroughly, otherwise the flavour is acid; but when fully ripe, the berry assumes a very dark colour; and the flavour is excellent; with me it has never failed as regards a crop.

Sir Charles Napier.—This variety thrives in almost any situation; its growth is compact, its fruit is cone-shaped, and in colour a bright scarlet, which gives it a very handsome appearance when dished. The flavour is rather acid, but it is a certain and prolific bearer in almost every locality, and large quantities of it are forced throughout the country for market as well as private use, for which it is exceedingly well adapted, and also for preserving.

British Queen.—The merits of this strawberry are universally acknowledged throughout the United Kingdom; therefore it may be considered superfluous for me to offer any observations respecting its general habit. However, I cannot refrain, as I have witnessed it growing and fruiting first-rate in some gardens, and in others the reverse of it. The *British Queen* may be justly styled *The Queen* of all strawberries in respect of flavour; and there may be exceptions in which it is surpassed in size, but they are but few. The best plot I ever saw of this excellent strawberry was that cultivated by Mr. George Taylor, gardener to Miss Williams, of Stamford Hill,—a name associated with the production of some of the best collections of single blooms of *Chrysanthemums* that were ever exhibited in this country. I have had an opportunity for several years past of watching his mode of culture. His method has always been to have two beds of this favourite variety under cultivation, so that when a bed had been planted two years, and finished yielding its crops in succession, the same would be destroyed, and replaced by young plants. But previous to doing so, the ground would undergo the process of deep trenching and manuring. The plants intended for the bed were the strongest and earliest runners he could obtain; these were layered in pots of soil, and when sufficiently rooted were detached from the parent plant and kept watered, and otherwise properly attended to till the bed was ready for their reception. The produce of his beds the first year of their being planted was extraordinary both in quantity, size, beauty, colour; and I think, if I rightly remember, his method was to plant two plants together, so that if one did not succeed the other would, and in the event of both succeeding, of course it would be a double advantage. There is one circumstance in this cultivator's favour, which greatly aids his practice, and tends to preserve this tenderest of all the strawberries in regard to constitution, and also assists to retain the warmth in the soil when most needed, by keeping it naturally drained, namely, that the subsoil of his garden is composed of nearly all gravel. To local influences are many of us, then, indebted for our success, though frequently perhaps unconscious of the fact.

The distance apart which strawberries should be planted must be determined by the length of time they are to remain in the same spot. If only for one year, you would not plant them so far apart, because their growth would not need the space; the greater the width you can afford them from row to row, the more beneficial will it be in quickening the production and ripening of the fruit.

JNO. F. McELROY.

Calendar.

WORK FOR WEEK COMMENCING OCTOBER 12.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Ground intended to be drained should be drained now, that benefit may be derived from the improvement at once. Wherever *Equisetum* or rushes grow, the cultivator may be sure there is need for drainage, and that the work will soon pay for itself in increased production. This is a better time than that usually adopted for sowing speculative crops. On lands that lie high and dry, sow *Mazagan* beans, and *Ringleader* and *Daniel O'Rourke* peas. Lay down *broccolis* with their heads to the north. Keep plots of cabbago filled by transplanting. Take up carrots, and store only the sound roots, and those to be stored dry. Potatoes are never good if stored in the damp; better give them all away than store them, as some people do, to sodden in wet, which renders them unpalatable and unwholesome. Plant chives, which never fail to furnish an onion flavouring for soups.

Flower Garden.

SPRING FLOWERS.—The following are all exquisitely beautiful, and if not in the possession of the cultivator should be secured at once. Any of the species of perennial Iberis, the flowers of which are snow-white, and magnificent in large tufts on rockwork. *Aubretia purpurea* and *grandiflora*, and *Alyssum saxatile*: showy yellow, impatient of wet, quite hardy elevated on rockwork, and worth growing in pots. *Arabis alpina*. Italian *Coltsfoot*; useful to cover banks, for the sake of its perfume in February; it will flourish in the darkest of town gardens in a mixture of good loam and chalk. *Double Wallflowers*: we only grow two varieties now—the tall double yellow and the dwarf double yellow; and we generally have a lot of each potted to perfume the sitting-room; they should be taken up now and potted, and put in a pit. *Hepaticas*, *Primroses*, *Polyanthuses*, and *Violets* must have a place amongst the best of spring flowers—in fact, the garden will be dreary without them. Of bulbs, secure and plant a good assortment of *Jonquils*, *Snowdrops*, *Crocuses*, *Narcissus*, early *Tulips*, *Hyacinths*, *Dog-tooth Violets*, &c.

CARNATIONS and PICOTEES not yet rooted from layers must be taken off the stools and planted under hand-glasses; those with a few root fibres may be potted; having begun to root, they will soon gain strength. Border cloves may be propagated to any extent from cuttings in spring.

CHRYSANTHEMUMS to have less manure water as they show colour, and to be discontinued (using plain water only) as soon as a few of the first flowers are open. Thin the flowers on plants from which blooms are to be cut. Large-flowering varieties out of doors are liable to suffer from high winds and drenching rains; give them some rough sort of shelter, to prevent the spoiling of the best blooms.

Fruit Garden and Orchard House.

STRAWBERRIES to fruit in pots and troughs ought now to have plump crowns and be quite at rest, the pots full of roots and free from worms. Now lay them on their sides on coal-ashes under a fence or wall, and by means of a few hurdles, or some other rough contrivance, shelter them from rain, and there leave them till taken in to force. Runners well rooted may be planted now in beds to bear next season. Plantations made at this late period should be of carefully sorted plants—the best only of the runners that have rooted farthest away from the parent stools, and these to be taken up with good balls, and planted in the beds directly.

UNFRUITFUL TREES may be improved by commencing at once to root-prune, manure, or drain the soil. The nature of the cure must depend upon the cause of barrenness. If the trees have attained a bearing age, and are over-luxuriant, root-prune by this simple method: Open the soil three parts round each tree, at a distance from the stem of from 2 to 3 feet, according to the size of the tree. The roots must be cut back to a general average of 2 or 2½ feet, except the part where the soil was not opened, where the roots will remain of course their original length. The roots cut back to be carefully laid out near the surface, and a little fresh soil used in filling in. Next season open the soil on the side left undisturbed the year before, and there cut the roots to 2 or 2½ feet, and so on annually or biennially, according to the growth the trees make. Old trees that have borne for many years and are getting weak, to have the surface-soil thinly pared off, and a layer of new soil laid down over the roots, and above that a layer of dung only slightly rotted. Trees suffering from wet at the roots, and on which there is moss and canker, require draining; and without draining they can never do much good.

Greenhouse and Conservatory.

ERICAS can be better wintered in a pit than in the greenhouse. It is certainly best to let them taste as little as possible of fire-heat, though they must be kept safe from frost. A damp still air, especially if a little warmed to suit the growth of soft-wooded plants, is most injurious to these nearly hardy and free-natured plants. Water only on fine days, and then as early as possible; keep the plants hardy, and if they get three or four degrees of frost on them, they will take no harm if kept dark till thawed. The result of such treatment will be short joints and a fine bloom.

VERBENAS and PETUNIAS from autumn cuttings are best kept with *Cinerarias* and *Primulas*, as the same treatment will serve for all, and they will require fumigating more frequently than other plants. All these things should be grown very slowly now, as the worst times for them are yet to come. Give plenty of air.

MIGNONETTE sown now in pots of rich light soil, started with a little bottom-heat, as on a bed of leaves or uraly worn-out dung, and kept in a pit all winter, will bloom early next spring, and a few may be forced. It requires but little skill indeed to flower *Mignonette* at any period of the year; but at this season one important caution must be given, and that is, to grow the winter stock in pots extra well drained, and never to wet the leaves of the plants.

Forcing Pit.

CUCUMBERS to fruit during winter will now be showing signs of fertility, in which they must not be too much encouraged, unless the plants are strong. If allowed to bear too early, they will soon cease to bear, and the fruit will be small and inferior. Keep them carefully trained; take the leaders up their full length before stopping, then stop every side-shoot at the second joint. Pinch off the young fruit till the plants are in a robust state, with plenty of large healthy leaves; if fit to begin bearing, thin the crop moderately. Encourage root action by top-dressing with a mixture of leaf-

THE ORNER OF THE DAY.—The writer of the letters in the *Times*, advocating "The cordon training of fruit-trees" as adopted in France, is to be decorated for his pains—he is to receive the Grand Cordon of the Legion of Honour.

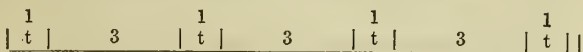
—Punch.

mould and rotten dung. The usual advice to set the blossoms we consider fallacious; there will be just as good a crop without any such waste of time.

VINES.—Where fruit is to hang some time, all decaying berries must be cut out from time to time, and the atmosphere kept dry. Cut away all the sappy and softer ends of the rods, without respect to the system of pruning adopted; this will cause the remaining buds on the rods to swell nicely, and promote their ripening. Vines that are indisposed to go to rest may be assisted by a removal of their leaves, and getting the border as dry as possible.

PINES to have less moisture both to fruiting and growing plants. Give air every day if possible, and keep the beds in a sweet and sound condition. Fruits ripening should have a temperature of 60° at night; day temperature to depend on the amount of light; on dull days 70°, bright days 80°.

WINTER MUSHROOMS.—Large beds, well made, keep such a genial heat that, with good manure and good spawn, success is pretty certain. Small beds cool quickly, and in small places the grower is often obliged to use manure that has become too much fermented, and so his best efforts are in vain. The best prospect of success is where a man can select the manure as it comes from the stable, or, better still, in the stable itself, and the mushrooms ought to be grown in a house adjoining the stable, if possible, or, if there is plenty of room, it may actually be done amongst the horses, and the heat of their bodies will do instead of hot-water pipes. We will endeavour briefly to advise how best to grow mushrooms on a small scale. The best way of all is in a dark, warm, unventilated shed, with a brick wall at the back. The droppings should be raked together in ridges, every day or two, until there are sufficient for a bed. While they are accumulating they should be turned over and drawn up in small heaps or ridges again, every two or three days, to prevent a rapid fermentation. When there are sufficient of these heaps to make a bed, wheel into the shed as much turfy sandy loam as will equal one-third the bulk of the manure, and mix all together, and allow the mixture to remain in one heap for two days, which will cause a gentle fermentation to commence. Provide for the bed some kind of support in front, such as rough boards or turf-sods; make the bed four feet wide, four feet high at the back next the wall, and sloping to two feet in the front. It must be in a condition of equable moisture throughout—neither wet nor dry—and in the process of making, it must be frequently beaten down to render it quite firm. A much-experienced cultivator would know to what temperature, within a degree or two, the bed would rise, and would probably insert the spawn the same day as the bed was made; but for a beginner the safer way is to wait a few days, and then insert a hotbed thermometer, to ascertain what is the heat inside the bed; if it is over or under 80° wait a day or two longer. By that time, if the heat has increased, all is well; you will have a good bed. If it has decreased, you will never get mushrooms, and the best way to proceed is to take it to pieces, mix with it a good fifth or fourth part of fresh droppings—you must always be collecting these, fresh and fresh, and keeping them under cover—and make up the bed as before. The heat will certainly rise now. When at between 70° and 80°, insert the spawn in pieces the size of hens' eggs, about six inches apart and three inches deep. We have known one piece of spawn as thick as a fist suffice for a bed five-and-twenty feet long, and many a good crop has been taken from beds that were never spawned artificially; for, when properly managed, the material itself is generally rich in spawn, which may be seen running through it in the form of gray filaments. When the spawning has been accomplished, spread over the bed two inches of nice clean sandy loam. If the place is warm and rather dry, cover the bed with some clean hay or straw; if the place is damp and cold, do not put on straw, but lay some rough boards over if you have them, supporting the boards on small flower-pots. If hay or straw get full of mildew, the flavour of the mushrooms is impaired. Never water a mushroom bed until you have seen fruit on it; then, if rather dry, water moderately with tepid water. We must endeavour now to suggest how to make one bed serve all the year round without any more spawning. In the usual way, as soon as one bed comes into bearing, another bed should be made to succeed it, and so on for ever. The first mushrooms ought to appear within six weeks, and the length of time the bed will bear will depend on the steadiness of the temperature in the soil and the surrounding atmosphere, and the supply of sufficient moisture. The bed at 60° to 70°, and the atmosphere of the shed at 50° to 65°, will be capital conditions for a profitable result. Now for the recipe to make one bed serve the whole year round, which will be useful to those who have only one suitable spot for a mushroom bed, and in fact can be carried out with such certainty that it is worth the while of any person fond of mushrooms to put up a shed for the purpose, with brick wall at back high enough to allow of head room within, a double roof, that is to say, rough battens, and thatch all over, with a space of air between, and double sides consisting of rough boards and a thick outside lining of furze, or other rough warm stuff, to promote snugness within. You have but to make up the bed as directed, using grass-sods in front instead of boards. Let it be, if possible, not less than 19 feet long, or any multiple of 19, as 38, &c., &c. But any length will do that is convenient, as the plan to be described admits of modifications. As soon as the bed is made, go on accumulating droppings as before, keeping them always under cover. When the fruiting of the bed is on the wane, dig out the stuff in trenches across the bed one foot wide and three feet apart. Suppose the bed to be nineteen feet long, the operation will result in trenches as shown in this section of thirteen feet length of the bed, on the scale of a quarter of an inch to one foot:—



The stuff taken out will be useful in the compost yard, for although the mushrooms extract the principal goodness from it, it will be found capital for fuchsias and flower-beds. If you have a dry warm place in which to store it for use, lay it up in long ridges, and you will get a few more mushrooms out of it. As for the trenches, fill them with a mixture prepared in the same way as the first; they will communicate heat to the bed, and the bed will communicate spawn to them, and the bearing will continue. In the course of a month or so, take out trenches again midway between the last and put in fresh mixture. In the course of another month take out trenches on either side of the last, and so go on removing and renewing, and you will always have mushrooms. There are many other ways of growing them. They may be grown on shelves in carefully-saved droppings without loam, and the beds on the shelves need be only twelve to eighteen inches deep. As they do not want light, the shelves may range one above the other from floor to roof. They may be grown in pots and boxes, in cellars and cupboards; but these make-shift methods are very inconvenient, very liable to failure, and apt to make a mess where cleanliness would be more appropriate. But the rationale of the growing is always the same, and it would be waste of space to multiply particulars. It must be borne

in mind that a certain degree of moisture and warmth are essential, that light is not essential, but they may be grown in full daylight as well as in the dark; but we prefer the dark, because an opaque roof is warmer than a glass one, and in winter we must husband warmth, or be at the expense of heating apparatus.

FORCING FRENCH BEANS.—French beans are generally grown in pots, and sometimes in boxes; but the best of all plans is to grow them in open beds, nicely warmed, and of sufficient extent to give a regular succession of produce. We will, however, first consider their cultivation in pots; and here, as in almost every other thing, gardeners differ in their practice—some obtaining fine crops in a very off-hand way, while others only attain the same object by a comparatively laborious and unnecessary process. These parties sow their beans in 4-inch pots, five or six beans in each pot, and when they have attained sufficient size shift them into the larger, or fruiting pot. For this purpose 11-inch pots are generally used; but for a crop in the depth of winter, if good soil is used, 8-inch pots will be found sufficiently large. The mode of procedure is this: Having drained the pots, place in the bottom of each a layer of good rotten dung, and then fill them two-thirds full with prepared compost. If the soil is warm, and your plants in a fit state, you may proceed to pot them at once, keeping the seed-leaves or cotyledons level with the rim of the pot; but if not, place the pots in the house until the soil gets warmed, and then you may proceed with the potting. The soil should be pretty dry at the time of using; but, if it is not, do not press it too firmly in the pots, as French beans like a free open soil, through which they can receive plenty of water, and yet not have it stagnant in the pots. When the soil in the pots gets full of roots, fill the remaining portion. This will be about the time the plants are in bloom, and will add very materially to the swelling of the produce. With beans in boxes much the same treatment is pursued as to draining, soiling, &c. Some persons use boxes of large size, nine to ten inches square; but boxes six to seven inches wide and deep, and three to five feet long, are the most convenient for general use, and, with a judicious supply of liquid manure, quite large enough for the purpose. A more expeditious plan is to take the full-sized pots or boxes, drain and fill them two-thirds full with manure and soil, and sow the beans at once where they are to stand, using plenty of seed, so that the strongest plants may be selected and the others destroyed. Another plan is to sow a quantity of beans thickly in a pot or box, and transplant them when of sufficient size; and this is not a bad plan. The treatment which the plants require is, first, that the temperature should not fall much below 55° during the night; neither is it desirable that it should much exceed 60°; therefore from 55° to 60° may be considered a suitable night temperature. Through the day, in dull weather, the heat may rise to 65° to 70°, and with the sun-heat to 80° or 90°, taking care to keep the atmosphere moist, and, except in the two darkest months, to syringe copiously both in the morning and evening. Some persons object to syringing while the plants are in bloom; but that is nonsense, for daily syringing will not interfere with a good crop of beans; but you frequently see the want of the syringe result in a troublesome crop of thrips or red spider. As the beans progress in growth, it sometimes happens that a part of the shoots will become spindly and long-jointed; should such be the case, stop them at once to the lowermost joint—indeed, an occasional regulating with the finger and thumb will add materially to the produce. Water, as we have remarked before, must be plentifully supplied, and weak manure water, especially while the crop is swelling. Ventilation cannot be too copious, either by night or day, so long as cold draughts are avoided; but it must be recollected French beans are scarcely more hardy than cucumbers, and therefore the air given must be regulated with caution. Should insects be likely to become troublesome, add some sulphur to the water you syringe with, and for thrips or fly some tobacco water; for, after all, these old-fashioned remedies are both cheaper and more certain in their effect than "Gishurst Compound," which is not to be trusted with tender-foliaged plants. From the preceding remarks, it will be perceived the chief requisite in the successful cultivation of the French bean as a forcing plant is a rich soil, brisk moist heat, and a free circulation of air. With these healthy foliage is a necessity, and free-growing plants are rarely much troubled with insects. On the score of soil it may be remarked, it should be fresh maiden loam. Sometimes the soil of cucumber or melon beds is used; but that is not to be recommended, as in it the plants get full of insects, possibly from ova deposited in the soil; neither do they grow so freely, as in some cases we have seen them refuse to grow in old soil at all, and in one particular instance crop after crop was tried with the same result. A friend of the writer's used to collect mole-hills, and mix the earth with old mushroom soil; indeed, two parts fresh loam and one part the dung of an old mushroom bed, is as good a mixture as can be used for growing this esculent.

Literature.

H. Cannell's *Extending and Pruning Method of Grape-growing*.—This is a short essay on the comparative merits of the vine to a rafter system, and the one vine to a house system. The essay finished, Mr. Cannell fills up the book (to make a shilling's worth in bulk) with reprints of the greater part of the correspondence that has taken place upon the subject. The book is therefore useful as a summary of the discussion, and worth much more than the price charged for it to all who are interested in this question. But we are bound to say that "H. Cannell's extending and pruning method" was known somewhat before H. Cannell had his tender gums rubbed by a tender nurse's fingers, somewhat, indeed, before the advent of such a prophet. We are indebted to Mr. Cannell for all the light he has thrown upon the subject of vine-growing, and more for the life he gave to the recent discussion; but we must object to the extension system being claimed by him as *his* method; there is a spice of shop in the proceeding that will displease all sober-minded people. As to the respective merits of the "rival systems," the vine to a rod system gives quick results, and has rendered so much good service that unreserved condemnation of it is unreserved nonsense. But there can be no question that when a house is occupied with one vine, the labour and anxiety of the cultivator are greatly lessened, the crop is more certain, and the quality of the crop is much better than young vines will afford.

Tall's *Patent Apparatus for Constructing Walls, Houses, &c.* J. Tall, Falstaff Yard, Kent Street, Southwark.—This is an important contribution to social science, and from it we may expect many advantages to arise in the economy of rural life, and especially in the improvement of artisans' and labourers' dwellings. The Tall system of building may be described in a few words. Portland cement is mixed with stones, sand, and other rough waste material, and while wet is formed into walls by pouring the mixture into moulds made of rough woodwork. By inserting a round core where

necessary, a flue for a fire or for ventilation is formed, and the flues are all round and smooth internally, so that smoking and taking fire are rendered next to impossible; or, at all events, if they do take fire, there can be nothing but soot to burn in them, for no bonding timber is used in any part of these buildings. Houses, sheds, and other structures, formed on Tall's plan, are cheaper, drier, and more lasting than the best work in brick. These houses are said to be eight or ten degrees warmer in winter than brick houses.

The *Intellectual Observer* for October contains a valuable paper by Mr. H. J. Slack, on the beautiful *Euplectella speciosa*, with a coloured plate; the story of the opening of old grave-mounds in Derbyshire, by Mr. Jewitt; an elaborate essay on shooting stars, by Mr. Proctor; and an analysis of the extraordinary hypothesis of Gruithuisen of a city in the moon, by the Rev. T. W. Webb. Amongst minor matters, occurs the following note on the action of green light on plants. M. L. Cailletet details experiments on the influence of different coloured rays, and the decomposition of carbonic acid by plants. He observes that green light afforded unexpected results, whether this colour was obtained from a glass, vegetable leaves, or solutions. Under its influence carbonic acid is never decomposed; a fresh quantity of gas seems, on the contrary, to be produced by the leaves. When a glass containing pure air and a leaf was placed in full sunlight, under a green glass shade, after a few hours a quantity of carbonic acid was obtained scarcely inferior to that which the leaf would have evolved in the dark. This experiment, he thinks, may explain the sickly condition of vegetation under large trees.

The *Floral World* for October contains papers on fruit-tree cultivation, the villa kitchen garden, the auricula, the improvement of the rosery, extensive grape-vines, and on the cultivation of various flowering bulbs.

Types from the Hebrew and Greek Scriptures as illustrated in the Colours of the Rainbow. By MRS. KELLY. Darton and Co.—The object of the authoress of this work is to explain and illustrate the symbolism of colours, in so far as may be needful for the purpose of rendering intelligible, or helping out the meaning, or adding to the force and beauty of such Scripture precepts, allusions, and figures, as are most directly associated with colours. For example, we read in the mosaic ritual of coloured curtains and coloured robes; if the colours were symbolical, it is but proper we should have, if attainable, a key to the symbols. Thus we at once and by this example merely justify the idea of illustrating the types of the Hebrew and Greek Scriptures, and the next business in this connexion is to ask how Mrs. Kelly has performed her self-imposed task. We are bound to say that this is by no means a good book. It contains much useful information, and may be found serviceable by many students of the Old Testament Scriptures, but it is too pretentious of learning, too lean in facts, too fervid in imaginary (very imaginary) spiritual interpretations of things quite carnal and commonplace, and everywhere there is such a straining after an indefinable effect, that we can only say of it that in tone and matter it is far below the requirements of the subject.

Correspondence.

ZONAL GERANIUMS AT THE MANCHESTER EXHIBITION [see pp. 383, 424].—I am obliged by your insertion of my letter, also for the *gentle reproof* you have given me. You are not, perhaps, aware that Mr. Watson makes it a practice of depreciating every other collection of plants in favour of his own, and that his manner is becoming very offensive, not only to exhibitors, but to visitors. It is all very well to do all the business one can at an exhibition, but it should be done in a legitimate way. I have always in my reports said all I could in praise of Mr. Watson's energy, but found, in return for it, he was using all his influence to depreciate my plants. It is all very well for you to expatiate upon the weakness you fancy I have displayed, but place yourself in my position, and I fancy you would be troubled with the same *weakness*. I certainly had removed some of my plants after the first day's show was over, and replaced them with others. This, I believe, is not unusual when an exhibition is continued so long as the late Manchester Exhibition was.

October 1st, 1867.

JOHN WILLS.

Mr. Wills had prepared me for an article in your excellent paper from his pen, as he had promised me what he terms a *little one* when at the Kensington show on the 17th of September, but I can assure you, Mr. Editor, that I was quite unprepared for the savage attack upon both myself and the two beautiful plants of which I am the fortunate raiser, for these are the real objects of his attack, although he hides behind the scenes. I am fully aware that Messrs. Wills and Co. have been long aiming to put the extinguisher on them; hence the feverish anxiety of certain parties to get up a show for the simple purpose. Blind indeed must be the individual who cannot see the bitter envy and jealousy existing in certain quarters; yet, in spite of their teeth, *Miss Watson* will sell by the hundred ere 1869 shall have passed away, when Mr. Wills's Florence will not sell by the dozen, and scarcely perhaps by the single plant. As for my plant of Sultan being a disgrace to his green cabbages, it is a *pity*; for truth is truth, and I say, without fear of contradiction, the bulk of the plants exhibited by Mr. Wills were little better than common zonales, and to exhibit them against variegated geraniums is little less than dishonest. As to Mr. Wills's "Florence," of which he says every one who saw it gave it the palm at the exhibition, I beg leave to say, if it is to be a first-class plant, he must get rid of two fatal faults: first, the colours run into each other, and have the appearance of having been in a *paint-pot*; and secondly, the green breaking through the zone, six plants out of seven doing so, as, for instance, the one exhibited at Kensington. And I must say, Mr. Editor, that if what Mr. Wills says be true, those persons were either short-sighted or left their judgment at home. As to the eight plants which took the second prize, I beg leave to say, Mr. Wills never saw cleaner-grown plants in his life; and if Mr. Wills would leave envy, prejudice, and self-interest at home, and not suffer them to becloud his vision, he would acknowledge the truth of this assertion. As to the varieties being too much alike, this is not my fault; we must blame Messrs. Wills and Co. for giving prizes and certificates to plants that are not better than others in cultivation, and no distinguishing mark to recognize them in the distance by a good judge, to the exclusion of those kinds which are distinct, and possess merits such as the prized and certificated kinds cannot boast of. In reference to Mr. Wills's puzzle, I can give him the little piece of information he appears so earnestly to crave in reference to Sultan. To the bar of public opinion the Sultan has been brought, and the result will be, many plants will be sold for growing in collections of variegates. Mr. Wills will, doubtless, have seen

my challenge to Messrs. Smith and Perkins, to exhibit against them for a fifteen-guinea cup. I have no objection to include Mr. Wills in the number, with Florence and Northern Star. But let Mr. Wills, Mr. Smith, and Mr. Perkins bear in mind their plants shall be judged in accordance with the rules annexed, and under no other arrangement will I attempt to exhibit; for let Messrs. Wills and Co. bear in mind we will have no repetition of the Kensington affair. I believe there are to be found eight men who are good judges, who will not be blinded by either prejudice or self-interest, or tarnish their honour for men or money. Let my plants be judged by the annexed rules, and if we should should be, as Mr. Wills asserts, bad cultivators, he will find the merits of my plants themselves will more than make up the deficiency, if he cultivates his to the best of his ability:—

1. Constitution sufficient for a bedding plant.
2. Distinct in character from those in cultivation.
3. Clean edges, the green not breaking through the zone.
4. Brilliance of colouring and novelty of character.
5. To be flat, or if slightly reflexed the better.
6. No plant to be considered *first-class* where the green breaks through the zone in quantity, this being a *fatal fault* in any Tricolor Pelargonium.
7. Each exhibitor shall have the liberty to object to any judges selected by either party.

JOHN WATSON.

St. Alban's, Oct. 2, 1867.

CENTAUREA RAGUSINA FROM SEED.—As I have been successful in the propagation of this useful and beautiful bedding plant, I am induced to offer a few remarks as to the way I proceed, if you think it would be at all useful to any of your readers, who perhaps, like myself, have found it difficult to strike from cuttings. I take up a dozen or so of this year's plants the first week in October, with all the root possible, and great care it requires too in doing so, for the roots are extremely brittle. I pot them in 32-size or five-inch pots, in some sweet loam, and put them in a close frame for a week, giving air gradually to get them hardened before winter, as if they are not well hardened they are very liable to damp off. I keep them in a cool airy place during winter, and water sparingly. They will produce seed in plenty the following summer, which I sow as soon as ripe, in boxes filled with equal parts of loam and leaf-soil with a little sand. As soon as they have made two rough leaves, I pot them up in small-sized pots, and treat them the same as old plants, giving them a shift into larger pots in March; they will then be in fine condition for turning out in May.

W. W.

September 30th, 1867.

Replies to Queries.

J. George.—Your seedling zonale, with large rosy-salmon flowers, in the way of Groom's Miss Martin, is one of the very best varieties ever raised. The flowers are of great size and beautiful in form, the petals freely overlapping, and the habit of the plant noble and striking. Of the trusses sent, No. 1 is a first-rate zonale, the colour intense red, with a slight tinge of violet. No. 2, a green-leaved variety, with large flowers of a deep rich scarlet, with white eye; very fine. No. 3, a good green-leaved nosegay, with large truss of orange-scarlet flowers. Nosesays can only be judged by plants, therefore we can only say of the truss that it is one of the very best. No. 4 is a zonale, with large flowers of a clear reddish-salmon hue. For so large a flower, the top petals are too narrow. You mark it as a nosegay, but it cannot be properly placed in that class.

T. S. Shorman.—Yours is a remarkably robust and handsome scarlet-flowering zonale. The flowers are second-rate in form, the top petals being narrow, but the colour is good, the trusses are immense, and the leaves almost gigantic.

L. Dean, Ealing.—Your selected African marigolds are a very fine strain, the flowers being globular, densely packed with florets, and the colours brilliant and pure.

H. Scott.—Two sorts of celery for exhibition: Northumberland Champion White, Manchester Giant Red. Twelve show dahlias: Baron Taunton, Midnight, Miss Henshaw, Miss Bush, Leah, Lord Palmerston, Hugh Miller, Lord Derby, Delicata, Bird of Passage, British Triumph, Dazzle. Twelve verbenas for pot culture: Alexandra, Lord Leigh, Marie Rendatler, Charles Turner, Duke of Cambridge, Imogene, La Grand Boule de Neige, Mauve Queen, Nemesis, Pallavicini di Brescia, Princess of Wales, Thormanby, Grand Duchess. Two cucumbers for exhibition: Champion of England, Mills's Jewess.

J. E. Dunstable.—You do not require inside borders for ground vinerias. The Black Hamburg will do you more service than the Sweetwater for the ground viney. We do not give the addresses of correspondents unless it is desired on both sides; it would be a breach of confidence.

Subscriber.—Your *Cordylina indivisa* must have good greenhouse treatment, and you must be patient. It will take many years to make a fine plant of it. In some cases plants and flowers are judged by the effect they produce as groups, and sometimes by their individual excellencies; it all depends upon the nature of the class and the terms of the schedule. In the case you put the judgment was wrong. Why should the committee be in any difficulty? If they see that there was a mistake, and the judges acknowledge it, and attribute it to the absence of the schedule when the judging took place, the only real difficulty the committee can have is to avoid repairing the error.

G. F.—For culture of *Alocasia* and *Caladium* see last year's volume, page 393 (September 1, 1866). Your plants must rest all the winter, during which time a temperature of 50°, or even 5° lower, is enough for them, if nearly dry.

Woodford.—You must use your own judgment. If your loam is good, you need not manure for fruit-trees; if it is poor, then manuring is advisable. In the case you refer to the loam was poor, thin, and overlying a bed of gravel, circumstances which rendered manuring particularly advisable.

Mushrooms in a Cellar.—Z.—You will see in this week's Calendar of Operations a note on mushroom cultivation. To grow them in cellars is an easy matter for a practised hand, but it is very seldom that persons unused to horticultural manipulations do any good in that way; and in any case it is questionable if the conveyance of a quantity of manure into the cellar of a dwelling-house should meet with encouragement from those who profess to guide the public in such matters. Our advice to a person living in a house in a West-End Square is, avoid the mess, the risk of health, and the dirt and trouble of growing mushrooms in the cellar. But if you will do it, procure at once about two cart-loads of rather dry short stable manure that has been turned two or three times, and make up a bed according to the directions given in the article in the Calendar.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun	Sun	Moon	Moon	WEATHER NEAR LONDON, 1867.			M. Imp. avrg of 47 yrs. Gravh.	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D			
			rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain.						
1867			h. m.	h. m.	h. m.	h. m.	MX.	MIN.	MX.	MIN.	ME.			1867	
20	S	18th Sunday after Trinity	6 32	4 56	11 8 p.m.	1 33 p.m.	30.14	30.03	62	45	53	.02	47.0	Cypripedium venustum, 1 ... Nepal	20
21	M	Death of Nelson, 1805.	6 34	4 54	n.m.	2 14	29.97	29.91	63	46	54	.00	46.8	Zygostefan Mackayl, 2 ... Brazil	21
22	T	Lord Holland died, 1810.	6 36	4 52	0 20 n.m.	2 45	30.08	29.84	59	29	44	.30	46.6	Calogyne Cunninghami, 1 ... Singapore	22
23	W	Royal Exchange founded, 1567.	6 38	4 50	1 33	3 18	30.10	30.04	50	39	44	.01	46.5	Ocuidium orthorynchua ... Mexico	23
24	Th	Sir James Mackintosh born, 1765.	6 40	4 47	2 47	3 40	29.90	29.70	61	42	51	.42	46.4	roseum, 2 ... Honduras	24
25	F	Charge of Bulahela, 1854.	6 42	4 45	3 59	4 11	29.96	29.61	49	40	44	.12	46.2	Morindos atropurpureum, 2 ... Mexico	25
26	S	Royal Charter lost, 1859.	6 44	4 43	5 9	4 38	29.92	29.83	55	29	42	.01	46.1	Burlingtonia venusta, 1 ... Brazil	26

The Gardener's Magazine.

SATURDAY, OCTOBER 19, 1867.

FREE STOCKS *versus* DWARFING STOCKS has become one of the questions of the day, in the discussion of the principles of fruit-tree cultivation. During the past few years, dwarfing stocks have been in great demand, and there are tens of thousands of trees on such stocks scattered about the country. Fruit-growers of the old school have never had faith in them, and fruit-growers of the new school begin to confess that they have been more or less disappointed. But the disappointment is not wholly the consequence of the adoption of dwarfing stocks. There has been too much said about the necessity of pinching trees on dwarfing stocks, and consequently many who have been led away by such teaching have pinched their trees and themselves too; for pinching carried on to a late period of the season results in the production of mere spray, and not of fruit-buds, as is the case when pinching is practised with skill and judgment. In cases where the possessor of a lot of fruit-bushes has become wearied of pinching, because of the miserable result, and has for a few years left his trees alone, they have made long rods; their vigour, formerly reduced, has been repaired, and they have actually become fruitful through neglect. Thus over-pinching, or summer pruning, has co-operated with the reduction of vigour consequent on the employment of dwarfing stocks to make the miniature fruit-garden more or less of a delusion. Yet there is a golden mean in this, as in other things. Dwarfing stocks have their uses. The quince will hasten the fruitfulness of certain kinds of pears, the paradise stock will do the same for some kinds of apples, and the mahaleb stock the same for cherries. The dwarf trees produced by grafting on these stocks are admirable for small gardens, particularly if summer pruning is discontinued in time for the wood of the season to ripen perfectly; not otherwise. When remarking lately on the uses of cordon training, we laid stress on the fact that this climate is not adapted for any system which promotes a late growth of the wood of fruit-trees; our autumns are usually damp, and sometimes cold. It is not wholly a question of temperature; it is a question also of relative humidity. In a moist atmosphere and a wet soil, trees still inclined to grow are quite disinclined to be fruitful the next season, and the prolongation of the system of summer pruning tends to keep the trees full of useless soft wood, that may be killed by frost, and if not killed is of little use the next season. Therefore, in any case, summer pruning should be brought to a stop by the beginning of July at latest. If any of our readers can tell us of trees that bear well in spite of pinching practised later, we shall be bound to give publicity to the particulars. We take the liberty to suspect that, upon the whole, the advocacy of frequent pinching has done more harm than good; but, in the practice of a thorough horticulturist, summer pruning is a most valuable means of increasing the total of bearing wood, and of aiding as an adjunct to dwarfing stocks in promoting early fruitfulness.

As to the stocks, it is quite certain that the quince, the paradise, and the mahaleb, do tend to render the pear, apple, and cherry trees grafted on them—if they live at all—precocious; and hence an amateur with a limited space for fruit-growing may have much variety in a small compass, and very good though limited supplies of fruit for his own enjoyment. But early fruitfulness is purchased at the expense of longevity. Trees on dwarfing stocks are of necessity short-lived; no one can point us to old, fruitful, healthy trees on such stocks, and as to large supplies, it is confessed they are incapable of affording them, for the trees never attain to sufficiently large dimensions to afford the necessary surface for large crops. Hence for gardens of any extent, for planters who wish for vigorous, fruitful, long-lived trees, Freestocks win the day, after all that has been said on both sides; and as to the matter of advocacy, the Dwarfing stocks have of late years had perhaps the best of it. We shall find in the best gardens of the country the free stocks in use and in favour. Men who have to supply quantities of superior fruits do not trouble themselves about quince, paradise, and mahaleb stocks; they go in the old track, though with no prejudice against improvement. What they want to know first is, if an alleged improvement is

an improvement, and the general verdict amongst the best fruit-growers in the country is, that dwarfing stocks are not upon the whole any improvement, especially when to other objections that may be urged against them, it is added, that some of the best varieties of pears, apples, and cherries stubbornly refuse to live upon them, or if they live, it is only like patients in hospitals, unfit for work, and with more or less of a prospect of death before them. We find at some of the greatest nurseries—as, for example, Messrs. Lane and Sons, Berkhamstead, Messrs. Lucombe, Pince, and Co., Exeter, and Messrs. Paul and Sons, of Cheshunt—the free stocks still in favour as productive of trees that live long, that are commonly healthy and vigorous, and that produce large crops of the highest quality possible for the several varieties, and the climate and soil in which they are grown. The dwarfing stocks beat them in point of time, that must be admitted; that perhaps is the only solid advantage to be derived from their employment. Such we believe to be the true state of the case, and we leave our readers to make their purchases, and order their work in propagating according to their wants and wishes, with this summary of the main points on either side to assist them in their decisions.

SOUTHWARK NEW PARK.—The People's Park for Southwark, situate partly in the parish of Bermondsey and the remaining portion in that of Rotherhithe, is rapidly verging towards completion. The principal entrances are three in number, viz., one on the north side, one on the west side, and one on the south. There are also three minor entrances. The lodges at the principal entrances are designed in a tasteful and decorative style. The aspect of the park, although at present in an unfinished state, attracts a large number of visitors, who appear astonished at the rapid progress that has been made in its formation. A large number of gardeners and labourers are employed daily in laying out the flower-beds and walks, and in transplanting young trees and many varieties of evergreens and flowering shrubs, some of which are extremely valuable and of foreign growth. Three drinking fountains are to be erected within the enclosure, and an ornamental fountain in the centre of a grass-plot, and which will be placed amidst a grove of trees and shrubs. The walks are gravelled and completed, and it is expected that the park will be opened to the public on or about Christmas.

CARNATIONS AND PINKS FOR WINTER FLOWERS.

The Editor has placed in my hand a letter from a correspondent who signs "Flora," in which a request is made for some particulars of the cultivation of carnations and pinks for supplying winter flowers. I very cheerfully render such aid as I can, though, as a grower of flowers for Covent Garden Market, I may not treat the subject in exactly such a way as would best suit the means of a private establishment. However, I dare say any gardener capable of growing a pink or carnation in a pot will be able to adapt my routine to his own range of practice, and I shall be content to describe how I should go to work to produce these flowers for market, where, I need not add, they realize remunerative prices.

The TREE CARNATIONS are those we must look to for winter flowers, and there is but one way of treating them on which we may rely for success, and that is to raise a fresh lot of plants every year, and to destroy the old ones as soon as they have furnished a sufficient number of cuttings.

The plants intended for flowering in winter and early spring should be struck in February, March, and April. There is no mystery at all about the propagating. Take cuttings of two or three joints in length, remove the lowest leaves only, put them into pans or boxes (boxes are *always* best), in sandy peat or sand alone, and shut them up close in a mild moist heat. Nothing like dung-heat for such things; but we strike a good many in the propagating house, over a tank. The first lot may be hastened and made better plants of by putting the cuttings singly into thumb-pots, from which they can be shifted on, and if the cultivator loses the early part of the season, and wants to make up for lost time, he must do them singly in pots, as by this method they have no check. When well furnished with roots, put those from boxes into thumb-pots, and those from thumb-pots into 60-size, and so on, always observing that they should not be shifted till they really need it, nor be allowed to get pot-bound and starving for want of a shift. Soon after the first shift nip out the points, or, in other words, "stop" them. But after this they must not be stopped again; this is very important. The pots must be well drained, and the compost should be turfy loam, with about a third of its

bulk of old cow-manure, and a fair proportion of silver sand. Continue to shift as required till the middle of July, when they may be in pots of eight or ten inches in diameter.

From the time the cuttings are rooted, the cultivator must use his own judgment as to the amount of heat they should be subjected to, the golden rule being to give them as little as possible, and to get them into frames and pits as soon as ever it is safe to deny them the aid of artificial heat. If driven hard, and much roasted, they will be covered with vermin, and more or less spoiled. From the time they have had their last shift, they should be put out of doors in an open situation, to make a stout growth and form their flower-buds. When their pots are full of roots, water them constantly with very weak manure water. It should never be strong, or it will poison them; it matters not what sort of manure is used, whether guano or the drainings of the dung-heap, or sheeps' droppings steeped in water, so long as it is such as you know to be suitable for plants, and so far diluted that it is decidedly weak. By this treatment, and the aid of a little occasional tying and training, you will have fine plants for winter flowers.

About the first of October is early enough to house them, as a rule, but if flowers are wanted extra early, they should be housed about the 20th of September. Keep them near the glass in a cool airy house for a fortnight; then transfer them to a warm greenhouse, and they will begin to bloom in November, and, by judicious management of the succession plants, flowers may be had until the end of March, or even later; indeed, any one desirous of having the flowers all the year round could do so, for a *second stopping*, and a shift in August of those struck in April would ensure blooms in March and April following, and perhaps even to May; but I cannot speak positively on this point, for I should not give them house-room after March, as there are so many other things then that would pay me better.

If the private cultivator has not the courage to throw away the old plants, he may let them remain in their pots without pruning, and with regular supplies of water till June, and then plant them out against a wall, and they will flower in September or October. Even then they need not be destroyed; they may be assisted through the winter with the help of mats, and thus may be kept many years. But if fine winter flowers are required, a fresh batch of plants must be raised every year.

The following varieties are good, and I might venture to say that all the varieties are good; however, these I select as most desirable. The best six are marked thus * :—

- Archimède*, yellow fringed, tipped red.
- Ariadne*, orange-yellow ground, crimson flake, fine form.
- Beauty*, pure white, pink stripe.
- Charles Baltet*, red, striped crimson.
- Delicata*, pure white, margined pink.
- Evening Star*, scarlet, and crimson flake.
- Garibaldi*,* purple, very sweet.
- Gloire de Permillieux*,* scarlet, dwarf.
- Hope*, scarlet, and crimson flake.
- Jupiter*, scarlet.
- La Géante*, blood-red.
- Magna coccinea*,* crimson clove.
- Osear*, canary-yellow, striped rose.
- Perfection*,* white, with bizarre flakes of purple and crimson, equal to a show Carnation.
- Queen of Whites*,* the best white, and a true clove.
- Souvenir de la Malmaison*,* rosy flesh, very fragrant.
- Vandael*, yellow self.
- Victor Emmanuel*, pure yellow, rosy-crimson flakes.

PINKS are easier to do, and we can employ them to fill up the blanks in the seasons when carnations are not to be had. We must include for our purpose the new hybrid or mule pinks, for they are most accommodating; as, for example, I have some splendid flowers now on a hybrid called *Napoleon III.*, which was sent out by Messrs. E. G. Henderson not long since, a rich crimson flower. The plants were struck in May last, and have been in bloom in pots out of doors since the 1st of October, and if taken in before frost occurs continue to flower until December. The way to manage pinks for winter flowers is, first of all, to strike pipings *as soon as you can get them*, and plant them out in well-manured ground as soon as rooted. At the beginning of October lift them carefully, and pot them in 32-size pots, put them in a cold frame until December, then carry them to the forcing house. Some of the hybrid or mule varieties may be struck in May, June, and July, and will afford flowers in winter and spring.

The following are the best varieties for this system of cultivation :—

- Anna Boleyn*,* rich crimson; this and the varieties that have been bred from it are invaluable for forcing.
- Garibaldi*,* crimson, with violet centro; fine.

Most Welcome, pure white, with crimson margin; a capital variety for late autumn bloom, to come in before the tree carnations are ready.

Tennison Pink.—This will be a good companion to the foregoing; the colour is pale rosy-pink.

Plato, light violet-rose, highly fragrant; comes in fine for early spring, and one or two blooms are enough to scent a large conservatory. All the foregoing are of the Anna Boleyn race.

*Napoleon III.**—This is a rich crimson, free flowering; by judicious management may be had in bloom any day in the whole year.

Marie Paré,* pure white; first-rate.

Dianthus hybridus multiflorus, bright carmine.

Prinee Imperial, crimson and white flake.

Rosette, rosy-pink, pure and bright.

Striatiflorus, carmine and pink.

ROBERT OUBRIDGE

Chureh Road Nursery, Stoke Newington.

STORING THE ROOT CROPS OF THE KITCHEN GARDEN.

I have already stated that those who are interested in this subject, should endeavour to understand the conditions it is necessary to secure to maintain the safe keeping of roots in such a state as will render them in a condition fit for table the whole time their season of use can reasonably last. Without some knowledge of this, and at the same time a desire to see it practically carried out, no good result can attend even the best constructed storeroom. It will therefore be necessary for me to endeavour to impress upon the reader's mind some of the conditions essential to the proper keeping of these subjects.

I have previously advised that a small current of air should be kept up in the structures in which they are stored during mild open weather; this is strictly necessary to carry off the obnoxious air which is sure to generate where such subjects are placed, and more especially so when a portion of the building is surrounded with earth. But as all may not understand the necessity of having these structures below the level, I may state for their information, that unless they are so placed they are not always proof against a severe frost; and that it is desirable so to construct them, that the internal atmosphere may not be influenced by the outward elements, and that one of the chief secrets of success is to maintain as near as possible an equable temperature inside the building. As this cannot be done when the building is wholly above ground, unless in very sheltered positions, the necessity for placing it partially under ground must be apparent.

It may be well at this point to direct attention to the condition of the roots of different vegetables when they are stowed away. In the first place, then, we can all understand that when such subjects as carrots, beet-roots, and potatoes, &c., are placed in their winter quarters they are in a state of dormancy. This being the case, we ought as readily to comprehend that it is important that no unfavourable influences should in any way act upon them; or, in other words, they should be safely guarded against any excess of cold, or it may speedily cause them to be unfit for use, and in the end to prematurely decay, while, on the other hand, if they are the least excited by warmth they will commence to grow, and soon become unfit for the table. But cold is not so injurious as heat (although none of them at any time ought to get frozen), but the least excitement brought about by a warm stagnant atmosphere is injurious to a high degree, as an unnatural growth is created, which can only be supported by exhaustion of the store of nutriment laid up in the root, which if allowed to continue any time seriously deteriorates the quality of the roots when sent to table. Hence the importance of admitting a current of fresh air into the structure during favourable weather, which not only keeps it pure, but of a more uniform temperature. I cannot imagine anything more disagreeable than having to enter a dark, dirty, and confined building, in which any quantity of vegetable roots are stowed away. Yet how often is this the case in places where we might reasonably expect better management; for all these kinds of roots give off more or less a certain amount of exhalations, which if confined to a limited space with no means of escape, soon pollutes the air of the room to a degree that no human being can bear with equanimity, until some portion of it has found an exit by the door which admitted him. We may rest assured when such a state of things exists (which it too often does) such a building is the most unsuitable for the purpose.

But while advocating the free use of a current of air through all structures in which these roots are placed, at all favourable opportunities, so that there may be a frequent change of the

internal atmosphere, I must not forget to warn the reader that its direct action upon such roots as potatoes would be an injury. A light covering of brakes or coarse hay should be placed over them, as an exposure to a current of fresh air would probably in time render them green, while the exhalation given off from the tubers would find its way up through any porous light covering. In storing potatoes great care should be taken that they are perfectly dry when brought into the store, as if damp, and they are laid thickly, a sort of fermentation takes place, to the injury of the tuber. This is especially the case when potatoes are taken up in dry warm weather, as then every tuber contains more heat gathered from the soil; and if housed in anything like a damp state fresh from the soil, a degree of warmth is generated when they are laid in large heaps that would surprise an inexperienced person. This fermentation not only acts upon the quality of the tuber, but it favours decay in those that are faulty or bruised.

It is also requisite that carrots be taken up when the weather is quite dry. These may be placed on one of the shelves as shown in the sections of storerooms given at pp. 439-440. They keep best when packed away in dry sand or coarse grit of any kind.

Beet-root requires the same care, but as this is subject to mildew it is best not covered; and the roots should be occasionally turned over, and any decaying ones removed. In fact, this remark applies to all roots when in the store, and a neglect to do so often leads to a greater loss in the bulk, to say nothing of the injurious effects of rotting roots being allowed to remain to create an obnoxious atmosphere in the room.

Scorzoneria and salsify should be taken up at the same time, and receive exactly the same treatment as the beet-root.

Parsnips being more hardy suffer nothing by being left in the ground until Christmas, or a few weeks after; but they will not endure any great amount of frost when taken out of the ground. In fact, they will keep in any place where they are not exposed to frost and the direct action of the atmosphere.

Perhaps the most difficult of all the root crops to keep is the onion; these will endure both light and air to a moderate degree. They should therefore be placed upon the uppermost shelves of the room, and be frequently examined to remove decaying roots.

As a concluding paragraph, I must have just a few remarks more upon the importance of thoroughly cleansing all roots before they are brought into their winter quarters. I do not mean that they should be washed, but such crops as beet-roots, carrots, and parsnips, should be well rubbed with the hands to remove all dirt; for when any quantity of dirt is brought with them into the store, it creates a certain amount of damp, which must at all times be avoided. I will now close by saying, that all the crops above noticed (except parsnips) should be housed by the middle of this month (October), and if possible during dry weather.

J. C. CLARKE.

MY ORCHID HOUSE.—No. XIV.

THE EPIDENDRUM.

This very beautiful and somewhat extensive genus is particularly well adapted for growing in a moderately cool house, for the species and varieties comprising it are happily endowed with a constitution by no means delicate. Amongst the species at present in cultivation are plants unmatched in the orchid house, some for the richness of their fragrance, and some for the beauty of their flowers; whilst *E. vitellinum* and *E. vitellinum majus* are very valuable for blooming at a time when the principal portion of orchidaceous plants are either at rest or their season of flowering is past. A difference of opinion exists amongst cultivators respecting the temperature for growing the Epidendrum species in. Some go so far as to assert that they can be grown with little or no fire-heat, while others are equally as strong in their belief that they do best in a high temperature, such as 65° or 70° through the winter, with a proportionate amount of heat through the summer. My idea of the most suitable house for growing Epidendrums is certainly not one without fire-heat, for I am quite certain, both from observation and practical experience in its culture, that the Epidendrum cannot be grown successfully unless it has the advantages of a house kept to a moderate degree of warmth. Some people, directly they see that such and such an orchid is recommended for growing without fire-heat, run away with the idea at once that it can be grown in an ordinary greenhouse, where the fire is only started on frosty nights; but certainly it is a vain delusion, for it very often happens that after all a temperature ranging from 55° to 65° is recommended for the winter, although the plant is said to do with very little

fire-heat indeed, or perhaps none. I fancy that it is anything but doing away with the necessity of employing fire-heat in their culture, for it requires a stronger fire than inexperienced persons imagine to keep up so high a temperature as 55° to 65° through the winter. Of course, in the summer, when the sun is powerful, fire can be dispensed with, and then people jump at the conclusion that it can be dispensed with altogether. My favourite temperature for the winter is 50°, which I consider is a very suitable one, neither too hot nor too cold. If it is allowed to exceed that (unless in bright sunny weather, when the glass can go up another ten degrees without injury), it is so much fuel wasted; while, on the other hand, if it drops below that, the heat will not be sufficient to dry up the dampness which will exist at that season in the atmosphere, and keep it healthy. Unless the atmosphere of the house in which the plants are growing is sufficiently brisk and elastic (if I may use the expression) to dispel damp, and that musty coldness which characterizes all plant-houses that are kept shut up without fire, it will be a matter of the greatest difficulty to keep the plants healthy and free from "spot;" and this disease is by no means a welcome visitor anywhere, for the leaves once spotted never recover themselves, even if they remain on the plants for years afterwards. A very essential point to be observed in the culture of slow-growing orchids like the Epidendrum, is to keep the atmosphere of the house in which the plants are placed dry during the winter. Another consideration equally important is to prevent the drip from the roof falling upon them, both summer and winter; in fact, if this is not guarded against, it is impossible to keep the plants in robust health. When the plants are in full growth they enjoy a moist atmosphere, but at the same time they are best without being syringed overhead, unless once now and then upon exceptional occasions, and by no means must the plants be syringed regularly, like the dendrobies and plants of that class. It is not of much consequence, certainly, if the foliage does get splashed in the watering during the summer, although it is a bad plan; but care must be exercised to prevent it happening through the winter, particularly if the plants are subjected to a very low temperature. In fact, during the winter, which may for our purpose commence now and terminate at the beginning of March, very little water will be required. About the middle of March the plants will begin to push, and as the growth increases so must the supply of water, and when the growth for the season is finished water must be as gradually withheld. If the plants have a glut of water in the spring, before they are able to absorb it, the roots will be sure to go, and when they are gone a whole host of evils will surely follow; while, on the other hand, if the water in the autumn is too suddenly withheld, and before the young bulbs have attained their proper size and maturity, they will shrivel to a certain extent, and it is useless to expect a strong spike of finely-shaped blooms from a dried-up bulb. Whilst on the subject of watering, it may be as well to observe that the plant in question will not stand being overwatered at any time of the year with impunity.

The Epidendrum can be grown in either pots or baskets, as the cultivator's taste may dictate. In either case, rough fibry peat suits it best. If all the fine stuff is shaken out of the peat it does not get sour so soon, and the roots run better. Of course the fine portion need not be wasted, as there are many uses to which it can be applied. The base of the bulbs must be kept well above the level of the pot or basket, and the soil packed well about the roots to keep the plant firm. If pots are used, the drainage must be first-rate to ensure a free healthy action of the roots; at least two-thirds of the pot should be filled with large pieces of crocks. A good time for propagating this plant is just as the young buds begin to push. The process is effected by division. I prefer that time also for repotting. The following species are first-class: *E. aromaticum*, *atropurpureum roseum*, *bicornutum*, *macrochilum roseum*, *verrucosum*, *vitellinum*, and *vitellinum majus*.

GEORGE GORDON.

A DESPERATE KILL.—Murdoch M'Aulay was once stalking with a gentleman, whose name shall be nameless, and who wounded a royal apparently to death; it was by a broadside. M'Aulay went on to bleed the stag, and had taken him by the antler, when he struggled up, and, making a rush, pinned him against the bank of the burn, leaving him only time to secure the other antler. Thus, with his back to the bank, and holding on by main strength and with great determination, he kept the beast from goring him. In vain did M'Aulay call to the gentleman to take his knife and kill the deer. My gentleman gave him words of encouragement, but little else, and at last ventured near enough to give the stag a little prod, which made him only more savage. "I shall be killed," said M'Aulay, "if you go on this way, for I have not strength to hold on much longer. Leave the stag alone, and just put my knife on the bank close by me, with the point towards the deer." It was with difficulty the cur—for he could not have been a gentleman—was persuaded to do even this. At last he did, when the gallant fellow, watching his opportunity, dropped his right hand, seized his knife, and buried it in the stag's heart.

FLOWERS AT PARIS.

BY ALPHONSE KARR.

Louis XIV. liked flowers with a strong perfume; he wanted an orange-tree in each chamber of his palace. Madame de Sevigny speaks of a *fête* given in honour of the "Grand Roi" where there were a thousand crowns' worth of jonquils.

A smell which did not please the king, but which made its way none the less, was the smell of tobacco, which Jean Nicot, ambassador of France in Portugal in 1560, sent to the Queen Catharine de Medicis. The names "Queen's herb" and "Medicean herb," under which it was at first known, recall that origin. At first we were content to smoke it, after the example of the savages, but ended by stuffing it up our noses. Boileau speaks of "tobacco kisses" (*baisers au tabac*).

It is strange to compare the lot of two sisters of the vegetable kingdom, the tobacco and the potato, both of the same family, and of the genus *Solanum*. The one, a violent poison, has spread itself over the whole world in spite of kings and the severest ordinances. In England they confiscated snuff-boxes, and King James I. made a poem against tobacco; Urban VIII. excommunicated snuffers, and I know not what Emperor of Russia cut off their noses. But the French Government having taken it into its head, first to put a tax upon tobacco, and then to take the monopoly of it and draw from it a large revenue, the other states were mollified, became tolerant, and protected this poison.

The potato, on the contrary, one of the highest gifts of Providence, since it produces "rolls" of bread ready made, met for a long time with insurmountable obstacles to its acceptance. In vain Louis XVI. caused them to be served at his own table, and carried a bouquet of its violet flowers in public. Parmentier only succeeded in enrolling it among our ordinary aliments through two circumstances.

He sowed it and gave it away; they would not have it. He caused a field of it to be protected, and published numerous prohibitions against pulling it: that was the first step; they stole it, and began to eat it.

But the famines, partly real, partly fictitious, which desolated France a little after, necessitated a recourse to potatoes for food.

So long as the potato was suspected they called it *Parmentiere*, but when it was accepted they did as was done with Christopher Columbus's discovery which was called America, and that of Niepce which was called daguerrotype.

One word more on tobacco. So long as it was only taken as snuff it was only a half-evil, for, after all, one is not obliged to embrace; above all, if, as Boileau says, one has a weak stomach. But tobacco smoked spreads itself all around, and poisons the promenades, public places, and carriages.

Individual liberty has a limit: it is the liberty of others. Could not those who love the odour of tobacco enclose this perfume in scent bottles with emery stoppers, which it might be lawful for them to smell at without imposing it on others.

The Queen Marie Antoinette was very fond of flowers; it was to flowers that she probably owed the last agreeable sensation of her life.

Shut up in a damp and infected chamber at the Conciergerie, she had no dress but an old black gown, and stockings, which she took off to repair with her own hand, meanwhile remaining with bare feet. I do not know if I should have loved Marie Antoniette, but who can help adoring such profound wretchedness?

A brave woman, Madame Richard, the portress of the prison, found means of giving a happiness and a luxury to her whom it was not permitted to call otherwise than the Widow Capet. She brought her every day, and not without some danger, a bouquet of the flowers which she loved—pinks, tuberoses, and, above all, rocket, her favourite flower. Madame Richard was denounced, and put in prison.

We see in a letter of Marie Antoinette's, recently recovered, that one of the circumstances which offended her the most cruelly in that unhappy affair of the "Diamond Necklace" was the audacity of the Cardinal de Rohan in saying or believing that he had "offered a rose" to the Queen, and that she had accepted it. "What! a man who had supposed that he had a rendezvous from the Queen of France! from the wife of his King! that the Queen had received a rose from him! I little merited that outrage." (Letters from Marie Antoinette to the Archduchess Marie Christine).

Later, another woman, who had been upon the throne too, Josephine, in her retirement at Malmaison, sought consolation from flowers. With the help of an intelligent gardener named Dupont, she brought together all the species and varieties of roses which France, England, Belgium, and Holland possessed.

Dupont several times raised roses from seed, and augmented the catalogue of rose-trees. We owe a portion of the roses which we now possess to the Empress Josephine. It is a crown which I prefer to the crown of laurels of her husband.

I was well acquainted with a pupil of Dupont, Hardy, who, at the Luxembourg, had created a *rosarium*, celebrated throughout Europe. Hardy was my master, and it was he who received me while still a very young bachelor of roses.

I saw long afterwards his vexation, at a period when the trees and the flowers encumbered the garden, and when it became necessary to replace them by stone balustrades.

He received the order to cut down the white and rose-flowering hawthorns, the laurinum trees with their golden clusters, and the service trees with their coral fruit, all at least one hundred years old, which were planted in great numbers on the terraces.

It is another of the souvenirs of my infancy destroyed; it is another of my first steps effaced in this Paris so embellished, I am told, but where, if I were to return, I should find myself as much lost as Tom Thumb in the forest, when the birds had eaten up the crumbs of bread which he had scattered on the way—

Dans les fleurs des lilas et des ébeniers jaunes
De mes doux souvenirs cachés comme de faucons
La troupe jeune et rit.

Hardy refused to give orders for the massacre of his trees, and absented himself for some days to avoid assisting at it.

The hawthorn, that pure and sweet attire of the hedges, is a flower which again plays a part in the history of Paris.

"On the 24th of August, 1572, King Charles IX. permitted that the Huguenots who were in Paris should be slain by the Parisians, and the other towns which copied the example of Paris put to death those of that religion who were among them. That blood-letting, although apparently somewhat cruel, prevented a great flux of blood." It is thus that St.

Bartholomew is spoken of in a book printed at Paris in the year 1640, with the privilege of the king, Louis XIV., then eight years old, and already in the book of which I speak represented with a crown of laurels, because the Duc d'Enghien had taken Thionville, because the Maréchal de Gassion had taken Gravelines, which was called the triumph of the arms of the king.

In a sadly different sense, I remember that one night, on leaving the house of I do not know what Parisienne, I reconducted home a very charming woman to the door of her own house: it was the first time that I found myself alone with her. Arrived before her house, we stopped before ringing; she had commenced some remark which of course had to be finished, then I commenced another so quick. It was such a beautiful moonlight, that we set to walking backwards and forwards for a space of some twenty paces before that door, she from time to time saying to me, "Good night, I must go in," and I, "a moment longer, it is not late."

It was very late, and we both knew it—so late that at this moment the infected odours produced by certain nocturnal works began to exhale.

This was so odious that she said to me, "Come, I must go in," and I no longer made any objection.

Only I can never separate that charming woman from that horrible odour, and I cannot think of her without fancying that I smell it yet, so that a journey having caused me some time after to quit Paris for a month I have never seen it again.

While, on the other hand, there are some of my souvenirs which, when I evoke them, exhale, the one a perfume of hawthorn, another of lilac, another of violets, lily of the valley, or honeysuckle.

I had often thought of the destiny of those poor daughters of the people who pass their whole life in the centre of the town in its infected and obscure quarters, and never hear the first words of love in their ears, and in their hearts, except in staircases smelling of rotten oahages, or under carriage-ways exhaling a mixed smell of mud and adulterated wine.

Thanks to these places planted with trees, to these public gardens established in each quarter, it is no longer so.

These squares, since the name is adopted, have other advantages. The games of workmen's children will no longer have the gutter exclusively for their arena, and, what is of still more importance, the square may re-establish "the quarter," which the omnibuses and the always increasing extent of the town have suppressed.

Now, here is the importance which I attach to the quarter.

Here, in the first place, is the way in which the squares may reconstitute it. In place of going to take the air by walking to a distance from their domicile, every one will take his walk and will come to take his seat in the summer evenings in the garden of his quarter. They will make acquaintance there, and, what is more, they will know one another; they will presently know that that pretty blonde is the daughter of a clerk in the administration, that that brunette is the daughter of a shopkeeper in the neighbourhood, that her companion is a dressmaker or laundress, that that woman that comes with a child is the wife of a professor in the Lycée, &c., &c.

Knowing themselves to be known, the women would have no longer any reason to adopt, to the great ruin of their family and household, these disguises, which no longer would deceive any one but themselves. They will dress in conformity with their station, their income, and their occupations.

At the same time that a pretty girl is met with it can be known whether she is honest and laborious. Marriages will no longer be made on the hazard of a chance meeting, or after a mutual falsehood, for one of the inconveniences of large towns is, that in changing his quarter one may also change his personality.

In two hours one may get rid of a bad reputation by merely quitting his street. A lazy drunken blackguard may go into another street to establish himself anew for some time as an honest and respectable man. It is something also to think that we may now see a fine young girl look at and admire flowers, instead of stopping before the stand and the shop windows of jewellers and mercers, these true looking-glasses for larks, where they are taken almost ready roasted by the fire of envy and ambitious desires.

It is singular that Paris does not possess a suitable flower market, or one simply covered-in like the other market places. Why is there not a well-stalled market for flowers, like the vegetable market or fish market?

There is another idea which I submit to the Parisian edility; then I shall stop—

The different royal and imperial chateaux, &c., possess a large number of orange-trees growing in boxes.

A round on a square! that might appear fine when the Parisians had never seen living orange-trees; but nowadays, when, thanks to the railroads, Nice is so near them, and when they all come to it, I declare that they will return to Paris very much disgusted with such an ugly magnificence. Every year these orange-trees are brought to the Tuileries and to the Luxembourg in their green boxes (what another horrible thing to paint in green the boxes, the benches, and all the furniture of the garden, this mineral green coarsely disagreeing with the vegetable tints!), then they are carried back into the glass-houses.

What should hinder that operation to be reversed?—for example, to plant the orange trees in the open ground in each of these gardens, to make of them a little wood or shrubbery, and in the month of October to enclose and cover them with a movable glass-house, which would be removed in the month of May?

Well, then, on the day of St. Bartholomew, the report was spread that a hawthorn tree that had been supposed dead was suddenly covered with leaves and flowers.

It was a text for the preachers of the time to say very fine things, and to prove how agreeable this massacre, this hecatomb of men, had been to God.

The fact is reported by De Thou, who laughs at the preachers.

A Parisian fashion for some time has been to wear a red pink in the button-hole of the coat. At ten paces off this made us fancy that the wearer was decorated with the legion of honour; at three paces it made us see that he was an ass.

In the successive embellishments of Paris, gardens at the windows have come to be definitely prohibited. These gardens were the subject of a struggle which dated from far back between the citizens and the police. There exists on this subject decrees against these poor gardens dated from the reign of Louis XIII. Some exist even of the Roman magistrates.

Martial speaks of a garden even more than that, even of a country, of an estate which he had himself in his window—

Rus est mihi in fenestra.

In return for the abstraction of this pleasure from the Parisians, and for having enlarged the town so much that all the neighbouring country has been engulfed and suppressed, the squares were due to them, only they need not have given it an English name. It is almost the only objection which I have to make to that idea, which is excellent.

The Egyptians singularly held to the air which was breathed in towns being corrected by perfumes, and caused them to be burned on the public places; there were day perfumes and night perfumes.

Aristotle says that the agreeable odour which is exhaled in the perfumes of flowers and prairies does not contribute less to health than to pleasure.

That has been for me individually one of the causes of my removal to a distance from great towns; and I have this happiness, that many of my happy recollections are impregnated with the sweet odours of the country and gardens—so much so, that the perfume of certain flowers tells them over again to me to this day. The smell of the furze in flower on the steep coasts of Normandy, the smell of cut hay beginning to dry, the smell of the rain of the thunder-storm, have all long stories to tell me.

REPORT ON TRIAL CULTURE OF LETTUCES AT STOKE NEWINGTON, 1867.

(Concluded from page 432.)

The only classification of lettuces attempted hitherto has recognized two classes, namely—

1. CABBAGE LETTUCES.
 2. COS LETTUCES.
- Each of these may again be divided into—
- A. Green-leaved.
 - B. Red-leaved.
 - C. Brown-leaved.
 - D. Spotted.

Synopsis of Lettuces grown in this Trial.

CABBAGE LETTUCES.

Green-leaved (A).—Berlin White, Batavian White, Berlin King's Head Brunzul, Coquille, Crisp Small Early, Crisp German, Drumhead, Early White Spring, Early Simpson, Emperor's Head, Early Silesian, Large Green, Versailles, Mogul, Neapolitan, Normandy, Imperial, Royal White Summer, Small Cutting, Stonehead Frame, Pas de Calais, Perpignon, Prince's Head, Turkish Butter, Triator, Stone Tennis Ball, White Tennis Ball, Tom Thumb, Switzerland, White Stone.

Red-leaved (B).—Bigotte, Blood Red, Blood-red Dark, Large Red, Mousseronne, Spotted Red, Red-eyed.

Brown-leaved (C).—Batavian Brown, Geneva Brown, Large Brown.

Spotted-leaved (D).—Snedeshead Early, Spotted Red Cabbage, Spotted White Cabbage, Spotted Large Cabbage.

COS LETTUCES.

Green-leaved (A).—Florence Cos, Giant Green Cos, Paris Cos, Giant White, Brunoy, Ivery's Nonsuch.

Red-leaved (B).—None.

Brown-leaved (C).—Brown Bath, Monstrous Brown Cos, Magdalen, Red Cos.

Spotted-leaved (D).—Spotted Cos, Improved Spotted Cos.

* * * The colour of the seeds affords no grounds for useful classification.

A Selection of the best Varieties,

Arranged in the order in which they became fit for use in this trial, the seed being sown on the 15th of April.

Cabbage Lettuces.—Early White Spring,* June 20; White Tennis Ball, June 20; Crisp Small Early, June 24; Stone Tennis,* June 25; Berlin White, June 27; Neapolitan,* June 27; Stonehead Frame,* June 27; Drumhead, July 1; Crisp German,* July 1.

Cos Lettuces.—Florence,* Paris,* Bath.

Varieties especially adapted for hot climates and dry soils.—Batavian Brown Cabbage,* Blood Red Cabbage,* Coquille,* Large Red Cabbage, Spotted Large Cabbage, Improved Spotted Cos, Red Cos.*

Varieties lasting longest after attaining perfection.—Berlin White,* Batavian Brown,* Brunzul,* Crisp German,* Drumhead,* Early White Spring,* Large Red Cabbage, Neapolitan,* Normandy, Royal White Summer,* Spotted Red Cabbage, Stonehead Frame,* Spotted White Cabbage, Florence Cos,* Red Cos.

NOTES ON SUCCESSIONAL SUPPLIES.

Some twenty or more of the varieties sent here by Messrs Barr and Sugden were set aside for trial in the open ground during winter, and were long since sown. It is not likely, however, that a trial of winter lettuces on our cold damp soil can be of any value, and therefore we shall, in all probability, refrain from reporting on the behaviour of those now on the trial piece. During the winter of 1865-66 we had fine breadths of the Hardy Hammersmith and Brown Dutch, but in the winter of 1866-67 even these hardy kinds were entirely destroyed. A dry sandy soil is best adapted for lettuces in open quarters to stand the winter, and shelter is of much less importance than dryness of the soil. But to keep up the supply of lettuces during winter and spring, frame-culture must be resorted to, and a considerable amount of skill and care must be exercised.

Lettuces for Winter and Spring.—There is a certain degree of risk attending the cultivation of lettuces in winter, no matter what is the nature of the soil or climate, or the varieties of lettuces employed; but the following routine will be found successful, as a rule, if followed with judgment and caution.

About the 20th to the 30th of August, the exact date to be determined by considerations of climate, soil, &c., sow two or three sorts of cabbage lettuce, such as *White Silesian, Tennis Ball,** and *Hammersmith.** As soon as large enough to handle, plant out the forwardest of the Silesian at nine inches apart each way, the others at six inches, but leaving in the bed all the smaller ones. Next prepare a sheltered border of light soil, raised above the level in a sheltered spot; fit it with frames and lights, and take the next forwardest plants, lifting them out carefully, and plant in the frames. The lights are not to be put on until frost or snow compel, and the winter treatment is to be such as to keep the plants as hardy as possible. There will still be some left in the seed-bed; thin them to about six inches apart, and leave them to

finish their growth where they are. By this method of procedure nice lettuces may be cut during the whole of December, January, February, and March.

Lettuces for April and May.—Some time between the 15th and 30th of October sow on raised beds in frames, put at a sharp angle, such sorts as *Wheeler's Tom Thumb Cabbage,* Early White Spring,* and *Stonehead Frame.* Also *Brown Bath Cos,** and *London Market Cos.* Keep the lights on till the seeds have started, and then give as much air as possible, taking off the lights on sunny mild days, and guarding chiefly against severe frost and damp. Should the plants get long-legged, or if they begin to damp off, sprinkle dry peat-dust, or dry silver sand (or both), amongst them. Keep thinning as fast as they crowd each other, never allowing their leaves to overlap. The thinnings may be planted out in other frames, if such conveniences are available, and from the time the plants have four or five leaves they will be fit for use for dressed salads, though of course too small to place on the table as lettuces. Begin to plant out from these frames in February, and continue planting throughout March, but leave a fair sprinkling of plants in the frames, if possible, to heart thro. Thus will be obtained capital supplies during March, April, May, and June, but the glut will come in during April and May.

Supposing some of these should fail, or the crop be insufficient, then sow in February and March a few pans of *Berlin White Cabbage, Early White Spring Cabbage,** and *Paris Cos.** Place the pans in a gentle heat; be very careful as to the amount of water given after the plants have got beyond the seed-leaf, or they will damp off. Keep them warm, and close to the glass. Prick out into pans or boxes as soon as they stand an inch high, or earlier than that if possible. Keep them growing freely, but do not push them so fast as that they will get drawn or sickly. Towards the middle of April give them more and more air, so as to be quite hardened for planting out, and thereafter during mild moist weather transfer them to rich sunny borders, and they will furnish fine lettuces from the middle of May till the end of June.

Lettuces for Summer use.—Sow in the open ground, from the 15th of March to the end of April, choosing a light friable soil for the purpose, such sorts as *Drumhead Cabbage, Tom Thumb,* Normandy Cabbage,* and *Florence Cos.** Plant out as soon as large enough to handle, on rich firm soil, selecting if possible for the later kinds, such as *Florence Cos,* a shady place, to prolong the season of supply. Any other of the many good varieties reported on may be treated in the same manner. There are two important points to be attended to, namely, to plant them out as early as possible, for if they stand too long in the seed-bed they will "bolt" as soon as the sun shines powerfully upon them. Another point is to give them room enough; the large-growing sorts, such as *Florence* or *Bath Cos,* will require to be eighteen inches apart, and the smaller kinds nine inches apart. They may be planted thicker, with a view to draw them before they have hearted, for lettuces are very well adapted for salads as soon as they have formed a little tuft of light green leaves three inches long.

Lettuces for Autumn.—Sow in the open ground where they are to remain, from the 15th of May to the 30th of July, such sorts as *Drumhead Cabbage,* Berlin White Cabbage, Florence Cos,* White Cos,* and *Brown Bath Cos.** Thin out and plant in odd places, but leave all the most thrifty plants to stand where sown. In damp cool seasons those planted out will make fine hearts, but if the autumn is dry and hot they will not be worth much. But those left to heart where sown will be first-rate, no matter what sort of weather they have, and some will be good for use even as late as Christmas.

To catch the market when Cos lettuces meet with a ready sale at good prices, sow in January the best Cos kinds, *Gray Paris* being perhaps the best, as it is the earliest to heart, and of first-rate quality. Put the boxes in a warm place to start the seed. Plant them out in beds, in pits, or frames, close to the glass, where they will have the benefit of the full sunshine. Thin them out in March and plant, but leave the beds well covered with plants to heart there; thus will be obtained very early supplies of spring-sown Cos lettuces with little expense or trouble. The nice point in the management is to secure quick growth without drawing them into a spindly character, in which case they never heart well.

In the foregoing particulars, wherever an asterisk occurs it is intended to mark the variety as one of the best of the series in which the name occurs. Endive-leaved and oak-leaved lettuces are not classed in this report, for they do not appear to be worth a place anywhere except in the *hortus curiosus,* or garden of curiosities, and there no doubt they would be valuable. S. H.

MR. H. CANNELL'S FUCHSIA NURSERY, WOOLWICH.

If we were to write a history of the origin, and to recite the progressive steps by which some of the founders of our most celebrated nurseries have ascended the ladder of fame, we fear that many of their present owners, in lineal descent, would become abashed at the recital of the difficulties which they had to contend with in their endeavours to develop their present resources. Perseverance and constant energy combined surmount many obstacles; therefore, however insignificant may appear the earlier stages of a work, yet if those qualities are inherited by the individual who has the conducting of it, we may have confidence as to the accomplishment of something more than ordinary results. We believe all this is inherent in Mr. H. Cannell, and we should surely have proof enough if it were only in connexion with the recent introduction to public notice by him of the benefits that accrue from adopting the extension system in the culture of the vine.

We did not anticipate, in our visit to the nursery, to find that it occupied a large area, abounding in all that is choice belonging to horticulture and floriculture. On that score the visitor will be disappointed, for at present the limits of this nursery are circumscribed within a very narrow compass. Though true to his motto, in respect to his advocacy of the culture of the vine, so is Mr. Cannell seeking to extend the sphere of his labours. Already he has obtained a plot of ground that covers a portion of the embankment in a line with the Woolwich Dockyard Railway Station, so that passengers by the North-Kent Line, at that spot, are afforded a beautiful floral treat, as the whole of the ground is covered with flower beds, forming at once a complete flower-garden, abounding, during the bedding season, with some of the rarest gems of floriculture. As one of his chief objects is here to test the qualities of the different kinds of plants that are supposed to be adapted for bedding, or rather for improving the effect of the flower garden, the beds for the most part were planted with the various dwarf tropeolums and verbenas, descriptions of which are to be found in his catalogue. Of the latter, we would say it is something more than a list; in fact, it is a treatise in brief on the growth of many interesting florists' flowers. For the cultivation of the fuchsia, there can be no safer guide, for

I know somewhat about his achievement in that respect, having at one period been a rival competitor with him at our leading metropolitan exhibitions.

Of his nursery stock there is nothing remarkable for size, as his present space will not admit of it; but it embraces every variety of both new and old fuchsias that are really worth growing. Verbenas, petunias, both double and single, mimuluses, heliotropes, lobelias, antirrhinums, and every thing else that is worthy of being cultivated among florists' flowers, may be found here in plenty. As he purchases the stock of many new and valuable flowering plants, of course through him they are issued to the public for the first time. He also obtains every novelty of note as soon as it is to be had in the market, from which large quantities of the said varieties are afterwards propagated for sale. But one very novel but useful feature in his dealings, is the sale of small seedlings of the various kinds of popular greenhouse florists' flowers that are generally treated as annuals, such as cinerarias, calceolarias, primulas, &c. This is a great boon to many who are disappointed in the rearing of their seedlings, or otherwise do not trouble themselves to sow the seeds. The same, in large numbers, can be forwarded through the post. In closing these few hasty notes, we have only to say, that should Mr. Cannell continue to be favoured with his health, we believe, under such circumstances as now influence its direction, that this nursery will attain a place in the foremost ranks. JOHN F. McELROY,

ROSES AND ROSES.—No. IX.

ROSES ON THEIR OWN ROOTS FROM AUTUMN CUTTINGS.

It is not generally known that the hardier kinds of roses may be raised in any quantity from cuttings taken now, and planted in the open ground or in frames. This mode of propagating is described at length in the "Rose Book;" but, as all our readers do not possess that, a few simple directions may be appropriate here, as this is the season for the operation. This mode of propagating has been pursued here during several years past, as a regular item in the autumn work, and several attempts have been made to collect from our own practice a few statistics which might prove useful to others. But the statistical part has been neglected, solely through want of time to reduce to form the particulars furnished me by the garden book. On several occasions the cuttings have been carefully labelled, and a fixed number—as, for example, say a hundred—of each variety have been inserted, and in the following summer a record has been taken of the number of plants resulting from the hundred cuttings in each case. These records are somewhere; but it is quite possible they may never be found. But it matters little, after all; for the varieties of roses in favour change so regularly and frequently, that by the time we have discovered that a particular sort is very shy of rooting from autumn cuttings, that particular variety will perhaps be superseded; and so, after all, the *general case* is that which really interests us. It is to the general case, then, that I shall now address myself.

To strike roses from autumn cuttings, one of the first essentials is that the cuttings should have plenty of green leaves on them. The next essential is that the shoots selected should be growths of the same year, quite hard and stout, and pretty well ripened. Old wood is no use, and quite green, sappy, soft wood is no use. To have ripe shoots that have done growing, and on which the leaves remain quite green, we must go about the business in the month of October; and this very day, the 19th of October, is the best date possible for nearly every district in Great Britain. Down south and far west they may go on taking cuttings till Christmas, perhaps; but even there it is not advisable to postpone the job, because spring will come, and start the sap into motion before the cuttings have had time to form a callus, which usually is all they do during winter. It is with the first movement of the sap in spring, when the leaves begin to push, that roots are formed; and hence it is desirable to allow the cuttings to remain a whole year in the spot where they are in the first instance planted.

Let us consider the simplest mode of all. Dig over a piece of ground favourably situated for the purpose—that is to say, that is not quite a marsh all winter, and that has a little shelter of some sort. When the ground is moderately dry, and may be trodden down without making a paste of it, put in the cuttings, and tread between them to make them quite firm, and then leave them for the winter. It may happen that the ground is too wet now for the business, and you may fear that the season will be lost, seeing that the 19th of October is pronounced the best date for the work. Now, there is no excuse for losing the season at all; for the cuttings may be taken, say, to-day, and be stuck into the ground or into a heap or bed of cocoa-nut fibre, and left there for a month or more, and may then be planted where they are to remain. The object of cutting them at once is to give them a chance of forming a callus while they still have green leaves upon them, which they are less likely to do when the leaves have fallen. I think I once proposed the 15th of October for taking the cuttings; the fact is, a few days either way is of little consequence; but if the cuttings are not made before October is out, you must not expect any of them to produce roots. It

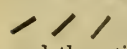
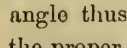
has been our custom to put in a few thousand cuttings every year, and, as remarked above, they have been carefully tallied, in order that we might have exact particulars of the percentages of successes and failures with the several varieties. But the records have never been overhauled, and I can only speak generally, and say that, if properly done, and if robust-habited kinds are cut from, open ground plantations will yield about 30 per cent. of all the cuttings inserted in the shape of fine thrifty plants. Some kinds, such as *Madame Vidot*, will perhaps never make a single plant, even out of thousands of cuttings; other kinds, such as Jules Margottin and General Jacqueminot will give 90 per cent. The records that we have somewhere of experiments with some two hundred varieties, would be valuable to tell us how some favourite sorts behave, but it is quite possible we shall never find them.* Dr. Denny, and our frequent and much-valued contributor, W. D. Prior, Esq., have seen our plantations, and I think they will agree that when I sum up the total result at 30 per cent., I am fairly under the mark, and might have ventured so far as to fix the ratio at 50 per cent. But one in three is worth having, seeing that they may be planted four inches asunder in the rows, and the rows six inches apart, at which rate a rod of ground will hold 1633 of them.

To make the cuttings properly is half the battle. Look amongst your roses now, and you will observe, if they are at all like mine, two sorts of wood. One sort consists of long fat rods like willow wands. If they are soft and pithy, they won't do. Another sort consists of rather wiry shoots of moderate length; these are hard, not so green as the fat rods, and are woody, not pithy when cut through. It is from these the cuttings should be taken. Now observe, little bits such as would do in a gentle heat in summer are of no use at all for this work; they will simply die. Take a medium-sized firm shoot and cut it into lengths of six to nine inches; it matters not at all about cutting to a joint; the prevailing theory about cutting to a joint causes a great waste of wood in making cuttings. Do not remove any more leaves than will suffice to leave two clear joints to thrust into the soil; let all the other leaves remain, and the longer they remain the better. Whether the bed is or is not ready to receive them is of no consequence at all; the grand thing is to make the cuttings and properly prepare them at once, and stick them in a bed of cocoa-nut fibre in the open air, and there let them remain until they can be planted properly, which should be done some time in November.

So far in respect of the simplest method of procedure. Let us say that by this system we get 30 per cent., taking the sorts commonly in cultivation, and with none of that judicious selecting of varieties which might be practised had we but the statistics, so carefully made and so unfortunately lost, to guide us at this juncture. Alack! alas! &c., &c., &c., &c. Now for a safer way, and one that will pay for extra trouble, and that is to do the work in frames; and the way to go about it is as follows: Select a dry well-drained border, and if you have not such a border, make one. It must be, to use a country wife's expression, "as dry as a bone," and the way to make it so is to form a bottom of rubble, and on that to put eighteen inches depth or so of good sandy loam—if half sharp grit and half friable loam, perhaps better than anything else. Now let us consider why we use frames. The employment of glass preserves the leaves for a great length of time, consequently the callus is more quickly formed, and in spring growth begins early and roots are produced long ere those in the open quarters have made the slightest move. Therefore, every way the use of frames is desirable, and the result will be 60 per cent. if the varieties are taken indiscriminately from a good collection, and the management is good. As to the preparation of the cuttings too, there is an advantage in the employment of glass, that a rod capable of furnishing two cuttings for the open ground will furnish three for a frame, for they may be shorter; in fact, good cuttings containing two or three joints are quite long enough. The way to go about the business is to make the cuttings instanter, and if the bed is not ready, to put them in a bed or box in sand or cocoa-nut fibre *under glass*, where there is no artificial heat, until they can be put in the bed prepared for them. Supposing the bed and the frames to be ready, plant the cuttings as close together as possible, even if their leaves intermix considerably, and put the lights on and keep them on, giving no water at all. The lights will keep them green for six or eight weeks after the roses in the open ground have become leafless, and there will still be time for them to shake off their leaves and go to rest, preparatory to a good start in spring.

Now, I haven't done with this subject; there is a way yet to make sure of ninety per cent., and this with scarcely any

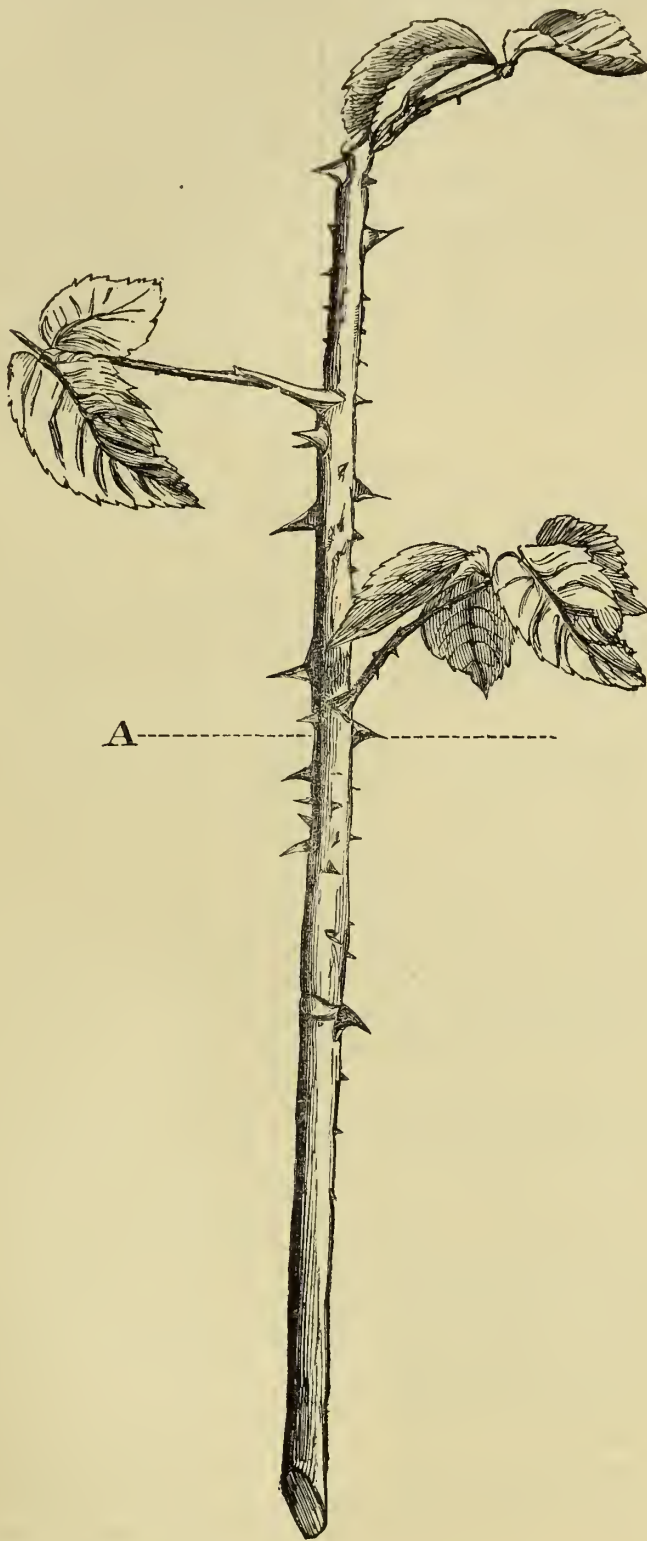
* If this should meet the eye of Abel Hoyle, who had the management of the rose cuttings two years in succession, he may be able to throw some light on the subject.

regard to the peculiarities of varieties. Make your cuttings at once; short wiry wood of this season is the best, fat pithy shoots won't do. Tie them in bundles of about half a dozen each, and heel them into boxes filled with cocoa-nut fibre, or failing that pure sand. Stick in the bunches aslant and press them firm, and then tilt the boxes so that the cuttings will be nearly horizontal. I wonder if I am understood? A cutting placed upright does not form a callus so soon as one placed horizontally; the law of the movement of the sap explains all this; but the fact must suffice for the present, as we are dealing with practical matters only. Now you can put them into a nearly horizontal position by sticking them in this way ; and pressing them as firm as possible, and then tilting up the boxes so as to bring them to a lower angle thus: . A cool light greenhouse is the proper place for them, and soon after the turn of the year, when their points begin to show a fresh green colour, indicative of growth, the boxes should be carefully tilted in an opposite direction, so as to bring them nearly upright. You will learn by practising this process how much position in reference to the centre of the earth, or in other words, how much the action of the law of gravitation has to do with the life of plants. When puthorizontal, growth of leaves is checked, and the formation of a callus promoted. When changed from this attitude to the perpendicular, the growth of leaves and roots is promoted: this is a bit of horticultural conjuring, as simple as all other conjuring, but it is not for every fool to understand it. And talking of fools fills me with a strong desire to extinguish for ever that race of would-be practicals who, because they cannot strike a dozen roses from autumn cuttings, have the impudence to pronounce the feat impossible. I thank God I have no power to annihilate anybody, else I am sure my temper would compel me to obliterate a gang of grumbling idiots who have tried my plans and failed. How coolly some of these have civilly told me that roses on their own roots are impossible! and with what wonderful stoical indifference and Brummellian politeness have I allowed them to have their say, even in my drawing-room, which is within two hundred yards of the spot where for ten years past we have raised thousands of roses on their own roots by the plan first described here, and have exchanged them with the trade for other things required for our own experiments! A great swell once got into our fruit garden, where this business is conducted, and offered me thirty pounds for five hundred of them, but I told him I would give him one as a sample, and as for the rest it was quite a mystery what

could supply roses of the same pattern cheaper than I could, for they do not pay at the rate of thirty to sixty pounds an acre for land, as I do. But I don't mind adding, for the encouragement of rosarians everywhere, that, at the enormous price of land in this rural suburb, I could make a good income by growing roses from autumn cuttings; let every reader interested in the matter deduce conclusions for himself therefrom.

The own-root system has been strangely damaged by the utterances of fools. Generally speaking, fools have small influence, as a man who has lost his gravity has but little weight in society. But some very respectable people have played the fool in this matter. They have made use of soft pithy rank wood, or of miserable mites of good ripe wood, and have planted these late, when the leaves were falling, and have taken care to plant them loosely in wet soil, and have lost all, and then raised a hue and cry about the absurdity, &c., &c.

Bah! yah! It was absurd for Columbus to sail westward; it was impossible (see Lardner somewhere) for a steamship to go to America, for the weight of fuel necessary would be more than a ship could carry,—and the impossibility of own-root roses belongs to the same category of fooleries. Let those who are too stupid to strike a rose on its own roots hold their tongues; all they say about the impossibility is simply a publication of an addition to the pedigree of asses. This remark does not of course apply to our friends who make no pretensions to skill in horticulture. Many people know, or believe, they cannot succeed in propagating, and they never try. I confess I cannot drive a nail straight, so I take care not to boast of my skill in carpentry. If I professed to be an amateur carpenter, and failed to drive a nail straight, I should deserve to be called an ass; and it is for the pretenders, the people who talk much and do little, that I wind up this seasonable paper, with the advice, that henceforth the less they say about roses on their own roots, the less is their risk of betraying themselves as proper candidates for the cap and bells. This was written for the especial service of O P Q, who wishes to be referred to as seldom as possible. He is getting on, and we shall see by and bye—if the Crystal Palace does not shut up, as it ought to, for the rose shows there have become mockeries and shams—that O P Q can do something in the way of growing and showing; and I should not wonder but some time in 1868, if we are both spared, he will present me with a well-bound copy of the 25th edition of the "Encyclopædia Britannica," in acknowledgment of the service rendered him in these papers. I wish he would, but I never put my trust in princes. S. H.



ROSE CUTTING PREPARED FOR PLANTING.
(To be planted as deep as the line A.)

would become of them; I should never sell them, and yet they would disappear without being destroyed. Messrs. Paul and Son, of Cheshunt, or Messrs. Lane and Son, of Berkhamstead,

WHAT is the difference between a honeycomb and a honeymoon?—A honeycomb consists of a number of small "cells," and a honeymoon [often consists of one great "sell."

Calendar.

WORK FOR WEEK COMMENCING OCTOBER 19.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—There is nothing to be done now but to keep the ground clean by the use of the hoe in dry weather, and to lay down broccolis as directed last week. Plant cabbage, collards, endive, potato onions, cauliflowers, under hand-glasses, Hammersmith and other hardy lettuces. Vacant plots to be trenched two spades deep, and laid up in rough ridges for the winter. Move all refuse to the rot-heap, to prevent litter and waste; whatever will rot into mould is of value as manure.

ASPARAGUS BEDS must now be dressed for the winter. Cut off all the tops, carefully weed the beds, slightly break the surface with a hoe, taking care not to injure the roots, and cover the bed with four inches depth of rotten dung. Do not disturb the alleys.

BROCCOLI.—Those heading now must be protected in case of frost. A very simple way of accomplishing this is to snap the midribs of a few of the outer leaves, so that they will fall over and cover the head without being quite separated. Plants that will have to stand the winter must be treated according to the climate of the district. In the southern and western counties broccolis stand ordinary winters without harm, but in many places they are so frequently killed that some assistance must be rendered them. A very simple and effectual method is to heel them over with their heads to the north: this checks growth, and enables them to resist severe frosts. But if the plants are forward and strong, it is advisable to lift them and replant them, and lay them in trenches with their heads to the north, and with earth covering their stems as high as the leaves. They help each other much when planted close, and that is why a few weeks back we advised planting them a foot to fifteen inches apart.

CABBAGE may be planted in vacant beds during fine weather. As for the sorts, it must depend on what the seed-beds offer. If plants have to be purchased, secure if possible plenty of *Rosette Colewort*, *Enfield Market*, and *Dwarf Early York*.

ENDIVE.—Plant the last lot on a warm dry border. Blanched endive will be in demand now that most other saladings are scarce, and a few plants should be covered every eight or ten days to keep up the supply.

SEAKALE for forcing may be taken up now and laid in under cover, but in a cool exposed place. This will give it a cheek, and cause the crowns to ripen preparatory to forcing.

BEEF must be taken up and stored.

CARROTS must be taken up and stored.

ARTICHOKES must be cleared of flower-stalks, and have a little protection at the roots; the amount of protection to be increased as the winter advances.

SCORZONERA AND SALSIFY.—Take up and store.

PARSNIPS.—Take up and store if the ground is wanted; if not, let them remain, and dig them out as required. They are much more buttery and sweet when cooked if but recently taken out of the ground.

Flower Garden.

AMERICAN PLANTS may be moved now better than at any other period of the year. *Rhododendrons*, *Kalmias*, and hardy *Azaleas* are in splendid condition at the nurseries this season, full of flower-buds and strong wood of the year, so that *malgré* accident of weather there will be a grand bloom next spring. Whoever plants these must be sure in the first instance that the soil is suitable. Many of the natural loams about London suit them admirably, and, on the other hand, there are many otherwise good loams in which they will not grow at all. It is only to be determined by experience on the spot, and where there is any doubt, the only safe course is to cart in peat from the nearest source of supply in the district. We use a mixture of yellow loam and peat from Wanstead, equal parts, and prefer it to all other soils for fine-rooted plants. *Pontic Rhododendrons* and their varieties are the least particular about soil of any of the race. Some of the best hybrids will grow in any leafy mixture with plenty of sand. Mr. Standish has one—and a beauty it is—named *The Gem*, which grows best in pure sand. Clay or chalk will never do for any of the race, but loamy turf and leaf-mould are of great service either to increase the bulk of peat where it is an expensive article, or to take its place entirely where it is difficult to obtain it. In any case American plants must have a soil in which their fine hair-like roots can run, and quite free from salts of lime, which poison them; good fibry peat is the only material in which any great variety can be grown, and that is abundant in almost every part of the country. As they never root deep, an excavation of two feet is plenty in the making of a bed.

CHRYSANTHEMUMS are opening well and early this season. All delicate flowers should be bloomed under some sort of cover, to protect them from heavy rains. While the various varieties are in bloom, make up the list of what you intend to grow next season; and for specimen culture begin to insert cuttings at once.

DECIDUOUS TREES may be planted now *ad lib.* No occasion to wait for the falling of the leaf; never mind if they are as green as in July; take them up, and dispose of them as required; the shift will do them more good than harm. Fruit trees, roses, forest trees, ornamental shrubs, and all such things may be ordered in from the nurseries, and planted at once; and from this date every day gained is a real gain for the future well-doing of the trees, which will begin to make roots directly, for the ground is *now warm*, but from this time will get cooler every day, and the longer planting is delayed the longer will the trees require to make more new roots, on which their vigour next season will depend. Never plant while the ground is in a sodden state; if it does not crumble freely, wait a bit; meanwhile lay the trees in by the heels, to prevent injury to their roots by sunshine and drying winds.

HARDY HERBACEOUS PLANTS.—This is the best time in the whole year to form and plant collections, and this is a fortunate circumstance, because in arranging them for effect various hardy bulbs may be planted at the same time. Such things as primulas, polyanthuses, daisies, &c., &c., may be parted and planted, and will be sure to make new roots immediately if the earth is pressed firmly to them.

RANUNCULUSES AND ANEMONES.—It is full time to prepare for planting these showy subjects. Autumn planting is certainly to be preferred except in special cases, such as a wet soil, a very bad climate, or a compulsory prostration through stress of weather, or some other circumstance. These bulbs require a well-drained, rich, mellow loam. It is a matter of fancy and convenience how and where the bed should be placed, except that an open sunny spot is imperatively necessary. When grown in collections, they are

planted in four-feet beds in rows five inches apart, and the tubers five inches apart. Some growers allow six to eight inches every way, in order to secure finer flowers. When effect is thought more of than exhibition qualities they may be four inches apart every way, and will do well. In preparing the bed, let it consist of two feet depth of mellow turfy loam, with a sixth of its bulk of quite rotten cow-dung added. Prepare the bed a few weeks before the time for planting, if possible, and in any case let it rest a few days to settle. The best way to plant is in drills. Some growers simply lay the tubers on the bed claws downward in lines, and then cover them with two inches depth of sand; others dibble them in as beans are sown by farmers. It matters not which way the planting is accomplished, so that the tubers are not more than two inches deep, and are arranged regularly. As to sorting them in colours, that is a matter for the cultivator alone to consider, but it may as well be remarked here that if planted without any consideration as to colours, the effect when they are in flower is likely to be as good as if the most elaborate pains had been taken. The ordinary bulb lists contain the names of the showy kinds, which are most useful in gardens, but persons forming collections would do well to consult the lists published by Mr. Carey Tyso, of Wallingford, Berks.

MYRTLES require protecting in almost all parts of Britain, though in the southern counties we find them hardy on south walls. There is no plan so good as to mat them, but a few branches of spruce or any other dense evergreen thrust in the ground in front of them will screen them very effectually from severe frosts. There will probably be no need for any protecting till after Christmas, but there will be no harm in thinking of the matter now that frosts are to be expected. Myrtles in pots can be kept anywhere out of the reach of frost; even a dark shed suffices, and for the window there is scarcely any plant more welcome.

Roses of all kinds may now be planted—provided, of course, they have already been growing out of doors. People who obtain recently-made roses on Manetti stocks full of luxuriant growth, through quick cultivation under glass, must not plant them out, for the first frost will kill many, perhaps all. Brier and bush roses from open plantations may, however, be lifted without any risk; the leaves will flag, of course, but that is no matter; they have done their work for the season. The work now to be done in the rose garden consists in pruning, renewing stakes, cutting out suckers, heading back rods that have been budded, and in deep digging and liberally manuring plots intended to be planted this season.

HARDY HERBACEOUS BEDDING AND BORDER FLOWERS.—Now that the beds are being cleared of their summer occupants, we may again say something of hardy flowers. To grow herbaceous plants in a satisfactory manner, a good deep sandy loam and an open sunny position are the first requisites. To be sure, many beautiful subjects will grow in the worst of soils and the worst of situations; as, for example, *Solomon's Seal*, one of the most elegant plants in English gardens, will thrive in the deepest shade and the most trashy soil. So of many other things. Nevertheless, for anything like a collection, the beds and borders require to be exposed to all the winds of heaven; they should not be overshadowed by trees; they should be well drained, yet naturally retaining a certain degree of moisture all the summer, and in the first preparation a liberal dressing of manure should be deeply dug in, and the soil left quite rough until the time of planting. The month of October is the best in the whole year to prepare the beds and borders, because bedding plants can then be taken up, and, if desirable (and it is *very* desirable), a variety of early-flowering bulbs may be planted with the herbaceous plants; and November is the best time to plant both classes of subjects. Just in time, therefore, for everything needful. If the work cannot be done now, the preparation of the ground may be attended to any time during winter, and the planting may be performed in February; but we say emphatically, now is the time to prepare for a display which shall begin with the dawn of spring, and change continuously all the summer long, and even show some gaiety in the gloomy months of late autumn and winter. There are two points of the utmost importance—first, as to the disposition of the ground; and, second, as to the order of the planting. The elaborate parterre is not adapted for such mixtures as we contemplate in our herbaceous garden, though many of our hardy herbaceous plants are invaluable in the parterre—as, for example, *Delphinium formosum*, *Alyssum saxatile*, *Aubrietia purpurea*, *Iberis saxatilis*, *Arabis albidia*, *Tritoma glaucescens*, and others, which may be used as true bedding plants with the most splendid effect. But the majority of garden lovers enjoy these things best when mixed without plan, when thrown together as Nature plants her wild flowers in the hedgerows, and with a background of shrubs to give relief to their colours, and with clumps of trees to separate the different borders and clumps from each other. By this method, there is always something to charm the eye, and every separate spike or umbel is seen to the best advantage. Long experience in the midst of every kind of floral display has made us rather indifferent to gorgeous effects of the true bedding school. They are too much like fireworks, and it would be better, perhaps, if they were as evanescent, for it is very wearisome to see for months together the same great patches and belts and mixtures of dazzling colours, composed of a few varieties of plants that have really no grace or interest at all to recommend them. For a good collection, then, I should prefer an irregular garden, with patches of green turf, clumps of trees and shrubs, broad and narrow borders, isolated patches, a few mounds rising to belts of shrubs, so as not to look like mere heaps of dirt, and one or two large beds, on which to make a special display of plants notable for beauty, yet so different to things commonly used for display as to be at once novel, peculiar, and interesting. As to the arrangement of the plants, that, like the disposition of the ground, must be matter of taste. There is, in fact, only one serious remark to be made upon this subject, and it is this, that at the time of planting the planter must know what height the several subjects will grow to, or some little things will be lost, and some large things will be made obtrusive and inelegant. When *Tritoma uvaria* is seen at some distance, and its fiery flowers glowing like a burning torch ("torch-lily" is a good name for it) against a background of shrubs, its appearance is stately and magnificent; but when leaning forward in the front of a narrow border, it is far less beautiful, and gives one an uncomfortable idea of the danger of being burnt in passing it. Not much can be done to contrast colours in these collections, because plants in the same row, of different colours, will for the most part bloom at different seasons. However, as a large proportion of these plants bloom in June and July, it is well to arrange them so that they contribute to each other's beauty. The scarlet *lychnis* show well beside a clump of *Lysimachia thyrsiflora*; blue and white *anemones* help each other; the gorgeous *prunias* show to great advantage in clumps unmix'd with other flowers, or in the fronts of borders which have backgrounds of shrubs or ivy. To regulate all these matters is impossible, and, fortunately, not desirable, as it is the employment of the mind in inventing and arranging that ladies and gentlemen desire, quite as much as the gratification of the eye by various displays of

colour. Next to the foregoing considerations, the most important is the protection of the plants from vermin. This subject may appear to belong to the after details of individual cultivation, but in reality it must be thought of *now*, and for this reason, that herbaceous plants may be planted in positions where it is impossible to protect them from the ravages of vermin, and in such a case the labour and money are lost, and a most interesting subject is brought into discredit. We will cite an example. An amateur holding a pretty garden, which was divided from another by an old privet hedge, determined to plant a collection of the best herbaceous subjects. He knew the hedge was inhabited by thousands of snails, and he thought that by vigilance he would gain the mastery over them, and save his plants. So perhaps he might have done, if the hedge had been all that he had to deal with. He forgot that the next garden received but little attention, was almost run wild, and was in fact a great nursery for snails, slugs, earwigs, woodlice, and every other plague that brings death to choice plants. He planted his collection on a border, to which the dividing hedge served as a background; the vermin found out his treasures, they poured in, and devoured nearly one-half of the collection, which comprised several hundred choice species and varieties. Such things as *Fraxinella*, *Saponaria*, *Delphinium*, *Antirrhinum*, *Lycnis*, *Pentstemon*, and *Phlox* are devoured at once and lost for the season, and when those are gone less palatable things suffer. In such a spot, however, many charming things can be grown. Snails and woodlice care very little about priuresses, so that a collection of the choicest double kinds may be planted in the midst of hungry vermin. Lily of the Valley, Solomon's Seal, *Anemone Japonica*, *Callirhoe digitata*, *Ranunculuses* of many kinds, and a hundred other good things, will not be harmed by snails, and are therefore useful in gardens unhappily circumstanced in respect of vermin. An open sunny spot, removed from the shade of trees, and exposed to all the winds of heaven, is that which will best suit the majority of the plants, and in such a spot there will be less vermin of all kinds than near walls, fences, rockeries, rooteries, and other such harbours for marauders. There are many hardy subjects adapted for bold clumps, and, if well managed, produce a splendid effect. A dry, sandy, sunny bank covered with clumps of *Sempervivum*, *Sedum*, and *Antirrhinum* would make a beautiful change as an interruption to the formality of beds and borders. But in planting a long border for effect, a systematic plan should be followed. Let us first determine how many and what kinds to have of showy *Phloxes*, *Delphiniums*, *Paonies*, *Pentstemons*, *Lilies*, *Tritomas*, and other plants that are distinct and striking, and mark off places on the border in order to repeat them all through. For example, if we have a border a hundred feet long, we may plant ten clumps of white *Lilies* at ten feet apart; midway between them, ten clumps of *Phloxes* ten feet apart—these to be nearly the same height, and selected for colour rather than form; midway between these, clumps of *Delphiniums* and *Aconites* of tall growth; and so on, filling in with all sorts of odd things of the same, or nearly the same, height. So in a line in advance of those, we may have ten clumps of herbaceous *Paonies* at ten feet apart; midway between them, ten clumps of *Dielytras*; and so on again, filling with odd things, of which one or two specimens are sufficient. These repetitions will have a fine effect in the season of flowering of each kind, and hard formality would be prevented by the admixture of all sorts of things with them; patches of scarlet *Lycnis*, dark red *Fraxinella*, yellow *Enotheras*, and so on. After one special display has waned another will follow, and the changes of the border will charm the possessor a thousand times more than the most elaborate bedding display, at only a thousandth part of the cost for a similar extent of ground. We might, indeed, match a line of *Alyssum saxatile*, glittering like gold, alternating with *Aubretia Campellii* and *Morei*, against the best geranium composition ever seen. Patches of *Campanula carpatia*, alternating in the same line as the last, give blue in autumn not to be surpassed for purity and depth; and *Campanula rotundifolia*, white and blue of such exquisite beauty in the summer as to render such a border a place of delightful resort for mere admiration of its colours or for quiet meditation.

Fruit Garden and Orchard House.

ORCHARD TREES may be better pruned now than later in the season, as the dead and dying branches can be easier discerned while the trees are still in leaf than when they are quite bare. There is no mystery as to the pruning of standard trees. Never lop off large branches if it can be avoided; their removal is a positive injury to the tree; never cut carelessly, or allow a bough to snap off when half sawn through. Remove a branch where two cross each other; remove those that screen the boughs below them from the sun; keep the heads of the trees open, so that every part is equally exposed to air and light; and remember all through that bearing trees very seldom grow too vigorously, or make wood where it is not wanted, and the less use of knife and saw the better.

PLANTING may proceed without regard to the leafiness of the trees. They will soon shake their leaves off after being lifted. If the operation is delayed, bad weather may render it impossible to plant until perhaps late next spring, and the trees will lose a period of four or five months in making roots in their new quarters. Every practical man can call to mind having lost the early period of the planting season, and having to wait till March or April following in consequence of rain, frost, snow, and other little incidents of the British winter.

Greenhouse and Conservatory.

CINERARIAS are growing freely, and must be encouraged by giving them a shift on, using a rich, light, fibrous soil. Do not put any in heat, and keep as many as possible for the present in cold pits. A few, however, may have a place on a shelf near the glass in the greenhouse for an early bloom. See that they get enough water.

VERBENAS must not go dust-dry, nor yet be made very wet. Do not encourage growth unless there are indications of mildew, in which case, if the plants are of any value for cutting from, put them in a good heat and propagate at once. This is better than tampering with mildew, for if it once acquires ascendancy among verbenas, it generally ends by killing them all off.

HEATHS are generally speaking so hardy that a good pit suits them as well as the greenhouse. Where they have to be mixed up with other plants, let it be borne in mind that they must have abundant ventilation, plenty of light, and only a moderate amount of water. The heath house at this season is rather dull. Give abundant ventilation, and avoid the use of fire-heat until the actual occurrence of frost.

MIGNONETTE sown now, and put in a heat of 70°, will soon make a start. Sow in rich light soil, in pots extra well drained. When the plants are up, thin them to three in a pot, and keep them in the greenhouse, where they will flower from the middle of February to the end of March, and be much valued. Any excess of moisture during winter quickly kills mignonette.

PELAGONIUMS must have all the light possible, and be kept almost dry, with plenty of air in fine weather.

FUCHSIAS must have fire-heat and weak manure-water to keep them in bloom. When fuchsias are allowed to go to rest, it is good to put them out of doors for a time, as the exposure promotes perfect ripening of the wood, and when housed under stages they will want no further attention till spring. Now that yearling plants are most encouraged at exhibitions, cultivators wish to know how best to produce fine specimens in a brief space of time. It is a question altogether of growing: they must be kept growing fast, with a humid atmosphere and a steady heat, and with occasional stopping and shifting on. The fuchsia can bear rough treatment, but it can also enjoy a life of luxury; and those cultivators who have not yet succeeded in producing good yearling plants are advised to try a higher temperature, with an increase of moisture to the roots and overhead.

TUBEROSES AS WINTER FLOWERS have been the subjects of a succession of experiments at Stoke Newington during several seasons past, and it is now an established fact that they may be made available to furnish winter flowers. Messrs. Barr and Sugden have supplied for the purpose bulbs of the several sizes and qualities known in the market, and one result of the experiments is to prove that the smallest and cheapest bulbs will not flower at all. Unlike hyacinths, the smallest bulbs of which produce flowers, the small tuberoso bulbs do not contain flowers, therefore cannot produce any. The practice with the heaviest selected bulbs has been to pot them in successive batches, and reserve for the latest supply of flowers the heaviest bulbs of all. Some are started in gentle bottom-heat in January, and flower beautifully in June; the large bulbs, measuring nearly two inches across, producing fine flowers, those an inch and a half produced flowers less fine, and a few of these fail to flower; the smaller bulbs produce leaves only. To buy such bulbs is to throw money away. So far good; we learnt definitely the cause of the failure so often complained of by our readers, but that was not sufficient. We reflected that tuberoses would be valuable from October to Christmas, or later, whereas in June there are so many flowers that we are not much in need of them. So we keep back a large lot of each of the several sizes, and have them potted the first week in April, in a mixture consisting of equal parts old dung, loam, and leaf soil, with a half part of silver sand added. The soil is nearly dry, and no water given. The pots are all placed on the path of a Paxtonian house, and they have a little water during the six weeks they remain there, but enough only to moderately moisten the soil; generally speaking, they are nearly dust-dry during the six weeks they remain there. Then they begin to show little green points at the crown of each bulb, which is a proof they are growing. They are then placed high up on a shelf to benefit by the heat of the sun acting on the pots, and have water twice a week. By the middle of June they are growing freely; they are then removed from the shelf and stood on inverted pots on the bed of the house full in the sun, and have plenty of water. By the middle of August the flower-spikes of all the large bulbs are pushing freely, and towards the end of September many of them are showing the white of their flowers, the spikes being three feet high; others are about half grown. The next point of importance is to prevent them being injured by cold, for a certain degree of warmth is necessary to induce the flowers to open. We now put a few at a time into a warm house to expand the flowers nicely, and if the weather should become too cold for those still advancing, the Paxtonian house must have the benefit of a little warmth from the hot-water pipes. Thus it is proved that they may be flowered in autumn without bottom-heat, and that the only way to be sure of bloom is to obtain the largest bulbs. Since these various experiments we have referred to several essays on tuberoso culture, and are bound to say that, with very few exceptions, what books say on the subject is sheer nonsense. We are now enjoying the rich spicy perfume of freshly cut flowers of tuberoses, and should have no difficulty in commanding a supply till Christmas.

Forcing Pit.

CUCUMBERS for winter fruiting must be kept growing freely with a steady heat. Damping and mildew are the plagues that trouble young cultivators at this time of year. Both may be prevented by affording sufficient heat, and carefully regulating the degree of atmospheric moisture. If mildew appears, apply dustings of sulphur immediately. If the plants show fruit before they are strong enough to bear, nip the fruit out.

MUSHROOMS.—Beds made now will begin to produce at a time when the fruit will be much valued. Let the stuff be beaten firm in making up the bed; make a large bed in preference to a small one, and have it four feet deep if possible; mix turfy loam with the dung, both to moderate the heat and secure a longer state of bearing; do not spawn the bed till the heat has declined to a moderate point, and take care from first to last that the bed is never too wet and never too dry. For other matters in this practice refer back, and abundance of information will be found.

PEACH-TREES in the early house must be pruned at once, and the house must be rendered clean before starting them. Begin gently, to allow of a steady increase of heat, and take care the border is moist enough in the first instance.

VINES.—Grapes intended to hang must be well aired, and the house must be kept dry. Generally, various plants are kept under vines, and these want more or less water, and the humidity occasioned thereby causes the grapes to rot. Gardeners are too often expected to perform impossibilities in the keeping of ripe grapes. All that can be done where there are plants is to watch for fine mornings to give water, and occasionally to let things go drier than is good for them, and to use a little fire-heat so as to allow of ventilation and dry the atmosphere. When vines are at rest the loose bark should be taken off and burnt.

FROS carrying a second crop are often a cause of some anxiety. The larger the fruit the less likely is it to survive the winter, and the best way to save some is to remove all that are larger than peas, and then mat up the trees loosely, so that there will be a circulation of air amongst the wood to keep it hard, yet so that in the event of cutting winds they will have a fair amount of shelter.

SQUASHING HIM.—Sheridan used to be annoyed by a silent Member who would interrupt him constantly with "Hear, hear," *usque ad*. One night he took an opportunity to allude to a well-known political character of the time, who wished to play the rogue, but had only sense enough to play the fool. "Where shall we find a more foolish knave or a more knavish fool than this?" "Hear, hear!" was instantly bellowed from the accustom'd bench. The wicked wit bowed, thanked the gentleman for his ready reply to the question, and sat down.

Correspondence.

PHILIP MILLER ON THE GLADIOLUS.—An old folio volume last week came into my possession: "The Gardener's Dictionary: adorned with copper-plates, by Philip Miller, gardener to the Botanick Garden at Chelsea, and F.R.S. 1731." Some of the articles are very interesting. As a specimen, I have transcribed the one on the Gladiolus, which I thought might amuse your readers. Do you know whether this work is scarce? My copy is beautifully printed, and in excellent preservation. W. D. SUTTON.

[It is not at all scarce, being frequently entered in the catalogues of the second-hand booksellers.]

"Gladiolus (takes its name of Gladius, Lat., a sword, g. d. little sword, because the leaves of this plant resemble a sword), Corn-Flag. The characters are: It hath a fleshy, double, tubercose root; the leaves are like those of the Flower-de-Luce; the flower consists of one leaf, and is shaped like a lily, spreading open at the top into two lips, the upper one being imbricated, and the under one divided into five segments; the ovary becomes an oblong fruit, divided into three cells, which are filled with roundish seeds wrapt up in a cover. The species are:—1. Gladiolus; utrinque floridus; corn-flag, with flowers on both sides the stalks. 2. Gladiolus; carnei coloris; flesh-coloured corn-flag. 3. Gladiolus; floribus uno versu dispositis, major, floris colore purpureo-rubente; great corn-flag, with reddish-purple flowers ranged on one side the stalk. 4. Gladiolus; major Byzantinus; great corn-flag of Constantinople. 5. Gladiolus; utrinque floridus, floribus albis; corn-flag, with white flowers ranged on each side the stalk. 6. Gladiolus; maximus, Indicus; the largest Indian corn-flag. There are some other varieties of this plant which are preserved in some curious botanick gardens, but these here mentioned are what I have observed in the English gardens. These are all propagated by their tuberoso roots, which the first, second, and third sorts produce in great plenty, so that in a few years, if they are suffered to remain unremoved, they will spread very far, and are hardly to be entirely rooted out when they have once gotten possession of the ground. These roots are in shape very like those of the large yellow spring crocus, but are somewhat bigger, yellower within, and have a rougher coat or covering. The small offsets of these roots will produce flowers the second year, therefore when the old roots are transplanted, the offsets should be taken off from them, and planted into a nursery bed for one year, by which time they will be fit to transplant into the borders of the pleasure-garden. These roots may be taken up in July, when their leaves decay, and may be kept out of the ground until October, at which time they should be planted into the borders of the pleasure-garden, intermixing them amongst other bulbous-rooted plants. But if you plant them in large borders in wilderness work (where they will thrive and flower very well), they need not be transplanted oftener than every other, or once in three years; whereas in borders of a pleasure-garden, if they were suffered to remain so long, they would overrun the ground, and be very troublesome. The third and fourth sorts are the most valuable, producing taller stalks and fairer flowers; nor are these so apt to increase, which renders them fitter for the borders of a flower-garden; so that since these have been introduced and become common, the other sorts have been rejected, unless in some old gardens, or for large wilderness quarters, where they will grow better than the two last mentioned. These plants may also be propagated by seeds, which should be sown in pots or tubs of light fresh earth soon after they are ripe. These tubs should be placed where they may enjoy the morning sun until eleven o'clock, in which position they should remain until October; at which time they must be removed where they may have the sun during the winter season, and the March following the young plants will begin to appear; at which time the boxes or pots should have a little fine earth sifted over the surface of the ground, and be removed again where they may have only the morning sun, observing during the time of their growth to refresh them with water in dry weather, as also to keep them clear from weeds. The Michaelmas following, if the plants are very thick in the pots or boxes, you should prepare a bed or two of fresh light earth, in proportion to the quantity of your young plants, and after levelling the surface very even you should spread the earth of the pots in which the roots are contained as equal as possible upon the beds (for the roots at this time will be too small to be easily taken up), covering the bed about half an inch thick with light sifted earth, and the spring following, when the plants begin to come up, you must stir the ground upon the surface to loosen it, and carefully clear the beds from weeds. In these beds they may remain (observing in autumn to sift some fresh earth over the surface) until the fourth year, by which time they will begin to show their flowers; therefore you may now observe to mark out as the best kinds as they blow, which may the succeeding year be transplanted into the pleasure-garden, but the poorer kinds should be thrown away all not worth preserving, for the good sorts will soon multiply and furnish you with a sufficient stock from offsets. The Indian Corn-Flag is tender, and must be preserved in a warm greenhouse or a moderate stove during the winter season. These roots should be planted in pots filled with a light sandy soil. The best time to transplant them is any time from May, at which time their green leaves decay, until September, that they begin to shoot again; and in October the pots should be removed into the greenhouse; and during their season of growth, which is chiefly in winter, they must be frequently watered, but you must not give it them in large quantities; but during the summer season, if they are suffered to remain in the pots, they should have little moisture, but only be removed to a shady place, for much wet at the time their roots are inactive is apt to rot them. This plant but rarely flowers with us, but when it doth it makes a beautiful appearance in the greenhouse, especially coming in January, when few other flowers appear, which renders it worthy of a place in every curious garden."

CATALOGUES.

EUGENE VERDIER FILS AINE, 3, RUE DUNOIS, GARE D'IVRY, PARIS. *List of New Roses for the season 1867-68.*—A lengthy list, the contents of which will have immediate attention in these columns. English rosarians are referred to Messrs. Betham and Blackith, of Cox's Quay, Lower Thames Street, London, as the agents for M. E. Verdier.—*Trade Catalogue of Gladioli, Paeonies, and New Roses, 1867-68.*—M. Souchet's gladioli are here, those now let out for the first time numbering twenty-five varieties.

JABEZ J. CHATER, GONVILLE NURSERIES, CAMBRIDGE. *General Descriptive Catalogue, 1867-68.*—This contains a good selection of herbaceous and alpine plants, Dutch and Cape bulbs, a remarkable collection of pelargoniums of the large-flowering, zonal, and other sections, a good selection of roses, and all the other several classes proper to a general catalogue, inclusive of hollyhocks, for which the Chaters have long been famous.

Replies to Queries.

Eugenia ugni.—R. II.—This plant requires the same treatment as a myrtle, —a good rich loam, rather liberal pot-room, plenty of water when growing, and a rather shady place in a cool greenhouse, except during July and August, when it is better out of doors in a rather shady place. The tree is nearly hardy, but is quite unequal to our severest winters.

S. B.—Hays's Constant stove will answer admirably for your small house.

A Bee.—No Ipomea can be taken into consideration as a substitute for ivy. In making the ivy border, dig deep, add manure if the soil is at all poor, and plant strong established plants. You may obtain plants five or more feet high, well furnished, from any good nursery, and when these are planted and pegged down a good border is formed at once. For information on Moule's Earth Closets, write to Mr. Evans, 29, Bedford Street, Covent Garden, W.C.

Young Gardener.—Your heliotrope was shrivelled almost to dust, so we can give no opinion of its merits.

Gloxinias.—Subscriber.—Yours have gone wrong through being too cold. The white worms about the hyacinth bulbs are probably owing to the decay of the bulbs. Probably they were damaged bulbs in the first instance, and in the second have been kept too wet.

R. J. W.—Joyce's stove will not hurt the plants, but in the event of very severe weather we should doubt if one would suffice for a house 30 feet by 10 ft. Such a house should be heated with a small boiler and 3-inch pipes.

J. W., Whitby.—It will do no good to give the vines fire-heat now. When the leaves are down, cut them back, so as to leave only one bud of the new growth on each. Surely your border must be very faulty to account for so poor a growth.

G. B. P., Cottingham.—The leaves of "Lucy Grieve" and Lady Cullum sent are remarkable examples of colouring. The leaf of Lady Cullum is particularly rich, the disk being only half green, so that the green constitutes only about one-seventh of the entire leaf, the remainder being a rich gold-yellow with a broad unbroken zone of brilliant carmine-scarlet. Plants well furnished with such leaves are calculated to take one's breath away.

E. G. Henderson and Son.—Your double-flowering pelargonium, "Prince of Novelties," is exceedingly rich, and a most pleasing flower. Their thorough doubleness must render the flowers long-lasting and extremely showy on the plant, though so dreadful a violation of the orthodox properties.

Old Subscriber.—We cannot inform you where to apply for Hays's Constant Stove; it appears that the agent has gone, leaving no address.

W. B. B.—You may force the strawberries in the vinery admirably. Give them a shift at once, and they will fill their new pots with roots before you take them in to force.

P. Q.—The person you inquire about grows for sale, and sells what he grows.

THE PEAR AND ITS PARASITE.

Frequently during the last few weeks we have had complaints from correspondents and others with regard to the injured condition of the foliage of pyramidal and other pear-trees. In some instances the trees are said to look as if the leaves were dried up or scorched; in others they are browned with rusty-looking spots. In some cases injury takes place to such an extent that numbers of the leaves die off, and leave the trees partially defoliated. Some, satisfied to note effects without taking thought or pains to look for causes, attribute this to "hlight"—a very general term, always at hand, and too often a stumbling-block in the way of that close observation and inquiry so necessary and so useful in matters of this kind. Others more observant, rightly attribute the evil to the voracity of what they call small black leeches or slugs found on the leaves, and as these appear in greater numbers and carry on their depredations more vigorously in close showery weather, some have gravely assured us they are brought down with the rain! Well, the pest in this case is neither atmospheric nor pluvial but the leech, or rather tadpole-like larva of one of the saw-flies—Tenthredinidae. In the larva state it is familiarly known as the slimy grub of the pear. The perfect insect is known to entomologists as *Tenthredo* or *Selandria Aethiops*, or black-winged pear saw-fly. For the benefit of those of our readers who may be interested in detecting these destructive little leaf eaters, and checking their ravages another season, but may have failed to pay any particular attention to them during their period of activity during the past weeks, we give a few descriptive particulars. When at its full size the grub or larva is about half an inch long, the body slender and tapering, the head in appearance proportionately very large and tadpole-like. We say in appearance; for it is not exactly the head is so large, but the little creature has the power of inflating and expanding over the head the thoracic or upper segments. On the belly or under side it has numerous feet—about a score; the colour dirty yellow; the upper portion black or nearly so; the entire surface is covered with a slimy secretion, whence the popular designation. During the day they remain at rest on the leaves, but towards its close, more especially if it be after rain or a moist evening, they may be seen actively at work on the upper surface of the leaves. When feeding, they remain in the same spot until they have devoured every portion of the upper surface, and the underlying green portion, or parenchyma, within reach, leaving the cuticle of the opposite side of the leaf untouched and transparent as an eye-glass. When this slaying and fleshing of the leaves is carried on uninterruptedly, and with the extraordinary dispatch which characterizes the operations of these pests, our readers can well understand the permanent injury it will do the trees, apart from that to the fruit-crop of the current year, and from the unhappy scorched look of the foliage. About the middle, or towards the end of the present month, the larvae spin and encase themselves in their cocoons, and bury themselves in the soil, where they remain dormant for about ten months, the fly or perfect insect emerging into active life about midsummer following. The female insect deposits her ova on the upper surface of the leaves, and in a very few days the larvae are hatched, and these tiny but most destructive enemies of our pretty pyramidal commence operations. With regard to the remedies for the pest, syringing the trees with lime-water, or dredging the leaves with powdered caustic lime, are sometimes, but not always, efficacious. Hand picking and destroying them may be a little tedious, but it is effectual. Instead of applying remedies to actual disease, it is always better, if possible, to prevent it, and in this case it might be done to a great extent if pear-growers were able to recognize the perfect insect and its ova, and have recourse to means for destroying the one or removing the other.—*Irish Farmer's Gazette.*

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. temp. avg. of 43 yrs.	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D
			rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.	Rain	Growth					
1867			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.			
27	S	19th Sunday after Trinity	6 46	4 41	6 20 a.m.	5 6 p.m.	29.90	29.91	54	39	46.5	.00	45.0	Lycoris plaua, m	...	Bolivia	27
28	M	New Moon, 27th, at 1h. 3m. p.m.	6 48	4 39	7 28	"	30.17	29.93	54	24	40.0	.01	45.7	Cypripedium purpuratum, 1	...	India	28
29	T	Sir Walter Raleigh beheaded, 1618.	6 50	4 37	8 33	"	30.30	29.91	52	35	43.5	.00	45.5	Schinus, 1	...	S. Amer.	29
30	W	Tower of London burnt, 1841.	6 51	4 36	9 34	"	29.89	29.76	54	29	42.5	.06	45.1	Dendrobium album, 1	...	India	30
31	Th	Hallowe'en.	6 53	4 34	10 31	"	30.03	30.02	55	29	42.0	.00	44.8	Laella Muryanii, m	...	Brazil	31
1	F	Dr. Lindley died, 1865.	6 56	4 32	11 22	"	29.60	29.64	49	37	43.0	.00	44.5	Cypripedium Purricanum, 1	...	India	1
2	S	Michaelmas Law Term begins.	6 57	4 31	p.m.	"	29.69	29.66	51	36	43.5	.00	44.3	Laella superbiens, m	...	Guatemala.	2

The Gardener's Magazine.

SATURDAY, OCTOBER 26, 1867.

EXHIBITIONS OF SEVERAL DAYS' CONTINUANCE have become the rule in those cases where great gatherings of horticultural productions are attempted. From the financial point of view, the long-continued shows are eminently desirable. The monetary success of the International of 1866 was the result of the extension of the time beyond the term originally determined on. The great shows at Edinburgh, Manchester, and Kensington, of late years, have apparently succeeded solely because time was afforded for success; and we may take the converse view, and say that failure in respect to fiscal returns at exhibitions of only one day's duration is owing to the want of time to gather in the money. It matters not how much may be expended on advertising, and however energetic the promoters may be in giving publicity to their proceedings and intentions, a large portion of the public never know of anything until it has become notorious; and a flower show, if good of its kind, and reasonable, appears to increase in popularity and attractiveness just in proportion as the flowers fade and the plants lose their freshness and beauty. There exists a class—created for some wise purpose no doubt—who never go anywhere until everybody else has been; and as the promoters of exhibitions wish especially to benefit that class, and to receive in return their acknowledgments, exhibitions designed on a great scale must be kept open more than one day. Wealthy societies may be well able to adhere to the one-day system, but a great appeal to the general public requires more time to bring forth its fruit, and we must expect the extension system to triumph over the restriction system, in respect of horticultural exhibitions as in the cultivation of grape-vines. As a rule, financial success satisfies all parties, and it cannot be denied that money is a potent lever in moving the horticultural world.

But the convenience of the sight-seer and the consideration of monetary returns are not the only points involved in the consideration of this subject. The exhibitor is an important personage. If he suffers many inconveniences, and if his plants suffer by too long absence from home, long-continued exhibitions must be deprecated by the horticulturist in exact proportion as they are appreciated by the public. Without plants and flowers there cannot be much success; it is not the announcement of a show which brings the money, it is the fact that a show is in existence, and the interests of the exhibitor must therefore be taken into account. Now it must be obvious to those who know nothing practically of the carrying out of an exhibition, that exhibitors are severely taxed when their contributions are detained several days in place of one, and that there is great risk of injury to the plants. At an exhibition of only one day's duration, the exhibitors and their assistants remain in readiness to remove their goods the moment they can be liberated; but in many cases of long-continued shows, they must be left entirely without special protection, and many of the exhibitors must make long journeys twice over, and devote twice as much time to the affair as in the other case. As to the plants, those that are of tender constitution must suffer more or less in a draughty tent, where the temperature is far below what they are accustomed to, and their value at the close of the show must oftentimes be considerably less than it was at the beginning. The problem for promoters is to reconcile these difficulties with the advantages that result from the extension of the time, and on the solution of the problem rests the prospects of success in the future.

One of the first essentials is to give the exhibitor a due share of the benefits resulting from the enlarged period of the exhibition. Prize-lists must be liberal, and there seems to be wanted some more certain way of rewarding merit than the customary award of first, second, and third prizes. It is hard upon a man who takes a fine collection of plants a distance of many miles, who leaves his plants to do well or ill as the case may be, and who is compelled to make two long journeys, or else sacrifice several days on the spot looking after his plants, and who loses the third place by just a point or two, and obtains nothing at all to compensate him. But in some cases, as at the Crystal Palace and Kensington, the winners get so little, that it is a matter of constant surprise to those who are

familiar with the costliness of exhibiting, that at those places flower shows are possible at all. It is true that trade exhibitors think less of winnings than of publicity, and every honour gained is for them an advertisement. But the private cultivator looks at the matter from another point of view: to him honour is the more acceptable if accompanied with a substantial reward, and a larger scale of prizes than that which prevails is essential to the success of long-continued exhibitions. Then as to the plants: cultivators of orchids and other delicate habited stove plants must be assured of a better protection for their pets than canvas. It is not at all an uncommon thing to see valuable plants almost blown away before the termination of an exhibition, and such an event is surely to be deplored. Owners of valuable plants are not likely to expose them frequently to the risk of injury, and it should be the aim of promoters of exhibitions to remove every possible objection to the contribution of the most valuable subjects, or great flower shows must become great gatherings of things belonging to the category of commonplaces. The International Exhibition of 1866 afforded a fine example in this respect, in the heated "annexe," wherein the orchids were staged. Such a building cannot be provided on every occasion of a three or four days' meeting, but something approximating thereto is needful, if only a better sort of tent than such as is commonly used. These are matters which lie at the very foundation of success in the management of great exhibitions, and they must have practical consideration, or great exhibitions must come to an end.

HULLETT'S CHINESE GRASS, which was to supply us with a fabulous abundance of bread of far better quality than wheat bread, and afford a valuable fodder for cattle, and materials for wine and sugar from the juices of its stems, has proved exactly the sort of mare's nest we predicted it would,



SORGHUM TARTARICUM (so-called).

when the nine thousand correspondents of Mr. Hullett were beseeching him for seeds. Subjoined is a figure of a tuft selected from several which have been grown at Stoke Newington. The tuft figured is one of the commonest varieties of Sorghum, the one that was ushered into public notice a few

years ago, as *S. saccharatum*, as a valuable fodder plant, but which has never acquired a fixed place in the round of farming operations. Other samples have resolved themselves into the well-known *Andropogon sorghum*, and several other samples never vegetated at all; so it is impossible to say what they were—most likely the seeds were dead. So far as we know, no one within the boundaries of Britain has harvested a handful of ripe corn from any of the seeds that were given or sold in the past spring. Mr. Hullett no doubt meant well, while he knew little. That is a kind view to take of his part in the business, and we make him a present of the kindness. But for those members of the trade who profess to be the heads of "respectable" houses we entertain a quite different feeling. We doubt if they meant well; and if they knew little, they were bound to learn before puffing a thing of this sort. The probability is that they knew much—perhaps too much.

THE GARDENS OF SHAKESPEARE.—Mr. T. O. Halliwell writes to the *Times* as follows: "Four years ago, the gardens of Shakespeare being in danger, and no person of influence coming forward, I ventured to solicit your aid in saving them from the hands of the builders. It was mainly owing to the great prominence given to the subject in *The Times* that a large sum was subscribed, and the site of New Place, with the greater part of the gardens originally attached to it, purchased for £3,400. Since then the very interesting remains of the poet's residence have been discovered and exposed to view. A small but important portion of the gardens, which will cost at the lowest estimate £800, still remains to be secured; in addition to which a considerable sum is required for putting them into order, and for a large extent of outside fence. At least £1,200 is necessary for these objects. I am not in a position to give much more than my time, but I will gladly advance a quarter of the sum, £300, on the chance of being repaid in the future, if the remaining £900 be subscribed; or I will give £100 if eleven others will do the same. If it be added that nothing is allowed for salaries, personal expenses, &c., it is merely to justify the liberality of the public and your kind sanction. In fact, the only extraneous expenditure will be upon a promised memorial in the ground recording the names of all donors of £100 and upwards."

THE VICEROY OF EGYPT'S VISIT TO ENGLAND.—Mr. William Bull, of the Establishment for New and Rare Plants, King's Road, Chelsea, writes to us as follows: "It occurs to me that it may be worth recording, as an instance of the effect on foreign potentates of horticulture as carried out in England, that the Viceroy of Egypt, when recently here, was so struck with it, and the plants and flowers he saw, that I have received a commission to send him out a thoroughly proficient flower gardener; one capable of carrying out horticulture in a similar manner to the style adopted in this country. As is generally known, the Viceroy already has an English gardener; but the one I am sending out goes exclusively for the cultivation of flowers, a new and entirely separate appointment, brought about by the Viceroy's last visit to this country."

MONSTER PEARS.—There were exhibited in the shop of Messrs. Le Cornu, seedsmen, St. Helier's, Jersey, last week, four pears which for size and splendour excelled everything of the kind hitherto known in Jersey, renowned as that island is for the quality of its pears. These four specimens weighed respectively 19½, 21½, 24½, and 30½ oz., making the almost incredible total weight of 96¼ oz.! The three first-mentioned, weighing 65¾ oz., had grown on a single eye. They are of the far-famed species known as Chaumontelle, which is peculiar to Jersey, and were grown in the grounds of Mr. G. H. Horman, her Majesty's Solicitor-General for the Island of Jersey.

COWPER'S SUMMER-HOUSE AT OLNEY.—A movement has been set on foot for the restoration of Cowper's summer-house at Olney, and from the way in which the proposal has been met by persons acquainted with the matter in all its bearings, the proposal appears to savour of both Vandalism and jobbery. Mr. Collingridge, of the *City Press*, writes to a daily paper as follows:—"Correspondents have over-estimated the value of the names pencilled on the walls of the summer-house at Olney. Some of them are, it is true, 'familiar in our mouths as household words,' but I am very doubtful if all these are genuine, while the majority are unknown to fame, and many are undoubtedly of the class referred to by Cowper, when speaking of the alcove. He says:—

Not all its pride secures
The grand retreat from injuries impress'd
By rural carvers, who with knives deface
The panels, leaving an obscure rude name,
In characters uncouth, and spelt amiss.

There are, no doubt, some autographs that are worth preserving, but it is obvious that to restore the summer-house, which is only a lath-and-plaster erection, in the way that has been suggested, would very effectually get rid of all these signatures at a stroke. Nor is this renovation really needed. The late Mr. Anthony Morris, who held that part of the garden containing the summer-house (which was divided many years since from the dwelling-house, in which, in all probability, most of Cowper's productions were penned), took a just pride in keeping it in good order; and having been to Olney during the past month, I can testify to the fact that it is far from being in the ruinous condition that might be imagined from the statements made respecting it. If, however, it is thought desirable to raise a memorial to Cowper—and I as an 'Olney boy' certainly think so—why should not the suggestion thrown out some time since be adopted, and a memorial hall be erected? Places that are identified in any way with celebrated men generally have something to show for the fact; and why should the town where 'Newton preached and Cowper sang' be worse off in this respect than others similarly situated? The inhabitants of Olney are not deficient in public spirit; and as the Earl of Dartmouth, who is lord of the manor, has made a good start by offering £100, I venture to hope that ere long something tangible will be accomplished. The vicar and the ministers of the Independent and Baptist chapels would, I feel sure, be found quite ready to co-operate, and I would suggest that any one wishing to aid in the work would do well to communicate with those gentlemen. Mr. Osborn, the present occupier of the garden in which the summer-house stands, and Mr. John Sleath, the occupier of 'Cowper's house,' are at all times most obliging in their attention to visitors who may be desirous of seeing these classic spots."

THE THOMPSON TESTIMONIAL progresses in a more promising manner than heretofore. Many head-gardeners have acted on the suggestion we made on the 28th of September last, and have sent in, with their own subscriptions, gatherings from their foremen, assistants, and the garden lads; so that the half-crowns and shillings are beginning to appear. There are 70,000 gardeners in Great Britain, and if these all contributed one shilling each, the total would be £3,500. Then how many

lady and gentleman amateurs are there who owe Mr. Thompson five to ten pounds each for the part he has done to advance the art of horticulture to its present enjoyable perfection! Here is an undeveloped million no doubt—not wholly undeveloped either, for many who read this amongst persons of good means will at once, pleased with the reminder, send off their one, two, or three guineas, and many more will gladly contribute half a guinea each. An opportunity of this kind is not likely to occur again to the present generation, for there is scarcely a horticulturist living save and except Mr. Thompson, forty years superintendent at Chiswick, for whom the press could unite in its appeals without coldness anywhere, and without the shadow of unseemly rivalry or party spirit. Mr. Thompson's labours have secured for him this universal testimony of esteem and this common sympathy. Surely the testimonial ought for the same reason to move briskly and swell rapidly, and become a matter for general congratulation and rejoicing.

AN ASTONISHING TREE.—A Williams's Bon Chrétien pear-tree, in the garden of William Sharp, a working gardener in Arundel, has, he informs us, borne four crops this year. The first crop was gathered at the beginning of September, and the pears were of the size that fruit of this description usually are; the second was gathered on the 13th inst., being about two-thirds as large as the first; the third and fourth crops are still growing, and are respectively of the size of walnuts and filberts. There was rather more than a month between the budding of each crop, and when the first was gathered the fourth was in flower. With the view, if possible, of accounting for this phenomenon, he will be pleased for any one to examine the tree.—*West Sussex Gazette*.

MESSRS. CLAUDET AND HOUGHTON, of 89, High Holborn, London, have engaged to cater *in extenso* for cultivators and exhibitors of plants and flowers who require elegant receptacles in glass or porcelain. They have given a new character to "Tye's hyacinth glasses," by adopting a series of original and exquisitely beautiful embellishments, and they have prepared an almost endless variety of patterns of épergnes, bouquet-holders, Marchian vases, &c. In fern-cases and aquaria they appear to be as busy as in smaller and more fanciful articles. Therefore, we can with pleasure refer to them any of our friends who may be in want or difficulty in respect of such things.

EXTENSIVE KNOWLEDGE.—In a letter which appears in the *Daily Telegraph* of Tuesday last, Mr. George Cruikshank declares the mineral waters of Buxton and Harrogate "of far more power and benefit than any others in the universe."

AVICIDE IN A NEW SHAPE is practised by Frenchmen on the coasts of the Mediterranean. They spread nets for the swallows when they are on the way southward in their migration, and catch thousands of them when they come down to rest before taking the long passage of the sea. They catch them to cook them and eat them as choice delicacies! If Peris were to wing their way near the omniverous Gaul, he would look for his peashooter, in hope of winging a seraph and eating it on toast. But let us have patience; Frenchmen will take to eating rats, mice, moles, and centipedes ere long, and the passion for universal appropriation of everything digestible may prove in the end as useful as for the present, and especially in the eating of robins and swallows, it is abhorrent to right feeling and injurious to mankind. Swallows, in common with other small birds, have been scarce of late years; if the French follow their new and childish pursuit, perhaps we may lose the swallows altogether.

WALL FRUIT, AND HOW TO GROW IT.

By J. R. SCOTT, Esq.

The extreme variability of our climate, as exemplified in the summer season of the past year (1866),* has brought prominently to the attention of pomologists the necessity of guarding against the effects of the constant change to which the British climate is exposed, and its prejudicial influence in the growth and maturation of fruits the denizens of warmer latitudes than our own.

The full effects of a warm climate, mainly the result of absence from excessive moisture, have during the three preceding years, 1863-4-5, been fully exemplified by the promotion during those seasons of that which is very rare in this country—viz., of three successive abundant fruit crops, and crops in which fruit has attained a greater degree of perfection and flavour than is consistent with the usual climacteric conditions of Great Britain.

During the seasons above referred to, when the rainfall, taking one year with another, was considerably below the average, the maturation of the peach and apricot, and the ripening to perfection of the French and Belgian pears, were attained without difficulty in England south of the Trent; and this simply from the fact that the summer and winter seasons were, from the absence of excessive moisture, warmer in the mean by four or five degrees than the geographical position of the country would lead us to expect, by reference to the statistics of former years.

As all things in nature find their balance, thus hot seasons are counter-balanced by cold ones; seasons of excessive drought by those of extreme moisture. The moisture by evaporation producing cold, and the absence of moisture and evaporation inducing heat and dryness of the atmosphere, these in their turn producing a clearness of sky and preponderance of sun, with its beneficial effects of light and heat on all living things.

In these reflections there is nothing new; a few words may, however, be said as to the results produced by the variability of the climate of England, and the manner in which its more prejudicial effect on the cultivation of fruits of a warmer and more congenial climate may be ameliorated or prevented altogether.

Amongst the fruits indigenous to this country are the apple, pear, plum, cherry. The wild varieties of these may be found in every part of England, and the climate has little effect upon them, the cultivated kinds, however—the denizens of our gardens, descendants for the most part of varieties imported by the monks and carefully nursed in monasteries and the gardens of the wealthy in bygone times—are constitutionally more delicate, and require a warmer and drier climate than England usually possesses, to bring them altogether to perfection without artificial appliances beyond the reach of the millon; the effect of this, as shown in the deterioration through the unsuitability of climate, is particularly noticeable in the Ribston pippin and the old Golden pippin, which, with all the stimulus of increased knowledge in

* This paper was written in the spring of 1867, and was intended chiefly to explain the uses and advantages of "Scott's Glass Walls," which have been brought under public notice by the St. Francis Iron Work Company. The author's well-known ability and experience in fruit-culture afford sufficient reason, we think, for the insertion of the essay in the pages of the Magazine.—Ed.

cultivation combined with modern improvements in drainage, are far short both in size and flavour of those apples of our younger days. As the fruits named, together with the bergamots and the jargonelles amongst pears, are exhibiting yearly in their decadence the effect of climate upon them (after an existence in our gardens approaching to a century), so in their turn will each successive generation of the best varieties of our fruits now in cultivation deteriorate year by year, unless that deterioration be averted by artificial or other means; the same principle, viz., the effect of our climate on the cultivation of exotic fruits, is being felt, and will eventually prevail, as in the case of the potato, which, although acclimatized to a certain extent, would soon die out in this country if not preserved by superior cultivation.

The peach and its first cousins, the nectarine and the apricot, are foreign to this country; and although it is difficult with certainty to state from whence the peach was originally imported,—some maintaining that it is a Persian fruit, others that it is simply a cultivated form of the Jordan almond, to which botanically it is doubtlessly allied—yet, at all events, we are justified in saying that, save in the most exceptional of seasons, and under conditions quite as exceptional, it is only once in every ten or twelve years that we can fairly see in this country, in the open air, that most delicious of fruits in a state bordering on perfection.

As these fruits attain a perfection only in countries the mean temperature of which is five or six degrees warmer than the south of England—say in the south of France, on the northern shores of the Mediterranean, and in New York, where, in addition to the air being warmer, a less degree of moisture prevails, and it may be borne in mind that every geographical degree southwards represents one degree of heat—so only can these fruits be brought to the same degree of excellency here, and maintained without deterioration in a prolific and healthy state, by assimilating the climate of this country to that in which they are found to flourish by artificial if not by natural means.

The writer has given this subject great attention, and has endeavoured by means of drainage and by the best of cultivation and attention to counteract the effects of climate altogether, but has hitherto failed in producing more than a partial effect, altogether incommensurate with the trouble and expense to attain it; and it was not until he determined to cover in an old garden wall of 250 feet in length (against which grew sixteen peach and nectarine trees) with glass, secured in iron rafters so constructed that they could be removable at pleasure, that he was conscious in one season of the immense superiority of this plan over his neighbours', from securing a crop of magnificent fruit, nearly 1,200 in number, and which, if he had taken the precaution to assist with a single flow and return hot-water pipe, and by its means to ripen the fruit some twelve or fourteen days earlier than he did, he might have anticipated the arrival in the London market of the fruit from the south of France, and thus have paid in one season the cost of covering his wall with glass.

In no structure of glass, whether the trees are in pots or planted in the open ground, is the flavour of the peach, or its size, at all comparable with those trained to a wall and covered with glass. The result is due to the large amount of latent heat that radiates night and day from a brick wall, and to the protection and support afforded, for which the peach and its kindred allies, the apricot, the nectarine, and greengage, have an especial liking.

THE CHRYSANTHEMUM AS AN EXHIBITION AND DECORATIVE PLANT.

A flower garden is, of all the luxuries that mankind enjoy, the most pure and elevating, for it presents us with each varying season a constant change of forms and colours, eye, and of sights and sounds. The first buds and opening flowers of spring have a fascinating charm, and, ere the summer months have advanced upon us, all nature is clothed with a robe of gaiety; but with the return of autumn, how enriching are the many-coloured hues of the now changing foliage of the trees! their soft but mellow tints afford a feast to the beholder. As for the winter, it is not quite devoid of its floral attractions, for wherever there is a glass structure erected, there is, even in the most dreary months of the year, some variety of plants in bloom. With these remarks we introduce a few notes respecting the history of Chrysanthemum Exhibitions, and the mode practised at the present period, with the object of attaining large and superb blooms both for exhibition and home decoration.

The Stoke Newington Chrysanthemum Society claims, I believe, to be the parent of the many societies that have been originated within the last few years, and I think they may be truly proud of their offspring; for they have provoked such a laudable spirit of emulation wherever they have been established, as to gain for the Chrysanthemum a higher state of cultivation, and that too in gardens where they do not grow for exhibition. But to say that attention was not given to the production of large single blooms of this favourite autumn flower previous to the formation of the Stoke Newington Society, would be to detract from the merits due to other growers; for I can remember Mr. Widnall, a nurseryman then at Cambridge, exhibiting at one of those then popular autumn meetings of the South London Horticultural Society, a box consisting of single blooms of the then many leading varieties in cultivation, and I am satisfied the same would not now disgrace an exhibition table. On that occasion various were the conjectures among the gardeners present as to the means by which such fine blooms were obtained. Some attributed them to the soil, others to the atmosphere, and so on. But there can be no question but Mr. Widnall, who at that period was a very extensive grower of dahlias, both for sale and exhibition, had adopted the same system as that pursued for procuring large blooms of the dahlia, viz., that of thinning the buds and liberal feeding. However, as I was present at the first and second exhibition of the Stoke Newington Exhibition, I can say that, at that stage of the society's existence, they had not equalled Mr. Widnall's flowers, though they very soon afterwards made such marvellous strides in their cultivation as led to the production of those monstrous blooms, which were the wonder of crowds of gardeners, and others interested in horticulture, who were attracted to their annual exhibition, from various distant parts of the metropolis and the country. The result of these annual visits was that numbers of them returned not only pleased, but instructed. This then led to their originating societies in their own localities; thus the number of visitors to the parent society from a distance gradually decreased with each returning exhibition. But, notwithstanding all these deductions from the interest now felt in the Stoke Newington Society, I believe I am not exaggerating when I say that no other society that has hitherto been formed has ever brought together such a number of competitors at one time as they have, especially in the classes devoted to cut blooms. It might be perhaps considered invidious on my part to enumerate some from the long list of names of those who have been foremost in this field of honourable rivalry,

but I cannot avoid repeating those of Messrs. Tait, James, Crockford, Merry, Shields, Taylor, Scruby, Holmes, and Argent; these with others were instrumental in promoting its prosperity, and though the most of them are no longer active members, I anticipate there will be nothing lacking to make its twenty-first anniversary, next month, as interesting as any of its preceding exhibitions. But for those who are anxious to see the Chrysanthemum previous to its being placed on the exhibition table, it would be neither time nor money mispent for them to visit the collection of Mr. Forsyth, nurseryman, of Stoke Newington. There is perhaps no other grower for sale who has devoted so much space and time to producing superior growth and flowers. Others may exceed him in numbers of varieties, but not in quality of bloom and size of plants. A few hours spent in viewing this collection would, to an acute observer desirous of excelling in their cultivation, be a profitable lesson, far exceeding in value a season of individual experience. Mr. Forsyth is not actuated by a selfish spirit, for he is very communicative in reply to all inquiries respecting their treatment, of which his catalogue presents a striking example, for, in addition to the usual details of a list, it contains a concise treatise on their general culture.

To those who as yet are but novices in the art of preparing and obtaining large blooms and plants for the exhibition table, let me offer a few hints, which, by the way, are not intended for those who are at the top of the tree in all that belongs to their cultivation. If I err, then, in my advice, let me ask such persons, through these pages, to correct me. The Chrysanthemum is a very accommodating plant, because it is "everybody's flower," whoever chooses to grow it, whether he possess glass structures or not. Of this we have ample evidence, for in a murky atmosphere they thrive under careful attention; for example, Messrs. Broome and Dale's collections at the Temple Gardens, the very centre of the smokiest city in the world. But of course the blooms of the large varieties need protection from wet and severe weather—that is, if you wish to preserve them. Mr. Broome's plants—that is, those that are not bedded out in the open spots of the ground—are screened from the weather when in bloom by a wide canvas tent, extending a great length; and certainly the sight is a flower show in itself. But any person who has the advantage of a wall or fence can afford them this kind of protection as their flowering season advances; but I should not think of using it, only when the weather required. In the earlier years of competition, many of the best flowers cultivated for the purpose were grown against walls and fences, and received no other protection in frosty weather than a garden mat. Of course, the contrivance was such that it did not injure the flowers. Some also would adopt another mode—that of fixing a small platform, of a few inches in width and length, to the wall, allowing an aperture for the stalk of the flower to pass through. This then would admit of a propagating or any similar glass being used for protecting and assisting in the development of the bloom. But for all ordinary purposes a temporary coping of boards would afford the means of carrying off any excess of rain. The greatest enemy the flower has to contend with as it gradually develops its innumerable petals is damp. I have seen a stand of remarkably fine flowers thrown entirely into the rear of the awards, and that alone by the beauty of the under petals being destroyed through damp. If grown in pots in the houses, fire-heat is occasionally used during wet and cloudy weather, so as to balance the temperature. To those who are not conversant with the practice which is adopted for producing those great and perfect blooms that take the lead at exhibitions, let me inform them that some of the plants are not allowed to produce more than three or four blooms, although their roots may have filled an eleven-inch pot, and their height in many instances may be betwixt five and six feet, and sometimes they will exceed that. Many persons do not grow more than one plant in a pot, removing all laterals as they appear, but never stopping the main stem. Where the object sought is flowers of extraordinary quality, then all flower-buds are pinched off the shoots as they appear, save the centre bud, and this, if perfect, is preferred beyond all the others. The number left generally is in accordance with the strength of the plant. As the buds expand, they require to be carefully examined, to see that no earwigs are secreted; for this insect will in a night commit such destruction as no after-treatment can restore.

The habits or constitutions of the several varieties are well understood and discussed among the regular chrysanthemum growers for competition; in fact, their opinions are canvassed among each other as much as the qualities of a race-horse are elsewhere. Let the young beginner understand also that the petals are not so naturally arranged in their growth as they are produced on the competition stand; for they have previously to undergo the process of what is termed "dressing." As some persons are very clever at this work, they can remove damaged petals so as not to be detected, as sometimes to restore a damaged or deformed flower, when it possesses the other requisite qualities.

Passing from this to the specimen plants for exhibition, we have a word to say in regard to the practice adopted in order that they may obtain plants which shall be admired for their magnitude and abundance of flowers. The rules of most of the societies say that the plants so grown shall be cultivated on single stems, or, in other words, there shall not be more than one plant in a pot. Many of the varieties are of slow growth, yet they are very desirable, and make a grand display, combined with quality of flower and unique habit, when large specimens can be realized,—a glorious example of which was *Little Harry*, as exhibited by Mr. J. George, at the Stoke Newington Exhibition last year. A common observer on that occasion would suppose that the plant was but of one year's growth; for the general treatises on their cultivation that have hitherto appeared do not, as a rule, contradict the supposition. But let me inform my readers to the contrary; for many of those that are choice varieties and of slow growth are at least the stools of the previous year's plants, or perhaps older, unless exhausted by age. They are, after they have done flowering and rested for a short period, cut down and reported into small pots; in fact, treated exactly as you would a specimen pelargonium.

My object in this brief outline has been, as the chrysanthemum season is advancing upon us, to afford the beginner such hints as will aid in maturing his inquiries; at the same time, let those who consider themselves and friends the most competent to impart the required information remember that others who are not exhibitors do not view plants with their eyes shut and ears closed.

JOHN F. McELROY.

HAVING A CALL.—"Sir, you have been to college, I suppose?" said an inspired cobbler to a clergyman.—"Yes sir," was the reply.—"I am thankful," rejoined the former, "that the Lord has opened my mouth to preach without any learning."—"A similar event," replied the latter, "occurred in Baalam's time; but such things are of rare occurrence at the present day."

CONSTRUCTING A VINERY.—No. III.

MAKING THE BORDER.

Having recommended that there should be a concreted bottom for all vine borders, it will perhaps be some assistance to those who are not experienced in the work to give the details of making the concrete. In the first place, it should be understood that fresh lime and some other hard substance, such as coarse gravel, sea-beach, or small broken stones, are the only substances required. Gravel or sea-beach is preferable to stones, and when either of these is used, two barrow-loads of lime to three of the other will suffice, and make an excellent hard bottom; but when stones are used, owing to their coarseness, they require the same quantity of lime to obtain a close and solid bottom as of stone. The lime should be had in quite fresh, and laid in a heap to slake about four hours before it is used. The lime, and whatever kind of stone is used, must be well mixed, and water applied freely as the work of mixing goes on, until the whole acquires the consistency of mortar. It is then in a fit state to be laid down, which must be done immediately. Where a fine material is used with the lime, a thickness of three inches will be sufficient, but with a coarser stone five inches is not too much. From ten to twelve barrow-fuls is enough to mix up at one time, and as soon as this is laid down, give the surface a gentle sprinkle of water, and then beat firm with the back of a spade, and avoid all treading upon it until it is well set, and when no impression of foot-marks is left behind. If the weather is fine with a drying wind, it will get sufficiently firm in about four clear days; but with dull damp weather it will sometimes take a week, or more. Having shown, in the sections of houses before given, the position of the concrete, as well as the drain and drainage, it is only necessary for me to add under this heading, that eight inches of rough stones or brick-heads, with just a sprinkle of finer material on the top of them, will form an excellent drainage for the roots, when placed on the concrete.

Soil for the Vine Border.—An open porous soil, in which the roots can work freely, and air and water find no impediment to their beneficial action, is undoubtedly the best for the vine. A free unctuous loam, containing a good quantity of fibrous matter that has been previously laid by in a heap for at least three or four months, should form the principal staple of the border; to this ought to be added old mortar and broken bricks in the proportion of one cart-load to two of loam, then should follow a liberal quantity of broken bones, the whole being well incorporated before being taken to the border. No animal manure will be required. For my own part, I object to the use of dung in vine borders, when the above ingredients are obtainable, because I am satisfied that it promotes a too vigorous growth, and it is always preferable to have a short-jointed, well matured cane rather than a sappy succulent one, as the former will prove far more productive and satisfactory in the end. Granting that the vine is a gross feeder, and needs an abundance of nourishment, nevertheless, much depends for ultimate success upon the form in which the food it requires is given. If it be of a powerful forcing character, the growth will be correspondingly vigorous, indeed so vigorous, perhaps, that all its energies will be directed to the production of prodigious leaves and branches, and no fruit. But if it be milder, and of a more lasting character, there will be no early excitement, and no falling-off of the supply when the vines in a fruitful state are called upon to perform the part required of them—the production of fruit.

It is no difficult matter to make a border so rich that the vines will be up at the top of the roof, and, if you like, half-way down again, in one season; but borders so made get exhausted before the vines can be said to have arrived at a fruiting condition, and, more than this, they become in a few years a soddened mass of manurial matter, from which all the nourishment has long been exhausted, presenting a barrier against the action of sun and air; consequently the border ultimately gets water-logged, and the soil sour and ungenial for the roots.

Such is not the case when a border is made of the soils above recommended; it will remain for years in a free open state, and will retain for a long period abundance of nourishment for the vines. There will be no early excitement and no sudden falling-off of food for the roots.

Such are my reasons for not advocating the use of manure in making new vine borders, and so satisfied am I of its important bearing on the ultimate success of the vines, that in two new vine borders which I have just completed, altogether about ninety feet long, I have not used any; but I have been careful for the last four months past to collect several cart-loads of brick rubble, besides many loads of the top surface from a pasturage, as well as old mortar which had lain in a heap for years. From these materials I am, so far as human foresight can penetrate, confident of success; and I am sure a

careful examination of these borders, or others made in the same manner, with the same materials, would reveal in a few years' time a perfect network of fine, healthy, active roots, ramifying and extending themselves on every side.

For several years past I have been trying to understand why people will not use more porous materials for vine borders, and the only conclusion I can come to is, that many cultivators like to see them in a close damp soil, in fact, in a soil suitable rather for aquatics than vines, and they seem to think they are in their right element. But surely this is simply for the want of observation. If people would but take the trouble to examine the roots of their vines more often than they do, they would find in borders composed only of loam and dung that after the first few years the roots have made no progress except those just under the surface. All those below this point annually die back, that is to say, they make a fresh effort every year, and push forth a few roots only to be killed on the approach of winter by the action of cold and damp, so that from living roots they soon become nothing but a black mass of decaying matter.

But I must not be hard upon those who have made mistakes in this matter, as many who have advised the reading public have committed the mistake in not giving more precise information. To tell an amateur to use loam for his vine border, and then to leave him to make his own choice, without some specific rules to guide him, is worse than having said nothing at all. The characters of many loamy soils differ so much in their adaptability for the purpose, more especially when not used in conjunction with some opening substance, that they are positively injurious to the roots of vines. Some loams of a tenacious character will get so close and firm, that the roots of vines cannot possibly thrive; and these kinds of loam, when they have lain in one position for years, will sooner or later get water-logged, and become impervious to the action of both sun and air. The natural consequences attending this state of things is a weak growth and the shanking of the fruit; but when no better soil is to be had, the cultivator should add an equal quantity of brick rubble and old mortar, and then the above misfortunes will in great part be avoided. In many parts of the country there is a kind of sandy loam that is more open, and consequently less binding in its character, and eminently suitable for vine borders. The worst of all loams, or rather what inexperienced people would accept for loam in dry weather in summer, is a kind of clay. Such a loam is by exposure to the atmosphere rendered friable and kind to handle all the time it is in a dry state, but immediately it comes in contact with water all the small particles quickly become united into a sort of paste. If a soil of this sort is covered so that the air cannot reach it in a direct manner, it will remain in that pasty condition, and become a serious enemy to the progress of root action.

In connexion with this part of my subject, I have only now to add that a depth of two feet of soil must be given in every case. With a greater width than ten feet, two feet six inches will not be too much next the house. In every case an allowance of at least four inches should be given when the border is made for it to settle down, as recently moved soil of the depth stated will be sure to sink that much. If possible, let the border be made during dry open weather.

J. C. CLARKE.

THE NEW ROSES OF 1867.

Are there no rose-growers who read the Magazine? Is Mr. Prior the only one who has a word to tell us about the new varieties of 1867? Why, we shall soon have the fresh batch from France, and our attentive hopes will be directed to them before we have had any critical information about those that were introduced last autumn.

In default therefore of others who have better opportunities of seeing more specimens of the new varieties than myself, and in hopes that many growers will send their several experiences for insertion in your periodical, mentioning those that they know to be real acquisitions, I venture my own opinions, grounded on what I have seen, and what I have heard on reliable authority, coupled with good rose judgment.

But first of all, Mr. Editor, I have a crow to pick with you, which ought to be a pheasant as it is October. Don't let me hear again of your intention to jilt Madame Vidot to take up with Madame Hosto. I don't mean to question the excellence of the latter, but to cast off the former would be rosarian coquetry. Mr. Radelyffe may write to the papers, and declare that Madame Derreux Douville is worthless; Mr. Flitton may assert that Maréchal Niel and Xavier Olibo are failures; but don't you commit yourself in like manner about Madame Vidot—that's my humble advice.

I have seen but few of the new roses; and, although it is

hardly fair to stamp a rose either as a good or bad one from one or perhaps two blooms, in all probability cut from a small plant, still what have we to judge from except what we do see?

I place *Charles Verdier* first, because not only is it a good rose, but it has novelty of appearance.

Thurin comes next, and seems a general favourite; after the style of *C. Ronillard*.

Horace Vernet is perhaps rather like *Fisher Holmes*, and is not very full in the centre; but English climate and cultivation may make it first-class; for I have seen lovely specimens of it.

Annie Wood is a beauty, much like *Olivier Delhomme* I thought.

François Treyve a capital rose, but the old *Jacqueminot* colour.

Felix Genero was shown a good light globular rose.

Jeanne Marix I also liked; and *Eugène Seribe*, which I have since heard was worthless, certainly showed one good bloom of novel colour.

We can hardly speak of Mr. George Paul's *Duke of Edinburgh*, or Mr. C. Turner's *Miss Ingram*, because they are not yet sent out; but the former is evidently a splendid high-coloured rose, and the latter a pretty addition to our light hybrids.

What can we say of Mr. Robert Ward's lot? We ought to make much of our English seedlings, and they have been very good in many instances; but the raiser of John Hopper stands in such high estimation that his three new seedlings have been so cut to pieces, I guess for the purposes of propagation, that we have had no chance of seeing blooms. On the plant I got of *Mrs. Ward* there was a promising large bud, and good foliage (by the bye, many of the new French roses have unusually good foliage), but, after all, I hear that *Mrs. John Berners* is by some considered the best of the two, which I can hardly credit.

And now I'll name those of which I have seen poor samples, though, as I have said already, it may not be fair to condemn them thus early on such scanty trial.

Two blooms of *Antoine Ducher* were bad indeed. I was told that the rose was really good, and that the specimens exhibited were no indications of the true character of the variety, which I quite hope and believe.

Madame Hoste was as bad at the Crystal Palace as it was good at Birmingham.

Madame Rival thin and washy.

Madame de Falloux insignificant.

Madeline Nonin confused

Bellenden Ker nothing worth.

Sœur Theele and *Comte Litta* both bad, as I saw them.

All the above I have seen, and I have given merely my own opinion, as the report of my own observation.

Next I shall mention what I have heard of other roses not yet alluded to.

Madame Pulliat is recommended to me as of perfect form, and good deep rose colour, though rather small.

Paul Verdier, *Monsieur Woolfield*, *Madame Eleanor Grier*, *Mrs. George Paul*, *Souvenir de M. Boll* and *Madame Margottin* (Tea) are spoken of as promising candidates for favour. *Monsieur Noman* is described to me as very pretty, whilst *Gloire de Montplaisir*, *Triomphe de Soissons*, and *Baronne Haussmann* are condemned as of apparently little or no merit.

Every one, I fear, is disappointed that *Napoleon III.* is not a better rose; the name, the character given of it before it appeared in England, and the lovely plate of it which we all admired, led us to expect more than we have yet seen.

And now may I ask if others will favour us with their experience amongst the new roses, if only they can help rose-growers to secure one additional acquisition, or to avoid a bad rose under a new name?

Although not upon the same subject, still it is closely enough connected with it to allow me to use the present opportunity of mentioning it.

I do not suppose we shall ever induce the French raisers of roses to use more moderate language in describing their new seedlings from year to year; sensational adjectives seem part of their nature. They never will understand that in England we like "deeds, not words." The best auctioneers seldom puff the articles that come under their hammer; but the worst and least successful ones do so be-mouth their wares that they sell for all the less, instead of all the more. But I advocate rather a fuller description; and, as to colour and form, we have surely sufficient samples with which to compare any new roses.

One day this last summer I cut a great many roses of different varieties, and arranged them according to their several shades of colour, from *Prince Camille de Rohan* and

Pierre Notting up to *Niphotos*; and the intervals of colour, so to speak, are few and small, so that instead of being told that all the roses are vivid red, or tender rose, why could not the colour of another well-known rose be named, as that to which the new flower the most nearly approached? The same as regards the description of shape. Thus, for instance, if the French nurserymen will not, I should like our English ones to describe a rose somewhat thus:—

Editor.—Colour of *Xavier Olibo*, shape of *Madame Victor Verdier*; smooth wood, bright large foliage, good strong habit; flowers freely.

We should in such terms see a description which we could understand, and should be better able to know the character and appearance of the rose, when described as after the style of another well known variety, than when shrouded under the indefinite exaggerated verbosity of a French raiser, who is alarmed by the idea that his own beloved seedlings may possibly lack purchasers and notoriety for want of a splendid description.

At any rate, let English growers, when they got them on their soil and prove the foreign roses, give us the benefit of simpler and more faithful descriptions, which are likely, as far as words can, to give us a clear idea of their several and respective appearances. EDWARD N. POCHIN.

SEAKALE.

There has been so much written about seakale, that it is about the last subject I should touch had I not something to say which may be new and useful to many of our readers. In many instances this delicious esculent is regarded as an expensive luxury troublesome to grow, and demanding a great length of time to bring it to perfection. It is time all popular errors in respect of the cultivation of this plant were abolished for ever, for it is one of the easiest and most profitable crops that can be afforded a place in a kitchen garden. During several years past, careful attention has been given it in the experimental ground at Stoke Newington, and every mode of cultivation spoken of in books or thought of in dreams has had fair trial; and we are fully prepared to obliterate from garden literature more than nine-tenths of all that has been written on the subject. We have determined that to grow seakale from seed is absurd, and to be thought of only when there is no other method possible for the cultivator. An emigrant may take seed with him to some wild place, and do right, perhaps, in sowing it; but when once he becomes possessed of roots he ought to think of seed no more. As for English gardeners of all classes, the employment of seed is a deliberate waste of the rental of the ground. It is slow to germinate; it requires much attention in weeding and thinning in its early stages; and it is quite a chance if, at the end of the first season, the roots are large enough to be taken up for forcing. Mr. Clarke has shown how to grow seakale for forcing in one season; but there is another method, one that never fails if carried out with spirit, and which results in the production of roots with crowns twice as thick as the very best that can be grown from seed in one season. Nine-tenths of our readers have guessed at the purport of this paper, and may say already, "Oh, yes, cut up the roots; well, nothing new in that." The guess is both right and wrong. It is true that what we call the "prize" way of growing it (because by this we grew some extraordinary roots that were exhibited on a trade stall at a cattle show, and were the best samples there) consists in propagating from the roots, but it is not true that we follow the old method of procedure; for experiment has taught us that the very part of the root which appears to be the best for the purpose is the very worst, and therefore the majority of those who practise root propagation go the wrong way to work about it.

Seakale roots are now being taken up to force, and we may consider the cultivation to begin from this time. Now, on the subject of forcing there are many errors afloat. We say 50° to 60° degrees is heat enough. Well, so it is. But what will seakale bear, and yet be good? Does any one know the correct answer to that question? I do not hesitate to say that seakale can be forced wherever there is heat, moisture, and darkness, unaccompanied by poisonous or nauseous gases; and it matters very little whether the temperature be 50° or 150°, for the plant will bear the last extreme, and all that is needful on the part of the cultivator is to see that, as fast as it becomes fit for use, the tender elegant shoots are cut, and the roots taken out, and others are put in to succeed them. I force 400 roots annually for my own table, and to give to friends. There is no better seakale ever seen in the district than ours; and there is no better sent to Covent Garden market, or any other market; and it is all grown in the space of seven months, and all forced in a heat of about

100° Fahrenheit. I will suppose that at the present time there is not a root in the place, though I am glad to say, as a matter of fact, that we have plenty. But there is none, say. My first step would be to order a sufficiency of some first-class house, and pay at the rate of 12s. per hundred for it. It would be stacked away in a shed in some dry earth or litter till wanted, and when forcing began a few dozen roots would be packed in cocoa-nut fibre refuse, close beside the two-inch hot-water pipes that connect the lean-to with the Paxtonian, in the long box shown at page 57 of the volume for 1866.* We never shorten in the roots, for that would ruin our scheme. We never bury them, but merely cover them loosely up to the neck with damp fibre close beside the pipes, and leave an empty space above for the fat shoots to rise into. For the shoots to rise through any material is bad practice. Sometimes they acquire a bitter flavour from tan; sometimes the shoots become black at the base, and more or less rotten, through constant contact with damp (and perhaps sometimes cold) material. A space filled with warm air only is by far the best, and this we obtain by putting rough wooden covers over the trough in which the roots are forced. It need not be proved that in this curious contrivance the roots are exposed to a great heat. The small pipes have to feed large pipes when they get beyond the trough, and the object of employing small pipes for the transit from one house to another is to promote a *quick* flow, so that the waste of heat shall be the least possible. Very well; it will be believed that when we mean to make the Paxtonian warm the pipes in trough are at some point above 100° Fahr.; and the seakale is simply quicker in its growth, and, if possible, more tender and delicate when on the table; at all events, we are prepared to back our seakale against any and every sample that can be compared with it, no matter by what process grown.

As the stalks are cut, and the roots are thereby used up, they are taken out, others are inserted in their place, and these used-up roots are taken care of in this way: all their lower roots are covered with some protecting material, such as leaf-mould, cocoa-nut refuse, or whatever else may be most handy; but the thick part of the roots is cared least about, and the packing and keeping is done in such an off-hand way, that it may be said to demand neither time nor space; the fact is, all we do is to take care of the *extreme rootlets*, for out of these we make our plants.

Take a complete root of seakale fresh from the earth, you will find, first, a club-like stem, with a crown one to three inches thick. This stem branches off into fork-like divisions of less thickness, and these again send out long whip-like roots, and from these again proceed the feeding fibres. Now, the *whip-like roots* that do not exceed in thickness a common black-lead pencil, but which average in thickness that of a wheat-straw, are the best parts of the whole roots to propagate from, and make the finest plants possible by *any mode* of propagation. Prepare a good bed, dig it deep, use abundance of manure, make it fat, almost to grossness, with manure, and any time in March take out the roots, cut off the whip-like or pencil-like rootlets; do not rub off or injure more than can be helped the white fibres with which perhaps they will be studded, and cut them all into lengths of two to three inches; nay, if you are hard pressed, and want to plant an acre of ground with the produce of a hundred roots, pencil-like bits an inch long will answer. Before planting, the bed should be dressed up neatly, and raised slightly *above the general level*, except perhaps on some very hungry sand and chalk soils, in which case I should be tempted to sink it *below the general level*. Put down the line, and by means of a bit of hard stick dib the holes fifteen inches apart, and drop the sets in proper end upwards if you can, but it does not much matter, for if wrong way up they grow as well, but are a little later in starting; cover them quite an inch, or even two inches deep, and go away; your work is done for the season. About a month after the planting the little purple leaves will come wrinkling through. Before the weeds have time to get hold of the ground, these leaves will spread, and by the middle of June the bed will be covered with leaves two to three feet long, and all who see the bed will be astonished if told that *that* is the way you do seakale for forcing in one season. The practical reader will think of the necessity of frequent hoeing, and of the too close proximity of the plants. A few bits of groundsel may appear in the early stage of the business, and these the hoe will chop down; but, really, the growth is so fast that there is scarcely a chance to use the hoe, and the thickness of the plants, being only fifteen inches apart, does not at all interfere with the growth of perfect roots, provided the ground is as good as it should be. Land is too dear here to allow of far apart planting of anything that will bear crowding. Let those who can afford the ground put their sets

in two feet apart; here, at all events, we can get fine roots at a foot apart, but the plantation we are now taking up was made at fifteen inches, and the roots are grand.

Very much of course depends on the quality of the soil in such a matter as this. Ours is a deep, fertile, sandy loam lying rather dry, so that in the event of a wet spring the sets are in no danger of rotting. As to the abundant use of manure, if that may seem to upset my argument on the profitableness of this crop, I have to say that when the roots are taken out, the ground is still in good heart for any crop that requires a rich soil free from recent manure. Ridge it up for the winter, and next February plant Ash-leaved kidneys, or sew onions or lettuces on it, and there will be better crops than by the use of fresh manure: the fact is, manure is never lost; if a plant will bear it, as seakale, cauliflower, broccoli, and celery will, my plan is to use plenty—such, indeed, as some of our practical men here consider extravagant. But I reckon on two years' growth from such heavy dressings, and in the second season the ground is in a better condition for many crops than if just dressed with fresh manure. Let me not forget to say, that on the system of growing seakale now advocated, the plant never flowers; so the cultivator has not to go picking out flower stalks, and the plants lose none of their vigour by making seeds. Dig deep, manure heavily, break up the surface well, and plant properly, and you scarcely need look at the bed again, except to admire, and utter exclamations of astonishment, until the time comes, as it has now come, to take up the roots, and thereafter you may have seakale on your table any day you please until the month of March, or even until May, if desirable. We get tired of it always by the beginning of March, and so never take pains to secure a late supply by cool treatment and retarding. In a garden where seakale can be grown, they can also grow something else worth having after March is out. S. H.

THE NEW CONTINENTAL ROSES.

M. EUGENE VERDIER'S LIST OF NEW ROSES FOR 1867-1868.

THOSE LET OUT BY HIMSELF.

TEAS.

Clotilde.—Habit vigorous, having some analogy to "Bougère;" flowers very large, full of colour, changeable, ordinary transparent rose or violet rose, or clouded brick-red.

Laure Fontaine.—Habit vigorous, flowers large, full, well made, creamy white, centre more lively; very free flowering.

HYBRID PERPETUALS.

Aristide Dupuis.—Habit vigorous, flowers large, full, well formed, and of good carriage; superb slate colour, flamed or ribbed fiery; very free flowering.

Aurore du Matin.—Habit very vigorous, flowers very large, of a pretty colour; the reverse of the petals silvery.

Champ de Mars.—Habit vigorous, flowers large, full, in corymbs; lively crimson shaded with violet; very fragrant.

Charles Turner.—Habit vigorous, flowers large, full, very well formed, fine lively red; very bright.

Clotilde Rolland.—Habit vigorous, flowers large, full, having the shape of "Madame Furtado;" fine tender rose cerise; superb.

Comte Raimbaud.—Habit vigorous, flowers large, full, well formed; rose clouded mauve.

Impératrices Charlotte.—Habit vigorous, very perpetual, and full of flowers; flowers large, full, imbricated, in corymbs; tender rose, bright, and very fresh colour.

Madame Rolland.—Habit vigorous, very perpetual, and full of flowers; flowers the form of "Baronne Prevost," of which variety it is a seedling; superb rosy flesh, very distinct, and resembling at a distance "Souvenir de la Malmaison."

Merveille d'Anjou.—Habit very vigorous, flowers very large, very full, opening perfectly; very fragrant and enduring; fine.

Meyerbeer.—Habit vigorous, flowers very large, full, with folded petals; brilliant fiery red purple, clouded.

Reine du Midi.—Habit vigorous, very free flowering, having some analogy to "La Reine;" flowers large, full, well formed; fine soft rose; superb throughout the season.

Sophie de la Villeboisnet.—Habit moderately vigorous; flowers very large, very full, well formed: fine glacé rose; very free flowering.

Souvenir de Caillat.—Habit very vigorous; flowers large, full, in corymbs; violet purple and fiery red; much superior to "Lord Clyde."

Souvenir de François Ponard.—Habit very vigorous, and flowering continual; flowers large, globular, full, well made; petals large, fine lively rose; very fragrant.

Souvenir de Redouté.—Habit vigorous, flowers large, full, well shaped; red purple, shaded with vermilion and scarlet.

Souvenir du Champ de Mars.—Habit vigorous, and flowering abundantly; flowers large, full, well formed; red purple shaded with brown.

Thumbberg.—Habit vigorous, flowers large, full, well made; purple violet; red.

PERPETUAL MOSS.

Madame Charles Salleron.—Moderately vigorous, flowers large, full, glowing red crimson suffused with scarlet, having some analogy from its colour to H. P. "Monte Christo."

SECOND SERIES.

VARIETIES SENT OUT BY OTHER RAISERS.

TEAS.

Jean Pernet.—Habit vigorous, and continuous blooming, and abundant; flowers large, nearly full, fine clear yellow.

Reine de Portugal.—Habit vigorous, flowers large, very full, very well

* Vide article entitled "Heating on the Level," in the issue for Feb. 10, 1866.

formed, and enduring, fine deep golden yellow; very striking, sometimes copper clouded rose.

Souvenir de Maximilien.—Habit very vigorous, flowers large, full, fine red carmine, often marbled with white.

BOURBONS.

Madame Luzet.—Habit very vigorous, flowers large, very full, rose brightly shaded with orange and salmon; very pretty.

Marie Larpin.—Habit vigorous, very free-flowering, flowers medium size, full, very well formed, fine rose, very delicate, reflexed whitish.

HYBRID PERPETUALS.

Abbé Yénière.—Habit moderately vigorous, flowering constantly, flowers medium; full, well-made, superb bright rose.

Alice Dureau.—Habit vigorous, nearly thornless, seedling from "La Reine;" flowers large, full, globular, keeping well; fine fresh bright rose.

Bavillet Deschamps.—Habit vigorous, seedling from "Comte de Bobrinsky" (shades of the heroes of old!), flowers large, full, well shaped, round, fine rose; very brilliant.

Baron Haussmann.—Habit very vigorous, flowers large, full, well-made, poppy red; of grand effect.

Baron Lassus de Saint Genies.—Habit very vigorous, seedling of "Triumpho de l'Exposition," flowers medium, full, lively red crimson. (Has there not already been a rose let out of the above name?)

Baronne de Beauverger.—Habit vigorous, flowers large, full, in corymbs; fine bright rose; very fresh in colour, very sweet.

Baronne de Rothschild.—Habit vigorous, seedling of "Souvenir de la Reine d'Angleterre;" flowers very large, nearly full, well formed, fine rose, deeply shaded; superb.

Christina Nilson.—Habit very vigorous, flowers large, full, globular, well formed, bright rose shaded with poppy colour, edged white; reverse of petals clear satin rose.

Curé de Charentay.—Habit very vigorous, flowers large, full, in corymbs, deep purple; very fine.

Deuilde l'Empereur du Mexique.—Habit very vigorous, very free flowering, flowers large, full, well formed; blackish purple clouded and shaded with fiery red.

Docteur Hurta.—Habit very vigorous, seedling from "Baronne Prevost;" flowers very large, full, flattish, lively rose shading off to purple.

Duchesse d'Aoste.—Habit vigorous, flowers large, full, flat; fine bright glossy rose.

Elie Morel.—Habit very vigorous, very perpetual; flowers very large, very full, lilac rose, white at the edges; very fine.

Enfant d'Ameugny.—Habit very vigorous, flowers large, full, well formed; delicate rose striped white.

Ernest Boncenne.—Habit vigorous, seedling from "Madame Laffay;" flowers medium, full, globular; brilliant rose in the centre, the exterior rose marbled with carmine red.

Général Barral.—Habit very vigorous, flowers moderate, full, well shaped; fine violet rose.

Général Dessaix.—Habit very vigorous, flowers very large, very full; glowing fiery red shaded with poppy.

Jean Brosse.—Habit very vigorous, flowers medium, full, cupped; deep rose.

Jules Bourgeois.—Habit vigorous, flowers medium, full, well formed, deep velvety red.

La France.—Habit very vigorous, flowers very large, well-made, and enduring, scent exactly that of the cabbage rose; the petals are large; silvery in the centre, fine striking violet rose at the exterior.

La Sirène.—Habit vigorous, flowers large, full, red amaranth purple passing to rose-purple.

Lisette de Beranger.—Habit vigorous, flowers moderate, full, well shaped, globular; fine fresh rosy flesh, resembling the colour of "Bourbon Queen," and passing afterwards to full white bordered rose.

Louis Bulliat.—Habit vigorous, nearly thornless; large, full, keeping well, rich colour; red crimson clouded velvety black.

Madame Adèle Huzard.—Habit vigorous, flowers medium, full, globular; lively rose bordered whitish.

Madame Barriot.—Habit very vigorous, flowers very large, full, clouded carmine rose; very fine.

Madame Chirard.—Habit very vigorous, seedling of "Souvenir de la Reine d'Angleterre," flowers very large, very well formed, full, fine live y rose.

Madame Gonod.—Habit very vigorous flowers medium, fine clear satin rose, reverse of petals nearly white.

Madame Grendier.—Habit very vigorous, flowers large, full, fine salmon rose.

Marie Girodde.—Habit very vigorous, seedling of "Triomphe de l'Exposition," flowers large, full, well imbricated; fine fresh rose; magnificent variety.

Madame Noman.—Habit vigorous, flowers medium, full, well shaped, pure white.

Pitford.—Habit vigorous, flowers large, full, well shaped; fiery red, centre pansy velvet; very fine.

Président Villermoz.—Habit very vigorous, flowers very large, full, well-formed, clear clouded rose; superb.

Prince Humbert.—Habit very vigorous, flowers very large, full, well shaped, velvety, violet red; very bright.

Princesse Henri des Pays-Bas.—Habit moderately vigorous, from "Madame Recamier," flowers medium, full, silvery white shaded flesh.

Souvenir d'Adrien Bahivét.—Habit vigorous, flowers large, full, globular; velvety reddish crimson, clouded purple and violet carmine.

Souvenir de Madame Corval.—Habit very vigorous, flowers medium, full, very well formed, fine yellowish rose.

Souvenir de Ponsard.—Habit very vigorous, flowers large, full; fine metallic rose brightened with fiery red.

Tournefort.—Habit very vigorous, flowers very large, fine poppy red.

Vicomtesse de Vesins.—Habit vigorous, seedling from "Triomphe de l'Exposition;" flowers very large, very full, like a rosette in centre; fine fresh bright rose; superb.

HYBRID PERPETUAL NOISETTES.

Boule de Nieve.—Habit vigorous, flowers medium, full, well formed, pure white.

Coquette des Alpes.—Habit vigorous, flowers medium, well shaped, centre white shaded carmine.

PERPETUAL MOSS.

Souvenir de Pierre Vibert.—Habit very vigorous, flowers very large, full; very deep red shaded carmine and bishop's purple; very free flowering, and blooming freely and continuously; superb.

W. D. PRIOR.

NEW GLADIOLI, HYBRIDS OF GANDAVENSIS, FOR 1867-68.

The following is M. E. VERDIER'S List, just issued.

Bavillet Deschamps (Paulin).—Flower very large, very open, fine scarlet red, very large carmine spots upon deep white.

Bernard de Jussieu (Souchet).—Flower large, very open, well formed, deep clouded violet tinted cerise and purple, blotches purple upon dense white; colour new, indescribable, and of remarkable beauty.

Etendard (Souchet).—Flower very large, very open, well formed, white lightly flamed (or flaked) with lilac or bluish violet, spike very long, measuring about 36 inches.

Eugénie Scribe (Souchet).—Flower very large, very open, well formed, very soft rose, flaked red carmine.

La Fiancée (Souchet).—Flower large, well formed, very pure white, little spots of violet blue; very pretty.

Marie Verdier (Paulin).—Flower very large, very open, deep salmon rose, very large white blotches, traversed with a line of violet.

Mozart (Souchet).—Flower very large, very open, spike very full, bright rose lightly tinted with violet, very freely flaked with deep carmine, very large spots, pure white; magnificent variety.

Norma (Souchet).—Flower medium, spike very full, pure white, very rarely and very lightly flaked with delicate lilac.

Princesse Alice (Souchet).—Flower very large, very open, well formed, delicate lilac lightly tinted with rose, very large white blotches clouded; charming and novel, variety dwarf, and altogether of first-rate merit.

Rossini (Souchet).—Flower large, well made, very long spike, deep purple red, lined and spotted white.

Scmiramis (Souchet).—Flowers very large, very open, well made, spike very long, carmine rose to deep white, extensively flaked with bright carmine; a brilliant and splendid variety, without a rival.

Ulysse (Souchet).—Flower large, well made, very fine glossy rose, very fine colour.

Uranie (Souchet).—Flower large, very open, pure white, freely flaked with lively carmine rose; very fine and brilliant variety.

Alexandre (Souchet, as are all the following, this series being of less merit or less novelty than the preceding).—Flower large, well formed, very fine lively red.

Citrus.—Flower medium, upper divisions clear yellow, lower divisions very deep yellow.

Henriette.—Flower large, well made, tinted and flaked lilac; a dwarf and charming variety.

Isabelle.—Flower medium, very fine spike, pure white, large blotches of very deep carmine.

La Favorite.—Flower large, rose flaked carmine, lower petals clear yellow.

Leonora.—Flower large, well made, red cerise, lightly tinted orange.

Mébul.—Flower very large, well formed, spike often in whorls, clear currant red, lined and flamed with white.

Molière.—Flower very large, very open, well made, cherry red; very large spots of pure white.

Oscar.—Flower large, well made, very brilliant, bright cerise, white spots.

Stella.—Flower large, well made, dense white, lightly tinted yellow and rose, flaked carmine red.

Thalie.—Flower large, well made, white flaked lilac, striped carmine; fine vigorous variety.

Thunberg.—Flower very large, well made, very clear orange cerise, very large pure white spots.

GREEN LIZARDS.

These interesting little pets are quite ready to banquet on a variety of delicacies, such as meal-worms, caterpillars, planet-bees, butterflies, small pieces of meat, and some kinds of fruit. Water sweetened with a little sugar they do not object to, but sup daintily of. A well ventilated glass house or case will be found a convenient residence for them, and a small flower pot with a notch broken in its edge, inverted, and covered with rock-work and ferns (which may be planted in the interstices), forms a snug retreat into which the lizards can retire when seeking to avoid the wear and tear of too much society. It will be found a good plan to establish a meal-worm preserve, from which to draw from time to time game for the saurian epicures. This will be found especially valuable as cold weather comes on, and outdoor insects grow scarce; and thus the affair is arranged. Take a medium-sized earthenware preserve jar, half fill it with bran, bury a number of mutton chop or other bones of convenient size in it; then place a goodly number of meal-worms, the larvæ of *Tenebrio molitor* or *T. obscura*. In due time, as changes in insect life go on, other meal-worms will appear on the scene, and like rabbits in a warren, will be at hand when wanted. Place a perforated cover on your jar, and put it in a dry place. It is somewhat curious that these bronze-green little creatures should at times show such determined animosity towards each other. Some short time since a friend of ours kept a male and female lizard in the same case, formed a nice little matrimonial establishment for them, and confidently looked forward to their future as certain to be one of uninterrupted domestic bliss. But, alas for the mutability of affairs, saurian as well as human! the demon of discord established himself in their bijou residence. Flinks and tosses were rapidly succeeded by sulks and snaps, until matters were brought to a culminating point by Mrs. Lizard's nipping a piece of her husband's tail off; and although it was the end of the caudal extremity, it was by no means the end of the quarrel, for, as the periods of connubial storm and estrangement grew gradually longer, Mr. L.'s tail became most alarmingly shorter, until it scarcely deserved the name of a tail at all. Then our friend, thinking matters had gone quite far enough, stepped in, sternly resolved to do his duty; so he at once became a sort of Cresswell Cresswell of private life, and ordered a separate residence and maintenance, when all that remained of Mr. L. soon recovered its wonted briskness and activity.—SALAMANDER, in *The Field*.

A LADY asked her gardener why the weeds always outgrew and covered up the flowers. "Madam," answered he, "the soil is mother of the weeds, but only step-mother of the flowers."

Calendar.

WORK FOR WEEK COMMENCING OCTOBER 26.

Kitchen Garden and Frame Ground.

KITCHEN-GARDEN crops to be kept clean, all dead leaves removed, the ground frequently hoed between cabbage, &c. Thin winter spinach, clear off Brussels sprouts in compartments as used, and dig the ground over as soon as vacant.

LETTUCES.—Treat as recommended for cauliflower.

CAULIFLOWERS potted for keeping over winter should be kept rather dry, and as much as possible exposed to the weather, to keep them stocky and hard. Keep the lights or glasses on always at night from this time forth, removing them every morning, except during frost or drenching rains. In wet muggy weather, tilt the lights upon blocks of wood or bricks, so as to create a circulation of air amongst the plants, and yet keep them from being soddened with water.

DRAINAGE.—About three-fourths of the complaints that reach us of the misbehaviour of fruit-trees, and the failure of vegetable crops, and the unsatisfactory blooming of roses and many other things, have one common origin—the want of drainage. We see people labouring away at the surface, raising the level by additions of soil, manuring liberally, removing plants that have not prospered, and planting others in hope of better luck; and we can tell them, when all is done, that until they secure the first essential of success—a rapid removal of surplus water—there can be no success to their efforts, manure and plant as they may. At this time of year you have but to open a hole one spade deep, and in less than ten minutes that hole will be filled with water, which proves that the whole surface soil is saturated, and that any cavity, tunnel, or opening would immediately draw off the surplus water, according to the capacity of the opening, and that therefore very simple and inexpensive means would suffice to enable the soil to get rid of the water which is in excess of its power of absorption. A two or three inch pipe laid at a regular fall, at about three feet beneath the surface, will effectually drain a breadth of from 20 to 100 feet in width, according to the nature of the soil, and its relative level. Generally speaking, the drains should be three feet deep and twenty-four feet apart; but in a wet clay they will not be too close at twelve feet apart. In districts where there is any apprehension of the disturbance of the drains by moles, one-inch pipe should be used. On very flat land a fall of one in fifty will suffice to keep the water moving; but a rapid fall is preferable if the outlet is low enough to admit of it, as in times of sudden heavy rainfall a quick removal is very desirable. Of course we cannot here enter into the details of the subject; but, as this is as good a time as any to drain land that requires it, we again remind our readers that good drainage promotes the warmth and fertility of the soil; and, on the other hand, a water-logged soil is almost poisonous to every kind of plants that come under the care of gardeners.

Flower Garden.

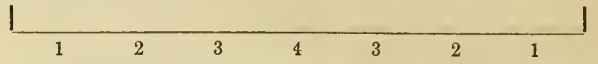
AURICULAS must be kept clean and dry; any drip from the frames will do incalculable mischief; at no time, not even during frost, should the roots be dust-dry; it causes an exhaustion of the plant which will tell seriously on the bloom hereafter.

CARNATIONS will often be found beset with green-fly during damp warm weather at this time of year; in which case fumigate at once, and again a few days afterwards, and they will probably remain quite clean till they begin to grow again in spring.

CULTIVATION OF SHOW TULIPS.—Let us say very little here about the value of tulips. There are some now catalogued as high as twenty guineas each, but beginners need not be afraid of prices, because the good old cheap kinds, the names of which are celebrated in the annals of tulip culture, are beautiful and indispensable even in the most costly collection. Those who will pay twenty guineas each for tulips this season must have such cheap sorts as Polypemus, Strong's King, Rose Baechus, Gloria Mundi, Brilliant, &c., &c.; and bulbs for a bed of sixty rows can be obtained of such growers as Mr. Lawrence, of Hampton, and Mr. Turner, of Slough, for from fifteen to twenty pounds. As there are seven bulbs in a row, this is at the rate of ninepence or tenpence each all round. This statement may be information to many readers, who suppose a fortune to be required for the purchase of a bed of tulips. Of course, at such a price rare kinds cannot be had, and many first-class sorts average five shillings to twenty-one shillings each; nevertheless the named kinds are all good, and when obtained at such a cheap rate will make a splendid display; and when the cultivator has become used to them, other varieties of more costly quality can be added as desired. A few pounds spent every year in improving the collection will bring a good return in the interest that will be created in watching for the flowers of the latest acquisitions, and in admiring them when they are out. There need be no quackery in the growing of the tulip. It is quite hardy, and well able to take care of itself, if provided with reasonable accommodation. There are a few points, however, of great importance. The bed should be in an open sunny spot, with some kind of shelter from north-east winds; and there is no better shelter than a mass of trees and shrubs, far enough off to cast no shadow on the bed, yet near enough to break the force of the blast and warm the air that passes through. A belt of shrubs twenty feet wide will raise the temperature on the lee-side of them four or five degrees on a keen windy day in March, solely by checking the movement of the wind. In a coppice it will be found to be quite mild and pleasant on a day when in open meadows the wind cuts like a knife, and the frost is unbearably severe. Shade will not do for tulips; the drip of trees will not do; fresh air and sunshine are indispensable. But there is a matter of still more importance, and that is drainage. If the position is naturally well drained, he content; but if not, make use of pipes to carry the water away. Do not trust to a substratum of brick-hats, as some foolish people do; brick-bats below a bed do not carry the water away; they simply hold it for the injury of whatever the bed contains. The soil best suited to the tulip is a free, fertile, sandy loam. If there is no suitable soil in the place, procure, if possible, the top spit of a good pasture. This ought to lay in a heap for three years, and it is then first-rate for tulips. You will see near field gates in most parts of the country great heaps of grass turf, twich, and other gatherings from the field. Generally speaking, when these heaps are well-decayed, they are unequalled for a tulip bed. If the loam contains plenty of decayed fibre, animal manure is not wanted; but if it is poor, a fifth part of very old hotbed manure may be mixed with it with perfect safety, but it must be thoroughly decayed, or it will do mischief. In making the bed, if the soil on the spot is suitable, dig it two feet deep, and

break it up well. If it is not suitable, take out the soil two feet deep, and fill in with the selected soil. The bed must be four feet wide, and of any length you please. It is a good plan to make a short bed, and lengthen it from year to year as the stock increases. This is better than aiming at too much in the first instance. If you should be persuaded to soak the bed with strong manure-water before planting, you may expect bad flowers. In some parts of the country a fallacy in favour of this process prevails, and is very injurious. The tulip does not require stimulants. The best way to keep up the bed is to enclose it with boards placed on edge; these boards should be one inch thick and four and a half inches wide; they are to be fixed half an inch deep in the ground, so as to stand four inches above the level, and the bed is to be made up to the level of the boards, within an inch or so; in other words, the bed is to be raised above the level and enclosed in a sort of box. Before planting let the bed be forked over again, and raked to a nice convex outline.

The first thing preparatory to planting is to mark the edge of the board both sides of the bed at intervals of six inches. At each mark there will be a line of bulbs six inches apart, consisting of seven bulbs. The rows are counted lengthwise. The flowers next the edge are the first row; those next towards the centre, the second row; the next the third row; and the centre flowers form the fourth row; thus:—



It will be understood that the fourth row should comprise the tallest flowers, the third the next tallest, and so on, to the edge. On referring to a tulip catalogue it will be seen that figures are attached to the names; those figures are to indicate which row the variety should be placed in, but the rule need not be followed strictly, for second-row flowers may often be put in first or third row, third-row flowers in second row, and so on. As a rule, however, the figures are a guide to the heights, but a strong bulb of a first-row kind will generally grow taller than a weak second-row, and so on.

It is necessary now to say that tulips are divided into three classes, namely, *Roses*, which have a white ground and crimson, pink, or scarlet marks; *Byblæmens*, which have white grounds and purple, lilac, or black marks; *Bizarres*, which have yellow grounds and marks of any colour. There are various ways of arranging them, but the best is to place them alternately from the first to the fourth row, and then to reverse the order to the other side, so that one side of the bed is a counterpart of the other. This may be illustrated by a table, thus:—

Rose	Byh.	Biz.	Rose	Biz.	Byh.	Rose
Byh.	Biz.	Rose	Byb.	Rose	Biz.	Byb.
Biz.	Rose	Byh.	Biz.	Byh.	Rose	Biz.

The process of planting may be explained in a word. Prepare a straight lath long enough to reach across the bed. Mark it accurately at intervals of six inches. Lay it down from a mark on the board to the corresponding mark on the board opposite. With a piece of stick of suitable size make a hole at each mark on the lath, throw in some silver-sand, and then insert the bulb with the crown four inches below the level of the bed, and fill up with silver-sand. Many growers reject the sand because in their districts it is expensive. But then in very wet winters they have losses which probably amount to quite the value of the sand, so upon the whole they are not gainers. Every loss makes a gap in the bed which is unsightly, and the sand is a great protection. An old tulip bed is like potting compost, owing to the annual introduction of silver-sand in the process of planting.

The following is a list of cheap first-class sorts, which every beginner should possess, as they stand in the foremost rank at all our great exhibitions. It must not be supposed, however, that those named below can be had at an average of ninepence each; they will range from half-a-crown to five shillings each, or thereabouts.

A SELECTION OF 175 VARIETIES OF SHOW TULIPS.

BIZARRES.

First Row.—Alhion, Dr. Horner, Goldham's Fortunius, Golden Fleecce, King of Tulips, Marshal Soult, Osiris, Roi de Navarre, Groom's Ruhini, Sir Edward Codrington, Lawrence's Solon, Lawrence's Selim, Stein's Napier, Tolémachus, Clark's Ulysses.

Second Row.—Ariadne, Apollo, Bizard Le Kaine, Coronation, Charbonnier Noir, Captain White, Darius, Lawrence's Glencoe, Gloria Mundi, Lawrence's Ostade, Optimus, Lyde's Oddity, Pilot, Lawrence's Peacock, Strong's Titian, William IV.

Third Row.—Carter's Leopold, Charles X., Captain Sleigh, Delaforce's King, Lawrence's Fahius, Lord Strathmore, Lord John Russell, Magnum Bonum, Milton, Ophir, Polypemus (feathered), Polypemus (flamed), Prince of the Netherlands, Strong's Hero, Salamander, Walker's King.

Fourth Row.—Dickson's Duke of Devonshire, Lawrence's Donzelli, Emperor of Austria, Lord Collingwood, Proteus, Sharp's Victory (alias Sultan), Lawrence's Sbeet Anchor, Warsaw.

BYBLÆMENS.

First Row.—Bienfait, Chellastou Beauty, Enclid, Gloria Alborum, La Belle Narine, Parmigiana, Goldham's Prince, Queen of the North.

Second Row.—Lawrence's Friend (alias Addison), Brown's Wallace, Bijou des Amateurs, Blomart, Cleopatra, Countess of Harrington, Lawrence's Diogenes, Euterpe, Gibbons's Enchantress, Grand Monarque, Ilandois, Ivanhoe, Joseph Strutt, Lalla Rookh, Lewald, La Virginité, Lawrence's Lord Stanley, La Jolie, La Latier, Malibras, Maid of Orleans, Mentor, Gibbons's Purple Perfection, Penelope, Prince Charles, Reid's Prince Albert, Willmer's Queen Victoria, Queen Charlotte, Rubens, Smith's Wellington, Super et Noir, Victoria Regina, Violet Blondeau, Violet Rougatre, Winifred, Zoe.

Third Row.—Acapulca (alias Roi de Siam), Gibbons's Britannia, Black Baguet, Cineinnatus, Colossus, Desdemona, Duc de Bordeaux, Duc de Boufflers, Gibbons's Elegans, Franciscus Primus, Grotius, General Barneveldt, Grand Sultan, Holmes's King, Lawrence's Lady Errol, Lawrence's Lord Hawkesbury, Michael Angelo, Miss Porter, Princess Charlotte's Cenotaph, Princess Royal, Lawrence's Patty, Lawrence's Priam, Tintorette.

Fourth Row.—Ambassador, Alexander Magnus, Lawrence's Camarine, Captain Lampson, Commodus, Lawrence's Elthron, Louis XVI., Saint Paul, Thalia, Violet Quarto.

ROSES.

First Row.—Searnell's Bijou, Cerise Blanche, Catalina, Fleur des Dames, Kate Connor, Madge Wildfire, Rose Juliana.

Second Row.—Aspsia, Andromeda, Cerise à Bella Forme, Comet, Lawrence's Cynha, Duchess of Newcastle, Groom's Duchess of Sutherland, Dutch

Poneau, Slater's Fairy Queen, Goldham's Maria, Lawrence's Lady Waldegrave, Clark's Lavinia, Mary Lamb, Mason's Matilda, Perle Brilliant, Perle d'Orient, Rose Imogene, Triomphe Royale.

Third Row.—Lawrence's Aglaina, Anastasia, Claudiana, Lawrence's Duchess of Clarence, Fanny Cerito, Lord Byron, Rose Canuse, Rose Brilliant, Rose Galatea, Lawrence's Mary Anne, Rose Cordelia, Rose Walworth, Thalestria.

Fourth Row.—Lawrence's Clarissima, Comte de Vergennes, Lawrence's Emily, Madame Vestris, Mountain Sylph, Midland Beauty, Prince William, IV., Rosa Blanca.

Fruit Garden and Orchard House.

CURRENTS AND GOOSEBERRIES should now be lifted if required, as the next year's crop will be less jeopardised by getting them early to the places in which they are to fruit. Fork in a good dressing of manure between the trees in old plantations. Put in cuttings of choicest sorts; the cuttings to be straight ripe shoots of this year, and all the lower buds removed, so as to prevent the throwing up of suckers.

FRUIT-TREES to be planted as soon as possible; manure not to be used unless the ground is in a poor condition, and then a little fresh soil should be used with it if possible. Turf from the roadside, clay, clearings of ponds and ditches are excellent materials to invigorate an old worn-out soil required for fruit culture, as also to give body to poor sandy and chalky soils. In planting, keep all roots near the surface; never plant any tree deeper than it was planted before, and if it was evidently too deeply planted before, give it a better chance than it had previously by more shallow planting. Stake as soon as planted, to prevent rocking by the wind, and at the same time prune.

Greenhouse and Conservatory.

GREENHOUSE.—On bright days open all the ventilators, to cause a free circulation of air amongst the plants. Avoid using fire-heat as much as possible consistent with the safety of the plants, and give very little water to those that have finished their growth, or which it is desirable to throw into a state of rest. Plants in pits will endure short periods of frost better if kept well aired and moderately dry. In case of a severe frost, now to be looked for, light a brisk fire early in the day; give air while the sun shines, shut up early, and trust to covering up rather than keep the fire burning all night. A clear sky and a few points of north in the wind may be considered indications of frost, and at such times the cultivator should be on his guard. Generally we have one sharp frost at this season, and then no more till near or after Christmas, and the frost generally follows close upon heavy rains.

PRIMULAS AND CYCLAMENS to be kept in the warmest part of the house, and have every encouragement to push forward to bloom. Keep these near the glass where there is no drip.

PLANTS IN FRAMES will soon be infested with mildew now, if kept close or damp. Though nothing should go dust-dry, it will be best always to defer watering till the weather is clear and bright, and then water well the first thing in the morning, that the pots and plunge material may be somewhat dry before night; one good watering will go a long distance now. During keen north-east winds—not very prevalent at this season—soft-wooded plants suffer severely if kept very dry, and at the same time they will not then bear so much exposure as at other times. Keep the plants clean by removing dead leaves and cutting off the soft tops of any green shoots of geraniums, &c., which show signs of mildew.

Stove and Orchid House.

STOVE.—There are comparatively few plants in bloom now, and those few must be made the most of. Many subjects, however, require to be started into growth, and the necessary repotting and pruning must be attended to. A few good orchids are in bloom now, such as *Odontoglossum grande*, *Phajus grandiflorus*, *Dendrobium Paxtoni*, *Cypripedium purpuratum*, and these must have sufficient heat and moisture. Orchids approaching a dormant state should be kept comparatively cool and dry, but due caution must be exercised to avoid all extremes. This is a good time for a general repotting of stove plants that flower in the summer, as it affords them a long growing season, and they can be carried through a succession of shifts for the production of well-furnished specimens. The usual routine of treatment is in the majority of cases the best. The plants are cut down, and as soon as they break fairly are shaken out, the roots are cut back, and they are potted in small pots, and have a little extra heat to promote the formation of new roots. Then as they fill their pots with roots they are shifted on till they occupy the pots they are to be bloomed in. Solar light is now becoming a scarce commodity, and the careful cultivator will catch all he can. Clean glass, climbers a little reduced, and plants most in need of light put as high up as possible, are three direct ways of obtaining the fullest benefit of the present subdued daylight.

Forcing Pit.

PEACHES in the forcing-house to be pruned at once; the roots top-dressed, the branches washed, and the lights put on. But give plenty of air. Vacancies may now be filled up in the peach-house, and nothing better for the purpose than bearing trees. In many gardens a reformation is taking place in the cultivation of peaches. Healthy trees producing but small crops on open walls are being removed and planted in Paxtonian houses, which by their steep pitch and abundant ventilation are admirably adapted for fruit culture. Generally where peaches are unproductive on open walls the climate is most to blame, and the mere protection of glass, even without fire-heat, suffices to convert barren into fruitful trees, besides the fact, which must always be borne in mind, that trees under glass invariably get more attention than those in the open air. Rivers's Early Victoria is the earliest peach known, a week earlier than Early York. The same raiser's Early Albert is a good peach for forcing, but of less value than the former. Other good varieties to force are Mignonne Grosse, Galande, Early York, and Red Nutmeg. In planting peaches on open borders, let attention be first given to drainage; if the soil is light, lay down six inches of tenacious loam or clay, or turf from a loamy pasture, and about three inches of rotten dung, and then stir the whole, and mix this material with the staple to a depth of two feet, mixing the ingredients well together. The peach, nectarine, and apricot, all require a firm, substantial, and somewhat adhesive soil, a south aspect, and a dry bottom.

STRAWBERRIES.—As the stock of potted strawberries intended for forcing will now require special attention, we bring before our readers an admirable method first adopted by Mr. Sparkes, of St. Mary's Cray. He says: The following method may be adopted by any who are preparing to force strawberries next spring, if their plants are now in pots with well ripened crowns. By this method finer forced fruit can be produced than

by any other. I lay runners in the usual way, in 60-size pots, about the latter end of June; and here I will just state, that they should be layered, if possible, from one-year-old plants that are very strong and healthy, as they will produce the best runners. I keep them well watered, repot the last week in July, or first week in August, in thirty-two's, or six-inch pots. Soil, turfy loam two parts, road-sand two parts, cow-dung one part, with a sprinkling of soot; well drain the pots, and when potted off place them in a good open situation, fully exposed to the sun. I give them plenty of water, never allowing them to flag by any means. By October you will have strong plants, with large solid crowns, and the pots full of roots. Now they must be watered very sparingly, and kept almost dry, that they may ripen their crowns well, and go to rest. I pack them in ridges, and well protect them in frosty weather. For early purposes, I plunge them in a pit, with bottom-heat, about 65° or 70°, and as soon as they show their buds I plant them out in the troughs. The troughs are made of rough deal, from six to twelve feet in length (or any length that may be most convenient), eight inches in depth, seven inches wide on the top, five in the bottom, with holes in the bottom for the water to pass off. Over these holes I put large sherds, with their convex sides downwards, then small ones all over the bottom of the troughs. On these a layer of fibre, turfy loam, broken in pieces about the size of small hen's eggs; turn the plants out, remove all the drainage I can without injury to the roots. Plant them in the troughs, with a space of two inches between the ball of each plant. I fill up with three parts turfy loam and one of road-sand, that has been well incorporated together, working in very solid around the plants with a short stick, or rammer, the crowns of the plants being just level with the top of the trough; place them on the back shelves of the vinery, or in the strawberry-house; give them a good watering with tepid water, and you will see the advantage of the trough over the pot. They will send their roots down in the troughs, and all around the sides, developing their beautiful glossy leaves, and sending up their immense trusses of bloom. I give plenty of air when they are in bloom, and they will set well; they will only require watering once a week in the troughs during the months of December, January, and February; and twice a week in March, April, and May, will be quite sufficient, which, I think, is a very great advantage over pot culture. Amongst extensive growers, and where labour is an important item in the spring, when there is so much to be done in every department, one thousand, or fifteen hundred, pots to be watered every day, and twice a day when very hot, will and does take up a very great amount of time and labour. For a late crop in troughs, the following plan may be adopted, and will produce a good crop, without the use of pots. Take off young plants, or runners, the first week in July. Make choice of those that have roots from half an inch to one inch in length. Prepare a bed, in a good open situation, five feet wide, and any height that may be required. Make the surface of the bed when marked off, very solid, and put on a layer of good rotten stable manure, and cover with three inches of soil from the sides or alleys. Make the bed level, and plant one foot apart. Press the soil firmly around, and keep them well watered. They will soon make new roots, and by the autumn will be strong plants. Take them up in March very carefully, and plant in the trough. The sorts that I cultivate are Keen's Seedling for early, and British Queen for a late crop. The troughs may be made ornamental, and placed on the sideboard when the fruit is ripe, and no one will be in doubt, I think, as to their appearance. I can only say, I have grown strawberries for dessert, for the market, and the exhibition table, and have been a successful exhibitor, and I have grown them in different ways; but I have never carried such a crop, and grown them to the perfection as I have in the troughs, during the commencement of the present year.

Correspondence.

USES OF SAWDUST.—I have got several good hints from your Magazine. One which I will refer to now is the use of sawdust, about which you had some articles a few weeks back. I would premise that I cultivate about an acre and a half of land by way of amusement. I can give it none of my own work, only a little superintendence. I have to find labour and rent, and I am able to say that my balance-sheet shows a very good margin in my favour. I cultivate it with the intention of supplying my own table with the best of vegetables, selling wholesale a few of the earliest crops, and using all the rest in the keeping of pigs. I generally keep from 15 to 20 pigs, and perhaps 40 or 50 fowls, so that I have an abundance of good manure. Now, then, with regard to the sawdust. My greatest trouble had been to find litter for my animals. Straw could only be obtained at 60s. or 65s. per ton, and frequently could be hardly got for that; so that I found this article added very much to my expense. But when I read your sawdust article, it struck me that that was just the thing for me. I found I could get a sack of sawdust for 6d., and I immediately procured a supply. I found the pigs were delighted with their bedding; their coats, from the friction of the sawdust, put on a most healthy appearance, and the terebinthine odour of the sawdust gives a most wholesome smell to their houses. But it is in regard to another application of sawdust that I now write. You have had several papers lately on the storage of root-crops. I had about ten sacks of potatoes which I wished to take great care of: they are a very good sample of flukes. I have an out-house at the back of my house, the bottom of which is used as a coal-house. All round the top is a shelf, something like that shown in your sketches in your number for October 12. I first covered the shelf about six inches thick with sawdust, then put on the potatoes, and then covered them with a layer of sawdust about six inches thick. I fully expect they will come out next April and May in prime condition. I would say that many of my flukes were 1lb. in weight, and two of the heaviest weighed 2lb. 7 oz. I have a quantity of mangold, which I intend storing on sawdust in a similar manner, and lightly thatching with straw. Allow me to give another hint in the gardening way. I have a friend who lives in the neighbourhood of London. He has a house about twenty feet wide, and a garden behind same width, running back about eighty feet. Now, such a piece of ground ought to keep his family, which is small, in garden luxuries, but he gets nothing: his potatoes are small and soapy, his cabbages are eaten out with slugs, his peas are all consumed by the sparrows, and his cabbages, even the black, are also appropriated in the bud by birds. He complains of the dearth of labour and the expense of manure. My advice to him is to burn all the bones of the house in the kitchen fire, and not many at a time, and throw all the ashes of the house over the garden. This is a plan I have long followed; by this means the whole of the phosphates of the bones are utilized, and the small amount of potash salts in the

ashes given to the ground, while the texture of the ground is much improved by the open nature of the ashes. If my friend would go to the trouble to get an ash-pit in the garden, and get his servant to empty the slops of the house therein over the ashes, an abundance of manure would be obtained, which, with the bones and deep digging, would go far to remedy all his difficulties.

AN ENEMY TO WASTE.

THE NAPOLEON WILLOW AT KEW.—In your paper of the 12th instant, under the heading of "A 'Napoleon's Willow' at Kew has been cut down," it is stated that the last stumps of the willow trees that overshadowed Napoleon's tomb were removed in 1840. This must be a mistake, as in the year 1858, when I visited St. Helena and Napoleon's tomb, there were willow trees overhanging the tomb of very large size and growth, certainly of much greater age than eighteen years could produce, supposing that the original trees were removed in 1840, and others planted in their place. Those trees were shown to me as originals, and must then (in 1858) have been at least forty years old, allowing even for the very rapid growth of willows in a tropical climate, the trunks being of large girth; and, further, there being no care taken at that time of either Longwood or the tomb, the trees were almost pulled to pieces by travellers of all nations taking cuttings and pieces of the bark as souvenirs. I took a cutting on the occasion, but it unfortunately died; however, on again visiting the island in 1865, I found the willows strictly guarded, under the direction of an old French officer, sent out in charge of Longwood and the tomb, both of which have been presented to the French by our Government. The cuttings being now difficult to obtain, I got one through the courtesy of a friend of mine, a French naval officer, and prizing it more in consequence of the difficulty in obtaining it, I have now got a very promising young tree. There may have been some willows removed from near the tomb in 1840; but I think it is due to my tree to show that it is descended directly from one of the original trees that used to overshadow the tomb before the removal of Napoleon's remains to France.

SALIX.

EXPERIMENTS WITH VARIEGATED ZONAL GERANIUMS.—Having been engaged making a few experiments similar to those of Doctor Denny, and taking a great interest in his experiments, as detailed in your Magazine, I hope you will not think me troublesome if I begin first by putting a question which is not answered in the notes so plainly as I could wish. The expression "breaking into" (5 of note) refers, of course, to the after-growth; but has Dr. Denny known any of his seedlings, coming up with the *seed-leaves entirely green*, ever change or afterwards break into versicolor foliage during their after-growth? In reading over the notes, my first impression was that, although the seedlings came at first with entirely green leaves, they afterwards "break into colour." If this is the case in his experiments, I have, in making similar ones, never observed a case in mine. My experience in this matter is, if the cotyledons, or seed-leaves, in ever so small a part, show "splashes" of colour, the future growth goes on breaking and expanding into colour; but if these leaves are entirely green, I have not yet observed any of them change. The colour, however, is often on these first leaves so indistinct and small in quantity, that it must be carefully looked for before it can be seen.

Last year I crossed several varieties, but in the greater number of cases neglected to take note of the pollen parent, and many of the seedlings put on an appearance that I could not well understand, and I resolved this season carefully to note the particulars of each pod of seed sown. Among my crosses last year, there was a pod of seed sown from Mrs. Pollock, crossed by pollen from Excellent; only three seeds vegetated, and are now all common-looking zonals, with different degrees of depth in their zones. One of these flowered early in the season (the flower very much like Excellent in colour), and I crossed this seedling with the pollen of Mrs. Pollock and Golden Chain, and the results from the pollen of the former are five plants, and from the latter two; but in every case they are all beautifully variegated, and sending out fresh leaves correspondingly variegated; but of course they have yet but a few leaves altogether on them, and the experiment is but a limited one, but so far it goes to show that there is something in blood. I crossed this same seedling also with various others; for instance, Annie Williams and Bronze Queen, and in many cases I have got very light-coloured results, and the leaves of some are of a beautiful shade of yellow, with a slight zone of brownish colour, at present very pretty; but from these last crosses there are many entirely green in the leaves, and my experience is that these last will never break into any other colour, and would wish much to have Dr. Denny's experience on this subject.

There was a cross which I made last year between Eleanor (a plain-leaved geranium) and Dr. Lindley (a zoned one), and I was struck with the seedlings almost from the first: when Dr. Lindley was the pollen parent the seedlings were nearly in every case zoned; when Eleanor was the pollen parent the seedlings were almost all without, or very feebly zoned, and from that circumstance I, this season, used the pollen of the variegates which I wished impressed on the progeny, but find that there are exceptions, for this year I crossed Eleanor with the pollen of Bijon, and from that cross had four plants, all of which are common green-leaved plants without any variegation, which shows that the leaf does not always follow in the way of the pollen plant. I find that I have also two crosses from Madame Vaucher; in one case Mrs. Pollock is the pollen parent, and in the other Golden Chain; but as I have only one plant from each cross, one being entirely green, the other finely marked, goes only to prove that variegates can be perpetuated by using their pollen to ordinary green-leaved plants. The crosses with the variegates and the green-leaved variety do not appear to follow exactly the same law as the zoned and plain-leaved cross above stated, but goes rather to prove the correctness of Dr. Deuny's remark, that "the foliage seems in the offspring to resemble, in a large proportion, the more vigorous of the two parents."

As to the colour of the flower arising out of crosses, I find from my notes that two years ago I crossed Lady Rokeby with the pollen from Christine, and the result was thirty-five plants, and the colour of the flowers of about thirty of these crosses bore either a strong resemblance (not certainly the identical shade) to one or other of the parent plants, and not in one instance could I say that there was a blending of the two colours resulting in a shade of colour as if formed by the united colours of the two parents.

W.

ZONAL GERANIUMS AT THE MANCHESTER EXHIBITION.—I have read the correspondence with some interest, for I was present on the first and second days of the exhibition. I consider both parties are greatly in the wrong, and I am sure that many of your readers who know nothing by observation as to the exhibition, will agree with me, for each writer indulges in personalities, and admissions are made last which should have been made at first. Permit me, as an impartial observer and critic, to make a few observations.

First, as to your report and Mr. Wills's protest. You spoke disparagingly of his plants; he was hurt, and could not say so without having a fling at Mr. Watson. Now Mr. Wills deserved more than the rebuke you gave him, and it is to his credit that he acknowledges he deserved it. Here is the main point: *Mr. Wills did remove some of his plants*, and in his letter, which appeared on the 28th of September, he ought to have owned the fact, instead of waiting until the confession was forced from him. I should always watch a case closely which arose out of alleged errors in the Magazine reports, for it is everywhere known that, for fulness, accuracy, and interest, we never had such reports before, and we may take the reports of this particular show in evidence. You say that Mr. Wills put a lot of green-leaved plants in a group professing to be variegated. Mr. Wills tries to escape the responsibility by abusing Mr. Watson's plants, and praising his own. At last it turns out that soon after (and it matters not to the argument how soon after) the awards of the judges Mr. Wills removed the best of his plants, and put others in their place that were not variegated. He is found out by the quick eyes of your reporter, or I suppose by the Editor himself, who was one of the judges, and remained in Manchester a second day to make a report. A great fuss, certainly, and it ends so far in proving Mr. Wills to be lacking in straightforwardness. Now, as to Mr. Watson. Because he was attacked by Mr. Wills, he feels bound to return the compliment, and he does it very badly indeed. His object is simply to puff his plants into note. Just as Mr. Wills says, "Florence is without doubt one of the best tri-colors in existence," so Mr. Watson cries, "Miss Watson surpasses every other ever seen or heard of," &c., &c. Now I think Mr. Watson would never have been drawn into this indiscretion, had he not established himself in the dislike of the profession, as one of the most talkative exhibitors ever seen or heard of. I am concerned in the management of flower shows, and I have made it a rule never to send Mr. Watson a schedule, because we don't want him preaching over his plants the whole day long, to the inconvenience and annoyance of visitors, and the injury of exhibitors who do not preach and palaver. Remembering how Mr. Watson held forth at the last June show at Manchester, I can forgive Mr. Wills for falling foul of him, though the question raised had nothing to do with Mr. Watson's loquacity. If Mr. Wills exhibits again at Manchester, or anywhere else at a more than one day's show, he must leave his plants the whole time, or he must not put his name to the substitutes, or he must put up with truthful reporting. If Mr. Watson ever exhibits again, he must be as quiet and un-demonstrative as other exhibitors, or he will find that committees have agreed not to make room for him; he will be other than welcome, for people have had enough of it. He does not lecture or preach over his plants at Regent's Park, for the simple reason that he is not allowed, and in some other places I can assure him the "silent system" will be rigorously enforced. I remember, Mr. Editor, reading somewhere in one of your works a brave eulogy of gardeners as the very best of men, and a challenge to the world to declare if a gardener had ever been hanged. I beg of you to revise your thoughts on the subject, with the aid of this discussion. Mr. Wills says, "You are so and so;" Mr. Watson retorts, "You're another." It is evident that these gentlemen are not looking, as they should be, for the promised millennium.

HENRY SAGE.

[We hope there will be no more correspondence on the subject.—Ed.]

Replies to Queries.

Hays's Constant Stove.—Letters come in almost daily from correspondents who wish to purchase this admirable stove, and know not where to apply for it, the London agent having disappeared. A correspondent having been placed in a difficulty as to obtaining peat charcoal of a suitable kind for the stove, has learnt that it may be obtained of Messrs. Elsam and Co., the Peat Charcoal Company, Upper Thames Street, London. There are two qualities sold, and the prices are 30s. and 60s. per ton respectively; that at the highest price is well adapted for Hays's stove, but the cheaper article is too soft and dusty. The company will not sell less than one ton to any customer.

F. T. K.—You must fumigate your cinerarias with tobacco. There is no other way to deal with them.

Cool Orchids.—Subscriber.—Probably the best two orchids to begin with in a greenhouse would be *Epidendrum vitellinum* and *Oncidium bicallosum*. You could obtain a good plant of either for a guinea, or both for the same sum, if little bits would suffice. These would do best in pots with good peat, and good greenhouse treatment is sufficient for them. When you get used to these, you may try *Cypripedium venustum* and *insignis*, *Anguloa Clowesii*, *Dendrobium speciosum*, *Lælia majalis*, *Odontoglossum citrosum*, *Sophronites grandiflora*, and others. In the "Garden Oracle" for 1865 is a short treatise on orchid-culture, which will afford you every needful information.

Marrow Peas.—Friend may do well with such varieties as *Advancer*, three feet; *Burbidge's Eclipse*, two feet; *Stuart and Mien's Prince*, four feet; and *Lord Raglan*, four feet. You may do very well without peasticks; iron or wooden stakes, driven in firmly at about six feet apart on each side the row, and tarred string run along from stake to stake, will keep peas together well, no matter how tall they are. Of course, the height of the stakes must be regulated by the height of the peas.

Friend.—The splendid hybrid *Clematis* raised and sent out by Messrs. Jackman and Son, of Woking, are quite hardy. This would be a good time to plant them to form magnificent beds of blue and purple flowers next season. The best of the male *Aucubas* to furnish pollen is the one called *Fortune's Maculata*, *A. japonica mascula maculata*; it has fine broad leaves, richly spotted with yellow. The correct accentuation for the generic name of the toreh lily is *Tri'toma*, but the lingual organs of Englishmen persist in making it *Trito'ma*, and the wrong way is undoubtedly the easiest and most euphonious. We do not believe in strict technical accuracy in these matters, and after the debate on *Gladiolus profer* the vulgar way of putting full force on the antepenultimate.

G. Fox.—What do you mean by the "Australian acacia"? There are dozens, probably hundreds, of species and varieties of *Acacias* natives of Australia. The good useful species, such as *arnuta*, *lophantha*, *rotundifolia*, *grandis*, &c., may be obtained at any respectable nursery.

S. R.—A small boiler and a service of 3-inch hot-water pipes would be the best for your house; but two of Joyce's or one of Hays's stoves would be enough to keep frost out.

Stockton, Engineer.—Your plant is *Catanancho cerulea*.

E. S.—The flowering plant is *Polygonum Virginianum*; the small fern is the crested variety of *Pteris serrulata*; the other fern must be in fruit to be named correctly.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1867.					M. temp. avg of 43 yrs.	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D	
			rises.	sets.	h. m.	h. m.	rises.	sets.	h. m.	h. m.	Barometer.	Thermometer.	Rain.	Growth.					
1867																			
3	S	20th Sunday after Trinity	6 59	4 29	9 46 p.m.	10 0 p.m.			29 80	29 65	58	30	49 0	0 3	44 0	Odontoglossum Iro Skiuceri, M	Guatemala	3	
4	M	Length of day 9h. 20m.	7 0	4 27	1 19	11 1			29 93	29 90	56	40	48 0	0 2	43 9	Sophrontites grandiflora, 1	Rio	4	
5	T	Gunpowder plot, 1688.	7 2	4 25	1 59		a.m.		29 90	29 84	60	48	54 0	0 0	43 5	Laelopodia Domingouaria, 1...	Brazil	5	
6	W	Jussieu died, 1771.	7 4	4 24	2 15		0 4 a.m.		30 13	29 99	60	40	50 0	0 0	43 3	Stanhopea oculata, M	Mexico	6	
7	Th	J. Kyrle, "Man of Ross," died, 1724.	7 5	4 23	2 43		1 10		30 03	29 98	57	47	52 0	0 1	43 0	Cattleya maxima, M	Columbia	7	
8	F	Milton died, 1674.	7 7	4 22	3 7		2 18		29 80	29 66	60	32	49 0	0 3	42 6	Barkeria Skiuceri, M	Guatemala	8	
9	S	Prince of Wales born, 1811.	7 9	4 20	3 33		3 29		29 97	29 77	51	24	37 5	0 0	42 4	Lycaea Doppel, M	Zabala	9	

The Gardener's Magazine.

SATURDAY, NOVEMBER 2, 1867.

WHAT IS THE USE OF THE ROYAL HORTICULTURAL SOCIETY? We ask the question with the view of obtaining information, and not by any means for the purpose of entering upon any unkind criticism. If any of our readers can tell us what is the use of the society, or can give us any account of what it does that might not be better done without its aid or countenance, we shall be most glad to give publicity to the facts in these pages. But why ask the question, while we have in our minds a proper reply, that the society is of no use at all? Well, just for this reason: it has become the custom of late to institute special subscriptions for special purposes, which it appears to be the special prerogative of this society to carry out as part of its mission, and in justification of the large funds it gathers from its supporters. No one now contemplates the calling of a meeting or proposing an exhibition without preparing at the same time to send the hat round. An exhibition of variegated-leaved pelargoniums could not be agreed upon until there was a guarantee given that the persons intending to compete would first subscribe the needful funds for it. A subscription is now going on for a similar purpose; the society does nothing beyond offer a place for the exhibition, which secures for its coffers the contributions of non-fellows who come to see it, and strengthens its hold upon its fellows by providing them with an entertainment. The society risks nothing, and does nothing, but stands ready to receive all gains; a very ingenious mode of "improving the occasion." Now there is a feeling of anxiety prevalent amongst exhibitors as to the economy of great exhibitions, and especially of those that are continued beyond one day. There is the society assuming to itself a representative power and an administrative capacity; but it can do nothing in this matter, exhibitors must find the money and do all the society's work. The *Gardener's Chronicle* of Saturday last proposes that "the principal exhibitors and growers of plants around the metropolis, as well as the patrons of gardening in general," should "contribute a limited subscription of perhaps £5 each," to provide a suitable building for great and long-continued exhibitions. We were simple enough in our remarks on this very subject, in last week's Magazine, to suggest to the council of the society, and to the directors of the Crystal Palace, and to the promoters of great shows generally, to prepare more liberal schedules, seeing that great and long-continued exhibitions usually proved highly remunerative in a financial sense, and severely taxed the powers of exhibitors. Our contemporary knows better than we; it knows the Royal Horticultural Society to be an incapable entity, or perhaps a nonentity; and now that another subscription is proposed, we do not want any one to answer the question with which we commenced, because we feel bound to close with questions of another kind, DOES THE ROYAL HORTICULTURAL SOCIETY REALLY EXIST, AND WHEREABOUTS IS ITS HIDING PLACE?

DISTRIBUTION OF SURPLUS PLANTS FROM THE PUBLIC PARKS.—The First Commissioner of Her Majesty's Office of Works intends to have distributed this autumn, among the poorer inhabitants of London, the surplus bedding-out plants in Battersea, Hyde, the Regent's, and Victoria Parks, and in the Royal Gardens, Kew. If the clergy, school committees, and others interested will make application to the Superintendents of the Parks nearest to their respective parishes, or to the Director of the Royal Gardens, Kew, in the cases of persons residing in that neighbourhood, they will receive early intimation of the number of plants that can be allotted to each applicant, and of the time and manner of their distribution.

THE TREES IN HYDE PARK.—Some correspondence has appeared in the *Times* on the pruning of the trees in Hyde Park. It is alleged that the trees are pruned, or have lately been pruned, in a very careless fashion, large limbs being taken off in an unceremonious manner, and the trees hacked and chopped about in a way to indicate that firewood was of more importance than beautiful trees. We sincerely trust the reports that are current may prove to be founded in error. Should they prove to be true, we shall believe that Hyde Park is blessed (or cursed) with genuine jobbing gardeners of the London school, whose faith and practice is to regard trees solely as objects for mutilation or destruction; never, by any chance, as deserving of careful preservation for their beauty, shelter, and their immense influence in the purification of the atmosphere. If vegetation be sentient, London trees must suffer as many or more agonies than the calves in Smithfield Market.

No. 131, NEW SERIES.—VOL. X.

NEW YORK consumes a thousand barrels—or nearly a million—of eggs per day. They come mainly from the West.

MULBERRY TREES are being planted at the Cape of Good Hope for the purpose of silk-growing.

THE HUSKS OF THE PICKPOCKETS' HARVEST.—The gardeners employed in the Trocadero, at Paris, in arranging the flower-beds, after the removal of the wooden huts erected for the Emperor's *fête*, found forty-four portemonnaies. As is known, the omnibus station is on the Quai, and the probability is that the pickpockets having exercised their dexterity, disembarrassed themselves of these material proofs, after emptying them of their contents. In the whole forty-four only two five-franc pieces in gold were found.

AMERICAN VINES AND WINES.—The *New York Times* says there has been a remarkably bountiful grape-crop in the United States this year. The vineyards are heavy with their rich clusters, and some new and superb varieties have obtained an unexpected success. If now, from some variety of the American grape, some skilful discoverer would draw a really good, palatable, cheap light wine, he would render a service to his countrymen, and to public health, morals, and temperance, which would insure him fortune and fame.

TESTIMONIAL TO MR. EDWARD PURDON.—Some time since it was resolved to present Mr. Purdon, of the *Irish Farmers' Gazette*, with a testimonial in acknowledgment of his services as honorary secretary of the Dublin Mansion House Cattle Plague Committee. The promoters selected for the purpose Messrs. Howard's steam-engine, plough, and cultivator, with the tackle, which had been worked with such signal success at the recent cattle show of the Royal Agricultural Society of Ireland. The presentation took place on Thursday, the 31st instant; after which the apparatus was removed by rail to Kibboughram Forest, near Enniscorthy, where the Messrs. Purdon are carrying on extensive improvements, and which is now admirably suited for the working of the steam-plough, and where the public can have frequent opportunities of witnessing the operations of the steam-plough. It is agreeable to see true patriotism thus acknowledged in the sister isle; for, after all, the best friends of Ireland are they who improve her industry and enlarge her resources, while saying least about her grievances and the necessity of reforms. Mr. Purdon well deserves the compliment paid him, and we wish him both entertainment and profit of the steam-plough.

MR. WILLIAM LOVE, the chief constable of the Royal Society for the Prevention of Cruelty to Animals, died on Sunday at his residence, Nelson Villas, Avenue Road, Stoke Newington. Mr. Love had been connected with the society for about sixteen years, and was noted for the zealous performance of his duties.

THE CRANBERRY CROP.—The cranberry crop near Boston, U. S., of the present year is now about half picked, and it promises to be the largest yield ever known in that part of the country. Several meadows have reached a state of maturity, and the crops on some of them are ten times as large as last year. Everywhere in the eastern part of the State, as far as heard from, the crops are larger than any previous year, except in Warwick, where the worms have done considerable damage, and there the crop will be light. Cranberries are now selling from 4 dols. to 5 dols. per bushel, and the market is dull. The price this fall will probably range from 8 dols. to 9 dols. per barrel.

TREATMENT OF OIDIUM.—The following is from the pen of Baron Liebig: "A French landowner in the department of the Indre, whose vines were severely attacked by oidium, had asked my advice about a remedy, the sulphur being no longer of any use. I advised him to manure his vineyards with wood-ashes and phosphates. Last October he sent to me a document signed by a number of persons who had seen his vines; it declared that those which had been manured with ashes and phosphates had produced healthy fruit, while others close by, which had not received these manures, were the prey of oidium."

THE VALUE OF LATENT BUDS.—The following is from an Australian paper: A portion of a small vineyard situated on the Yarra was submerged by the floods last summer. The water remained about the vines for two days. After it went down, the young growth of stems, leaves, and fruit turned quite black, as if destroyed. The owner hit upon the expedient of cutting-in the vines, as in ordinary winter pruning, reducing the stems to three or four buds each. In a short time the pruned vines began to push a second series of shoots, healthy and vigorous, as if nothing had happened to throw them back. The bunches of fruit "set," and in due time produced an excellent crop. When frosts destroy the promise of a crop of fruit, why not practise this expedient? The hint is thrown out for the vine-grower to profit by. If the plan succeeds in the one case, why not apply it to the other?

FREEZING THE BRAIN.—The great discovery that the brain of a living animal could be frozen and afterwards could recover was made by Dr. James Arnot, who solidified the brain of a pigeon by exposing it to a freezing mixture. Here research stopped, because with an ordinary freezing mixture it was not possible to act on individual parts of the organ; but the importance of the discovery is not the less on that account. It was a marvellous revealing. Think what it was! Here was a living organ of mind, a centre of power, of all guiding power, of all volition. It took in every motion of the universe to which it was exposed. It took in light and form and colour by the eye; it took in sound by the ear; sensation and substance by the touch; odour by the nostril, and taste by the mouth; it gave out, in return or response, animal motion, expression, all else that demonstrates a living animal. With it the animal was an animal; without it the animal was turned into a mere vegetable. And this organ, the very centre and soul of the organism, was, by mere physical experiment, for a time made dead—all its powers ice-bound. And this organ again set free, received its functions back again, and, as we know now by further observation, its functions unimpaired. Surely this was the discovery of a new world.—Dr. RICHARDSON, F.R.S., in *Popular Science Review*, October.

CONCERNING ROSES NOW PROPAGATED.

The improvement that has been effected of late years in all the good points of the rose merits special remark. We have indeed passed the time of phenomena, such as the introduction of novel forms and new species; but now that we have gathered together from all quarters of the world the many races of the rose, and for some years an innumerable host of rose-raisers have been engaged in blending these diverse races in infinite variation, we are acquiring flowers which possess the highest qualities and beauties of each, and, what is more wonderful, a continuity of blooming power, which practically makes the Hybrid Perpetual easily the prince and the perfection of flowers. One grand consequence of this has been, as the celebrated Laffay some twenty years ago foresaw, that the old favourite *summer roses*, which far outshone the scanty flowering and delicate growing Hybrid Perpetuals of early dates, are now quite neglected. More recently modern Hybrid Perpetuals, produced within the past twelve years, are steadily pushing out of the market their predecessors, and even the Bourbons, the Chinas, and most of the Teas.

Take a catalogue of any of our leading nurserymen, and it is impossible not to be struck with the "conspicuous absence" of once favourite roses. Confining our observation to Hybrid Perpetuals, we find that of those raised by Laffay, Vibert, Desprez, Hardy, and others, four only of those which were *mises en commerce* up to the year 1844 remain, viz., *Duchess of Sutherland* (the earliest survivor sent out in 1839), *La Reine*, *William Jesse*, and *Baronne Prevost*; the first three being Laffay's, the last Desprez's. And of these *La Reine* and the *Baronne* only occupy a first rank; but neither the former opens well enough, nor is the latter fine enough in form for modern taste.

During the next ten years, particularly after 1847, the year of *Géant des Batailles*, an immense number of roses were introduced, of which few survive. This last-mentioned rose, a seedling of M. Guillot père, was the first high-coloured Hybrid Perpetual of merit, and consequently attracted great attention, but it is now, as compared with many rivals, quite second-rate. The other survivors of this decade are all light roses—viz., *Mrs. Rivers* (most excellent, but not free enough, and not successfully grown except in fine deep loam), *Auguste Mie*, *Caroline de Sansal*, *Comte de Nanteuil*, *William Griffiths* (excellent on dwarf brier, not on Manetti), and *Louise Odier*. Besides these, there appeared in 1853 the well-known *Gloire de Dijon*, a compound Tea, which is in all respects *hors ligne*.

And now for roses brought out between 1855 and 1867. To begin with 1855, a wonderful year, the French sent us *Jules Margottin*, *Général Jacqueminot*, *Lord Raglan* (another of Guillot's, père), *Duchess of Norfolk*, *Duchess of Orleans*, *Prince Léon*, *La Ville de St. Denis*, *Gloire de Vitry* (best on own roots), *Mesdames Domage*, *Masson*, *Jaquin*, *Cambacérés*, and *Vidot*, and lastly, *Louise Peyronney*; all useful roses, although probably not three of them are equal to the best of the same colour produced within the last five years, for exhibition purposes. These were followed by *Madame Knorr* (very lovely in the bud, but not double enough, the first striking variety of C. Verdier), *Souvenir de la Reine d'Angleterre* (very large, rather coarse, but of a wonderfully bright fresh rosy colour), and *Triomphe de l'Exposition*. Then came, in 1858, but sent out in 1859, *Anna de Driesbach* (the first striking variety of Lacharme's), *Anna Alexieff*, *Comtesse Chabriland* (Marest), *Eugène Appert* (Trouillard, the only decent production of this raiser), *Lælia* (a repetition of L. Peyronney), and *Virginale* (the best existing white, but of such weak growth and bad constitution as to make us hope that it may soon be superseded). In 1860, Guillot père sent us *Sénéateur Vaisse*, the best light crimson in existence; Lacharme, *Victor Verdier*; Fontaine, *Madame Crapelet*; Guillot fils, *Louis XIV.* (free and of first quality on its own roots, bad on every kind of stock), *Gloire de Santenay*, *Madame Boll* (too coarse, and not sufficiently perpetual); and *Madlle. Bonnaire* (Pernet, a charming white, with pink centre; habit not sufficiently robust). The following year we added *General Washington* (Granger), in some years most lovely, but not a certain rose; *Duc de Cazès* (Touvais), in some soils not first-class, but generally a very excellent dark rose; and *Madame Furtado* (C. Verdier). About this time the following good Bourbons were introduced: *Baron Gonella* (Guillot père), *Catherine Guillot* (Guillot fils), and *Comtesse Barbantannes*.

Next comes the *annus mirabilis* of 1862, from which year most of our best roses of high colours proceeded, an epoch in rose-raising. The chief are *Charles Lefebvre* (dark-scarlet, the best rose in all respects in cultivation, must be grown in all collections; this is Lacharme's production), *Duc de Rohan* (Lovequo, fine dark crimson, a noble flower if well fed), *François Lacharme* (C. Verdier, crimson, fine shape, but habit bad), *Madame Bontin* (Jamain, dark cerise, very lovely colour), *Emile Dulac* (Guillot père, beautifully cupped crimson rose, a

great favourite), *Maréchal Vuilhaut* (Lecomte, purplish red, fine shape, abundant bloomer, excellent in all respects), *Maurice Bernardin* (Granger, vermilion with a haze or flush of violet, very excellent), *Mrs. Charles Wood* (Eugène Verdier, rosy crimson, very popular), *Prince C. de Rohan* (also from E. Verdier, maroon and scarlet, the best dark rose), *Souvenir de Lady Eardly* (another of Guillot's, père, reddish scarlet, not cultivated so much as it deserves), *Souvenir de Comte Cavour*, (Margottin, crimson and dark violet, requires high cultivation and pure air, under which conditions it is exquisite), *Olivier Delhomme* (another of C. Verdier's, crimson red, very good), *Vicomte Vigier* (also from C. Verdier, approaches lake in colour, particularly towards the centre, not large, but good), *Madlle. Clémence Joigneaux* (Liabaud, bright rose, lilac-shaded, very large and good), *Beauty of Waltham* (a seedling of William Paul's, whose name in rose culture is deservedly held in honour—this rose has been said to resemble Madame Crapelet too much, but there can be no question of its distinctness, the Beauty has a squarer aspect, and a somewhat different habit of growth), and lastly, that unique and floriferous Noisette Perpetual, *Louise Darzins* (another of Lacharme's, pure white, in graceful clusters, and nicely cupped flowers).

The next year the French took a base advantage of our expectations, excited by the past year's success, and sent over sixty-nine new varieties, of which about one-tenth only have been found worth propagating. These are *Alfred de Rougemont* (Lacharme, dark purplish red, shot with bright red in centre, now surpassed); *Baronne A. de Rothschild* (also Lacharme, fiery red, one of the best); *Madame Freeman* (Guillot père, an excellent creamy white, larger than the individual flowers of Louise Darzins, the best white H.P., the footstalks not quite strong enough to bear the flower erect; but that peculiarity is shared by most of the teas, and many other roses, and has this advantage about it, that it saves the bloom from much soiling by rain or sun); *Le Rhône* (Guillot fils, scarlet, magnificent colour, no better rose for bedding); *Vainqueur de Goliath* (Pernet, brilliant mulberry red, very great bloomer, a capital rose); *Madame Alfred de Rougemont* (Lacharme (?), like Louise Darzins, but a trifle larger and centre pink); *Emotion* (Guillot père, described as a Bourbon, but very early in bloom, and very continuous, colour white, centre broadly tinted with exquisitely delicate flesh pink, good).

In addition to these, our English raisers sent out *John Hopper* (Ward, who ought to be punished for giving such a rose such a name; this most unromantic rose has no rival; it is a glorious vindication of English skill; colour rosy scarlet, shading off to lilac rose towards the outside petals; back of petals lighter and silvery); *Lord Macaulay* (sent out by W. Paul, velvety crimson, variable, sometimes plum-colour, a splendid rose); *Lord Herbert* (W. Paul, rosy carmine, reflexed shape, distinct); *Lord Clyde* (Paul and Son, scarlet crimson, effective, but hardly equal to either of the other noble lords). Since this date English florists have taken courage, and let us hope that they may yet produce a royal rose to beat Charles Lefebvre.

The year 1864 was a good year; Eugène Verdier treated us unusually well: *Madame Victor Verdier* (properly described in the catalogues as vivid carmine, large, full, magnificent in shape, intense in colour, and very fine), *Alpaide de Roturier* (transparent rose), and *Leopold Premier* (deep red, with a tinge or bloom of light violet), were three of his best, and are first-class roses. Then *Duchesse de Morny* (Guillot fils, pure rose, majestic in shape, the very best of its colour), *Pierre Notting* (Portemer, blackish red with light violet tinge, a noble-looking flower), *Leopold Hausberg* (Granger, bright carmine, excellent in colour and form), *Madame D. Douville* (Levêque, glossy rose, lined with white, unique and effective, admirable for forcing, but it does not seem so good in the open garden).

The next year we added some capital roses, of which the best are *Marie Baumann* (Baumann, superb in every way, brilliant scarlet crimson); *Duchesse de Caylus* (C. Verdier, rosy carmine, the finest as to form of this colour, not large, but first-class); *Dr. Andry* (E. Verdier, bright red flushed with crimson, perhaps the best rose at the exhibitions of new roses of that year); *Madame Amélie Halphen* (Margottin, purplish carmine, good, but rather flat in shape); *Madame Moreau* (Gonod, very lustrous dark crimson, one of the most effective roses known); *Marguerite de St. Amant* (Jamain, pink, deeper centre, the finest rose of its colour, perhaps of any light colour); *Xavier Olibo* (Lacharme, scarlet densely shaded with black, a wonderful rose); *M. Boncenne* (Liabaud, very dark crimson), and *Achille Gonod* (another of Gonod's, carmine red, very large, a little coarse, but good, and likely to become popular). Besides these, W. Paul sent out *Eliz. Vigneron* (light rosy pink, something like Lælia). Paul and Son advertised *Princess Mary* (of which the writer of these remarks hopes great things, pale rose edged glossy rose, abundant bloomer.

fascinating, and highly meritorious), and Craunston's *King's Acre*, of which any opinion, good or bad, is reserved; it must be tried a little longer.

We have now arrived, after a long critical survey, at last year's roses. Here criticism becomes dangerous, because it is quite impossible to speak with conscientious confidence of such recent importations, which have even this summer barely got over the shock of intense propagation, planting, excessive manuring, &c., and of which nobody but a few nurserymen have seen a dozen flowers of each variety. It is true that every year a well-known rosarian enlightens the public upon the dark and mysterious subject of the seedlings which *are to be sent over from France*; but such writing is to a reader "vanity and vexation of spirit," and not a whit more trustworthy than the inflated loquacity of a French catalogue. It is with diffidence and caution that the following remarks are made on last year's novelties, but after as thorough an inspection and consideration as circumstances would allow. Of French roses the best, as admitted on all hands, out of a vast collection of over seventy, are, 1. *Alfred Colomb* (Lacharino), 2. *Souvenir de Dr. Jamain* (ditto), 3. *Chas. Rouillard* (E. Vordior), 4. *Mlle. M. Dombrain*, 5. *William Rollisson*, and 6. *Jean Lambert* (all ditto); 7. *Exposition de Brie* (Granger), 8. *Josephine de Beauharnais* (Guillot fils), 9. *Mlle. Rody* (Fontaine), 10. *Comtesse de Palikao* (Pernet), 11. *Madame Billion* (Gonod), 12. *Frédéric Bihorel* (Damaizin), and 13. *Camille Bernardin* (Gautreau). But this list requires much refining down, and, executing that process, we may pretty confidently place Alfred Colomb as No. 1 in all respects; personally, I believe it to be the next best rose to Charles Lefebvre; that is the highest possible praise; I hope it will turn out its equal; colour very bright crimson; very large, noble form; of course it requires good cultivation, because of its size and fulness; if so treated, I do not think any bloom will be below the mark. Next I should place *Charles Rouillard*, light rose, darker centre, full, fine form, of a class which needs a few recruits. Next No. 7, which received a silver medal in France; scarlet-crimson, not uncommon in colour, but very massive and well-proportioned in form, and so vigorous in growth as to claim the highest favour. We must award to the *Comtesse Palikao* the next place; it is very lovely and unique, very rich pink with lighter, almost white, outside petals, so perpetually in bloom as to exceed everything else ever seen among roses, and therefore in all respects necessary to the rose garden. No. 11 is novel in colour, salmon-rose, a desirable addition. No. 9, dark rosy crimson, is very large and fine, with most splendid foliage of large leaves. No. 2 is certainly the best of the violet-shaded very dark roses; it dies off a peculiar bluish tint, and gives us some hopes of yielding, through its seedlings hereafter, Mr. Prior's "blue rose;" it may be set down as one of this year's best. The others I do not at present consider better than their forerunners in the same shades of colour, but I believe, nevertheless, that No. 8—certainly highly thought of by the raiser—ought to turn out better than *Lælia*, which it much resembles, but does not excel apparently. No. 4 has not the desired habit of growth or substance of flower to suit us. No. 5 is of peculiar colour among scarlets, but not of high quality. Of the rest opinions vary widely.

Of roses of this very year—I quite endorse the Editor's experienced criticism—the most reliable selection for amateurs is *Antoine Ducher*, dark rose (Ducher, a seedling from Madame Domage, therefore worth trying); *Charles Verdier*, fine light rose (Guillot père, from Victor Verdier); *Horace Vernet*, claret crimson (Guillot fils); *Comtesse de Jaucourt*, white, tinted rose, highly thought of in France (Céchet); *Thorin*, clear crimson, sure to be good (Lacharme); *Ville de Lyon*, dark rose, free-flowering, elegant form (Ducher); *Paul Verdier*, bright rosy crimson (C. Verdier); add to which *François Treve*, scarlet with bronze shading, good form (Liabaud); *Comtesse de Morgues*, cherry-red, the inner petals said to be sometimes edged with white, raised from Victor Verdier (Pernet). Eugène Verdier's list I do not like: for example, *Napoleon III.*, which was cracked up for the most, will not do; it is too thin and too uncertain in character; *Annie Wood* is probably his best, but there is nothing novel about it.

We have some promising English seedlings, viz., *Mrs. Ward*, a cross between Jules Margottin and Comtesse Chabriland; it ought to be better than John Hopper, which it appears to resemble in character of flower, but not quite in habit or shades of colour; this comes from Ward, who also sends out *Mrs. John Berners* and *Ipswich Gem*. W. Paul sends out *Black Prince*, dark crimson, resembling Gloire de Santenay, but quite dark; and Paul and Son have exhibited, and now advertise, *Duke of Edinburgh*, a seedling much like Exposition de Brie as exhibited, but said by them to be much brighter; this rose will be distributed in the summer. Probably at the same time *Miss Ingram*, from Turner's establishment, will be procurable; this last rose was raised by Ingram, of Frogmore,

and is a rose of great promise; it is said to be the best or second-best of the English seedlings—something between Madame Rivers and Madame Knorr at their best, very light flesh edged with white, globular, but tapering in the bud, and therefore opening well: the petals seemed thin at the shows, but that is said to be an exceptional appearance.

VIATOR.

STOCKS FOR ROSES.

Not very long ago some over-cautious person ventured to predict that, such was the growing rage for roses, the country would soon be stripped of briars. The Manetti and other stocks of course considerably relieve the demand for briars; but, without going into the question of their respective merits, the brier is at least necessary for tea-rose budding.

And I should be glad to ease the mind of the cautious gentleman alluded to, and also make brier-getting a simple thing to amateurs, and even nurserymen; for I have found many of the latter who not only were unacquainted with the method I will suggest, but actually would not believe it.

Put in the ground as thickly as you can, at this time of the year, cuttings of the ripe wood of the brier; cut out all the buds that will be covered with the soil, and next year you will have plenty of dwarf brier stocks fit for budding on.

This is no experiment; I have done it year by year; and, in proof of what I say, I may add that on brier cuttings which I put in the ground in the autumn of 1865, I budded in the summer of 1866, and have shoots of roses on them eight feet high this year, with excellent roses that have bloomed better still. Put in cuttings of robust-growing roses; you thus have rose blooms if the budded varieties fail, and need not be afraid of suckers.

These make capital dwarf-stocks for pot-roses.

I know that this is but a repetition of our Editor's advice about obtaining roses on their own roots, applied to briars, or roses as stocks for other varieties; still, as the Magazine is a Saturday paper, we may sometimes expect a *réchauffé*.

EDWARD N. POCHIN.

THE SELAGINELLA OR LYCOPODIUM.

In selecting Selaginellas, the colour has to be studied quite as much as the size of the plant, for there certainly is no beauty in a brown Lycopod of any kind. Most of the species are inhabitants of hot and humid climates, and to grow them successfully their habitats can be studied and imitated with great advantage, for all will grow with the richest luxuriance in a warm and moist atmosphere. It is not at all probable that anyone will fix a temperature especially to suit them, but they can be kept in the same house with other plants which require a temperature of 60° through the winter, and 70° through the summer.

I prefer pans for growing these plants in, for they are shallow rooting, and do not require a great depth of soil, and we are enabled to give them a much larger space to spread over than would be practicable in pots, for a twenty-inch pot is not a very handy thing to shift about. Pans of eighteen inches in diameter are a very convenient size for most kinds, such as *cæsia*, *formosa*, and others of that type; whilst for kinds like *apoda*, a smaller one is far better. The pans should have about an inch of drainage crocks broken rather fine, a layer of rough peat, and then the pan must be filled up with a compost consisting of peat, loam, leaf-mould, and silver sand, equal parts. This should be pressed firm, a layer of sand put over it, and the cuttings laid on and pegged down. The cuttings should be good-sized pieces. I take them off at the base, close to the soil, which is better than the tops, and if they are properly attended to, they will soon take root and cover the pans. It is best to keep them renewed in this way than keep a lot of old plants; for when they are old, they are bad, and get broken about, and bear no comparison to young healthy plants. I am speaking of the strong-growing kinds now. *Cæsia* can be kept in good trim by cutting it down to the pan when it becomes a bad colour, and if it has a little fine soil and sand, or sand alone sprinkled over it, and set in a warm corner, it will soon recover.

Kinds which have *inaequalifolia* and *reticulosa* for their type require a slightly different method of treatment in their propagation. Instead of laying the pieces on the top of the soil, the old plant should be taken out of the pan, divided into small pieces, and dibbed a few inches apart in fresh soil, in pans about nine inches in diameter, and as they cover the pans be shifted into larger sizes according to their requirements; they are slower growing than the others, and do not make large plants so quickly. Any time of the year will do for the propagation, but now is as good as any; for during

the winter the cuttings get nicely rooted, and in the spring grow away and make plants at once, whereas spring-struck pieces do not make plants before the end of the summer.

The great number of the fossil remains of these extremely beautiful flowerless plants which have been found in the coal measures of this country by the geologists, has given rise to the supposition that the Lycopods were far more plentiful than they now are; and some botanists hold the opinion that in the earlier ages of this world's history there existed species which attained to magnitudes equalled only by the timber-trees of our woods and forests. Though we have none in existence at the present day whose height cannot be measured most conveniently in inches, *levigata* being the only species which is endowed with an aborescent aspect, we have in the exotic species some of the loveliest gems which Dame Nature has thought fit to adorn mother earth with. Wherever a collection of stove plants is grown, or, more properly speaking, wherever there is a suitable place for growing them in, so surely ought this class of plants to be strongly represented, for they are quite at home, and thrive where it would be next to impossible to keep any other plant in a healthy growing state, even if it could be persuaded to drag out an existence, which would not be at all likely to compliment the cultivator for the skill and trouble expended upon it. My plan is to stick them amongst large specimen plants, where they can have the advantage of the shade from them, putting the Lycopods, of course, so as they can be readily seen, for it is no use to put a light under a bushel; and I find they do better amongst plants than anywhere else. They are also well suited to stand amongst strong-growing ferns, for the spreading nature of the fronds of the ferns prevents the pots being set close to each other, thus giving ample room to stand dwarf-growing plants, which require similar treatment and a deeper intensity of shade than the ferns. I do not for a moment say that it is absolutely necessary that the Lycopods should be grown under the shade of other plants, because it is not necessary; for they will grow in a house with a suitable temperature if there are no other plants of any description but them in it, provided that the house is properly shaded. My reason for suggesting the suitability of these plants for growing between others of larger size is this—the stove is generally of limited extent, so that every inch of space is required to be made available for growing something or other, and there is always space between the pots of large specimen plants, although the plants may meet overhead, suitable for growing dwarf plants like the Lycopods, thus leaving the other space, which has the advantage of the full light, available for growing other subjects which require exposure to the light, and which would otherwise be taken up with them. It may be as well for me to observe, that unless *casia* and *levigata* are grown in a deep shade, it is next to impossible to grow them to any size, and at the same time retain that beautiful deep metallic lustre which is their distinctive quality. For want of shade, too, some kinds soon get shabby and unfit for exhibition purposes.

I am aware spring is generally recommended for striking young plants; but I like to propagate them in September or October, for there is no danger of the cuttings damping off if they are carefully managed, and not kept too wet and cold. As regards water, these plants will stand almost any amount, if the pans are full of roots and the drainage perfect; but a trifle more in quantity than that required by a free growing fern suits them best. A syringing twice a day overhead will be of immense advantage in promoting vigorous growth, unless in damp weather in autumn, and through the very short days, when they are better without the syringing.

The following selection contains none but handsome free-growing kinds, which I can recommend. First we have *S. apoda*, a very small compact species. This requires great carefulness in watering, as from the closeness of its growth it is apt to go off in the centre. *S. casia*, dwarf trailing, of a deep blue colour when well grown; the pans in which it is growing require to be elevated a little to allow the branches to hang gracefully over. *S. denticulata* is a very useful dwarf kind, will grow best in a greenhouse, and makes a capital edging for conservatory borders. Then we have *S. erythropoda* (*umbrosa*), *formosa*, *inequalifolia*, and *levigata* (*casia arborea*); the last named is a grand kind, one of the best, and a very strong grower. The best way to treat this is to pot it, and train it over a trellis, the same way as a *Cissua*. I have grown them five feet high on a balloon trellis, and noble objects they are too. I have seen them fifteen feet high trained to a pillar, presenting a remarkable spectacle. It will be scarcely necessary for me to say that this *levigata* is not a suitable species to grow between other plants. The following are also desirable: *Syallii*, *Martensii*, *Martensii variegata*, *Warszewiczia*, and *vibiculosa*.

GEORGE GORDON.

IMPORTANCE OF FRUIT-TREE CULTIVATION.

By CHARLES BALTET, NURSEYMAN, TROYES.

"France is the orchard of Europe."

For many years past a considerable portion of the community have employed themselves in the cultivation of fruit-trees. The best varieties have been sought out, as well as the most robust and fruitful trees, and have been tortured into all sorts of forms under the pretence of art, or else neglected altogether under the idea that nature will nourish and sustain her children in perfection, without any trouble on the part of the cultivator.

But, in spite of frequent failures and disappointments, the followers of the art are ever ready to begin again, for horticulture gives to her devotees health and quiet hours, with joys which are always new. The adepts in the art, far from cooling or becoming indifferent to their favourite employment, are constantly inflamed by the sacred fire which burns within them, and attract by their example numbers of recruits, who press forward to swell the ranks of the tillers of the earth, and increase by their exertions the national resources.

The production of fruits has now become an important part of agriculture, and forms a considerable item of food for the maintenance of the people; and so much has the knowledge of good fruits gained ground of late years, that if one goes into the market, or enters a restaurant, William pears are demanded and Curés refused; for nowadays every one has in his own garden either a Duchesse d'Angoulême or a Doyenné d'Évier.

In spite of the regard which is always paid to new varieties, the modern fruits have been a good deal criticised, and the old fruits have been disdained with an ingratitude which has not been at all merited by the services rendered. Is it not caused in some measure by our variable temperament, which leads us like children to run after the unknown, without stopping to consider whether that which we already possess is not amply sufficient for our wants?

In pomology, as in agriculture, in the sciences, the arts, and politics, it will not do to fall violently in love with everything that is new, nor yet to be prepossessed only with things that are old; we must learn to profit by the experience of each one, and know how to discern the good and the true, in order that we may be really benefited.

Now, with regard to fruits, we do not sufficiently consider that our ancestors possessed vast properties where the trees could joyously spread out all their roots and all their branches; we read that in each enclosure—the gardens of the abbey, of the mansion, and of the castle—the construction of high walls, necessitated by other causes, served for the fruit-trees, which found in the shelter of the espalier the conditions indispensable to bring them to perfection. If we attempt to place these species in the open air, we are disappointed at the result, and raise an outcry about the degeneration of the old sorts.

Now in studying new fruits, you may be sure that, in order to discover one really meritorious individual, it will be necessary to reject ten others, in spite of the very violent predilection which the raisers have for their children. It is just the same with inventions; whence it comes that we have inferior productions pompously vaunted in terms which should describe only things which are really choice and valuable.

We possess many exquisite varieties both ancient and modern; to doubt this would be to deny the progress of our forefathers and that of our own time also. We must say also, that, following in the march of things in general, the taste of the public has become far more exacting than it used to be; but this is no matter of complaint, but rather of congratulation.

The patriarchal nourishment of bread and water appears to us nowadays like a fable—or a punishment. Our palates require choice aliments, wholesome and varied. We wish to have fruits at our meals, and between our meals; we are happy in offering them to our friends; and we consider ourselves very badly off, if we have not a single apple to eat, or so much as a pear to quench our thirst, or are compelled to pass through Lent without tasting fruit at least every Sunday.

To have fruits all the year round is our dream, our ideal, as perpetual motion is the dream of the mathematician, and a blue dahlia the ideal of the florist.

To this ardent love of good fruits we join an element which was unknown till lately, which now belongs to the poor as well as the rich, which brings the purchaser, and which carries away the merchandise; this element is the railway. With this powerful assistant, and the perfect liberty of its transactions, the crop which is not required in one place can be immediately conveyed to a district where there is a scarcity.

In matters of economy, one of the first axioms is that production should always be on a level with consumption; it may often be more, but should never be less.

Now, for contributing to this production our locality is advantageously situated. If France, a country eminently fertile, is called the orchard of Europe, we can say that the region of the east, occupied by the department of the Aube, is admirably adapted for fruit-tree cultivation.

We are in effect sheltered from the rigorous cold of the north, from the burning heat and dry winds of the south, from the salt breezes which blow from the sea-shore, and from the sudden changes of temperature which generally occur in the neighbourhood of mountain ranges, checking the normal vegetation, the fecundation of the flower, and the growth of the fruit. Then add to this happy climate the geographical position so favourable to the transportation of our wares; the proximity to the capital, the means of transport by railway, by water, or by our admirable roads, the easy access to Paris and London, as well as to Belgium and Germany.

As it is necessary to utilize that which we have, and to give a value to that which at present has none, we ask that the untilled lands, the uncultivated hills, the neglected pastures, and the dried-up marshes, be converted into orchards. France has, it is said, six millions of hectares of untilled land. Our department would be greatly favoured if it contained none; but unhappily it possesses too large a share. It is, however, certain that this state of things will soon undergo a considerable change. Thanks to the generous initiative of the Prefect of the Aube, M. Isidore Salles, and with the benevolent concurrence of the Council-General, a public and gratuitous school of arboriculture has been instituted in this country. Thus, after having received the lessons from the professors appointed to carry on this mission, several corporations have planted their denuded mountains, and their arid plains with fruit-trees, and the results which have followed are highly gratifying.

Encouraged by these first results, several other departments hastened to imitate us, and the plaudits of the agricultural and horticultural press. But, above all, the populace comprehend the benefits conferred upon them by

the culture of fruit-trees; they listen to the professors, they read the authors, and plantations intelligently conducted are the consequence. The consumer is benefited and the producer is enriched.

In order to prove to you that the subject I am treating is worthy your consideration, I will now mention divers localities which have made considerable incomes by the sale of their fruits.

The department of Yonne has, with that of Somme, several corporations much richer than their neighbours, entirely through the culture of the cherry. At Saint-Bris (Yonne), a hundred hectares of untilled land have been converted into cherry orchards. The only variety grown is the Royal English Early grafted upon Sainte-Lucie; they are grown in bushes, are not pruned, and can be reached without ladders. The Parisian and English brokers come in the month of June, when the fruit is in maturity, to purchase the crops. In 1863, the sale of cherries had risen to 80,000 francs, and in 1864 to 100,000 francs.

The mountains of Pny-de-Dôme produce the most beautiful apples, and the apricots grown there are the most celebrated for apricot-jam. These two kinds of fruits form a considerable object of commerce to the district.

Near Paris, where speculative culture is well understood, they have transformed the sandy hillocks which extend from Trilou to Meulan into apricot orchards, which are very celebrated among the confectioners of the capital.

The valley of Hÿères, in Provence, formerly much reputed for its oranges, now contains many enclosures of peaches. Last year the fruit sent from this part to Marseilles realized the important sum of 160,000 francs.

At the present time a little village of Haute-Marne has in its woods fruits which realize 9,000 francs per annum without costing them a penny for their maintenance.

The corporation of Balzac, near to Angoulême, has sold in one season its pears and cherries for 30,000 francs.

Near Agen, there are several growers, who sell for 10,000 francs the plums of a single crop. Near Meaux, there exists a pear-tree of an ordinary variety, but very productive, which produces, taking good years with bad, 150 francs' worth of fruit. Near Brie-Comte-Robert they have cultivated pears for fifty years, and their crops produce at least 100,000 francs.

Touraine and Anjou are certainly highly favoured by the sun, climate, and position. I will mention, for example, the department of Maine-et-Loire, one of the finest divisions, in order that you may understand how very important the cultivation of fruits is to the country. In less than a year this department has exported to Paris five millions of kilogrammes of apples, representing a value of 500,000 francs. Angers alone has received during one day 40,000 kilogrammes of apples, and 10,000 kilogrammes of pears. The price of transport received by the railways and boats is not less extraordinary.

The choicest varieties of pears, such as William, Bonne Louise d'Avranches, Duchesse d'Angoulême, Beurré Diel, Beurré d'Hardenpont, Doyenné d'Hiver, are sent in large quantities to Havre, from whence they are taken by the large steamers to London or St. Petersburg.

It is scarcely credible that this locality of which we are speaking has sold to the Parisians during two months 785,226 kilogrammes of cauliflowers, and 300,000 kilogrammes of dandelions, which realized a sum of nearly 200,000 francs to the sellers, and 100,000 francs to the growers in the neighbourhood of Orleans. The benefit to the community is all the more clear in this instance, because the dandelions are gathered by very poor families in the fields and meadows and from the neglected lands in the neighbourhood of the slate quarries.

I have mentioned the best varieties of eating pears, but which of them can dispute for a moment the palm of beauty with Belle-Angevine? A celebrated restaurant-keeper of Paris has undertaken to purchase all we can grow of this superb variety, to satisfy a passing taste of the day. However, let us not be dazzled by such a thing as this; let us not abandon these exquisite varieties, although at the same time we take care to satisfy the caprices of the world. Bergamot Espéren, Reinette true, and Mirabelle, can never be surpassed in their way, nor can the pear Van Marum, the apple Ménagère, and the plum Dame Aubert.

The cultivation of grapes for the table is also very lucrative. At Pouilly, in Nièvre, the manufacture of wine has given place to the sale of Chasselas and Muscatel grapes for the table; the vine-dressers have become thereby fifty per cent. richer, and the sum-total of the sale has amounted to a million and a half of francs. In our own neighbourhood, Bar-sur-Aube, they used to make an ordinary white wine of Chasselas grapes, but they find it more advantageous to send the fruit to the markets of the great towns. The village of Baroville bassold to the Parisians 50,000 francs' worth of Reine-Claude in a single year. Perhaps it would be far better for those vine-growers who think of giving up entirely the cultivation of the grape, to devote their attention to the culture of grapes for table instead of for wine.

A merchant goes to Gard every year to purchase the crop of Chasselas grapes for which he pays the proprietor in advance about 10,000 francs, and his brother merchants buy for large sums the Chasselas of Montauban. One cannot talk about Chasselas without thinking of Thomery, for it is there that it is grown in the greatest perfection; all the inhabitants are employed in its culture, and are enriched by it.

Montreuil is equally celebrated for its peaches; every family has its plantation of Galande, Mignonne, or Madeleine; and when we consider that this fortune is due in a great measure to chance, what should we not be able to attain to in places so eminently suited to cultivation?

Already at Beaune, the soil or the heat has made the Chasselas of a rosy colour, velvety, and very enticing. The Société d'Horticulture has sent a delegation to Thomery in order to study the treatment of the vine, and has offered prizes to the planters.

It is certain that these undertakings profit the world at large as well as the growers themselves, and it is thus that the more favoured south is able to lend its sunshine to the people of the north. The vine-growers of Bourgogne or of Beaujolais plant peaches in their vineyards, and in the same manner the Algerians preserve in the gorges of Laghouat oases of plums, and the mountaineers are enabled to supply the absence of corn by living upon chestnuts. We may mention on this subject that the corporation of Morvan, Saint-Prix, sells annually 60,000 francs' worth of chestnuts.

How many communities are there who might find in analogous employments to these the resources which now fail them! And it is worthy of notice that the poorest places are the poorest where the waste lands are the most numerous; yet, what are these waste lands but treasures which former generations have transmitted to us, and which no one has yet dared to touch? We have already in our department some hardy pioneers who have ventured to plant the flag of progress; let us encourage them by our plaudits, and they will attract numerous imitators.

In other regions also they have found these innovators. The journals

have vaunted the philanthropy of a priest at Ain, who causes the plantation of a fruit-tree at the baptism of each new-born child; and of another in Lorraine, who has formed a nursery on the mountains of fruit-trees, which are generously distributed among his parishioners, and thus gives ease and assist-ance to the common poor.

I have nothing to say about the cider fruits of Normandy, Bretagne, Picardy—in fine, of the countries which rebel from the vine; it is a fundamental source of riches which is well known. In a word, the price of apples is already doubled, by reason of the exportation to Manchester of fruit which is gathered while green, before the juice has been transformed into sugar, because they employ them for fixing their colour in their stuffs.

Will not the financial question awaken the attention of cultivators who are so disposed to groan in this agricultural crisis? To all the preceding facts I will finally add that the reputation of the prunes of Agen and Sainte-Catherine (Tours) has certainly enriched the producers; and we could name at the same time the Mirabelle plums of Metz, the gooseberries of Bar-le-Duc, the strawberries of Dijon, the figs of Argenteuil, the nuts of Isère, &c.

Entire provinces are quickly metamorphosed by contact with a product niggardly and mean in appearance, a fruit or a herb. This modification will soon operate by the initiative of men of action, thanks to the development of modern horticulture and the multiplication of railroads. These last have already revolutionized commerce and industry; and agriculture and horticulture cannot long remain indifferent.

And when we ask that speculation shall be attracted to fruit-trees, we do not pretend to hinder or straiten the culture of cereals, of vines, and of woods. That which we solicit is that the lands condemned for sterility by the carelessness of man be cleared, and that useless plantations be replaced by orchards, fruit gardens, vines, and even kitchen gardens; the annual revenue of economic vegetables of the first necessity in nutrition or in industry offers advantages which will not suffer by comparison.

In the category of sites badly occupied, permit me to place equally with the others those strips of land along the sides of roads which are at present occupied by woods. Why not clear them, and have them planted with our favourite species, which would certainly pay a thousand times better than the others? Why, it is objected to this plan that travellers along the roads would gather the fruit; so much the better, we would do good to our neighbours. Do you prefer to plant elms, ash-trees, or sycamores, to be preyed upon by cantharides and may-bugs? If you are afraid of exciting marauding, leave the ornamental trees in the neighbourhood of towns, and only plant the fruit-trees at a distance from them, and then if the crops are gathered and sold early, there will not be much loss from theft. Besides, the farmer to whom these plantations are let will be interested in the protection of his fruits. I have seen this plan carried out in Alsace by the agents of the roads, and every year they clear thus several thousands of francs.

The borders of rivers and canals would gain equally by being subjected to a similar régime; and the neighbourhood of water would favour the production of the subjects planted upon their banks.

And the railways? Would not their receipts be considerably augmented by having fruit-trees grouped upon their slopes, their borders, and their unoccupied waste plots? The companies have certainly no reason to fear the depredations of their passengers.

Now, with regard to that which relates to the species to be planted, their culture and preservation, we would not leave the planter to lose his way in the labyrinth of arboriculture and pomology. In an ornamental garden, we may allow ourselves to try forms both new and strange, and to glory in collecting an indefinite number of varieties at the risk of being disappointed afterwards if they do not equal our expectations. But here it would be foolish to throw our capital into the venture unless there was a fair prospect of getting it returned with interest. What we want is a limited number of robust and productive varieties which have been proved to be excellent; these we may plant in thousands, as they must be treated in the most simple manner; for it would be wrong to have any complicated system of culture, the expense of which would reduce our benefits and cripple our means.

You see, then, that the subject is vast, and should be studied under all its aspects; in my opinion, it is a mine of gold.

Let us, then, be the apostles of progress; let us demonstrate both by our words and actions that the cultivation of fruits is a public benefit and an important assistance to the sustenance of the nation, too often, alas, frustrated by the bad and unwholesome samples which are foisted upon our markets.

The day when we shall have transformed a denuded arid site into a plentiful and fruitful orchard we shall have performed a good action. I cannot help remarking, that the cultivation of flowers and fruit is far more moral than speculating in the money market; for it gives to man riches and happiness, the love of his paternal roof, of his family, and of his work, and gains for him the respect of himself, and of all who know him.

If I insist so much upon this question, it is because I have studied it much; I place it far above a money consideration, for I see in it a question of high civilization.

THE HEDGEHOG IN THE FAMILY.—The graphic pen of Mr. Frank Buckland, in *Land and Water*, recapitulates the following reasons against introducing hedgehogs into the bosom of one's family as auxiliaries against beetles and cockroaches:—"I have tried hedgehogs to kill beetles. They don't act. A hedgehog cannot possibly hold above a pint of beetles at a time, and in my kitchen there are gallons of them. I once tried the hedgehog plan at the Deanery, Westminster. The first night after his arrival the Abbey watchman was frightened out of his wits; it was the hedgehog. The next night, fast asleep, I felt a cold nose on my face, and then a prickly thing trying to get into the bed; it was the hedgehog. The next night the servants came trembling to say there was a burglar in the dining-room rattling the plate; it was the hedgehog. The next night the cook put some soup away, and in the morning the soup was gone; the hedgehog was found coiled up asleep in the tureen. The next night nothing was heard of the hedgehog, and for weeks we could not tell where he was gone; the cook was thankful, and the crickets sang, O be joyful, while the blackbeetles had free run of the kitchen. 'Years rolled on,' as the novelists have it, and a skeleton was discovered in the flue, which had smoked the whole of the house out for weeks. The hedgehog again. Thank goodness, I have seen the last of that wretch, and never wish to have another of his kind on the premises. Unless, therefore, my friends wish to run the chance of a hedgehog becoming the same pest to them as he was to me, they will never introduce them into their houses. Hedgehogs will only eat a certain number of beetles, and the beetles, having good spawning ground behind the kitchen range, breed much faster than the hedgehog can eat."

THE FLOWERS OF PARIS.

Flowers have the rare privilege of being loved by all—by the rich as well as by the poor, by the civilized as well as by the savage. It is not only in the midst of plenty that people conceive the idea of embellishing their dwellings with flowers. Their cultivation on a large scale among the French peasantry and by the poorer classes of great cities, has perhaps contributed more to the civilizing of the coarser organs than all the treatises of philosophy ever penned. Those who have studied French life in its different phases can testify that a honeysuckle around the door of a cottage, or a jessamine on a window-sill, are always good omens to a tired traveller. For my part, I know of a professional beggar in Paris who only tunes his harp and sings before those houses on whose balconies ivy, nasturtium, or sweet pea are struggling for existence, well aware that the hand which cultivates plants can never be closed against the supplications of the poor. At one of the windows of the house in which I live are a few geraniums, a fuchsia, and a rose. I always notice that it is before this window that those who have obtained a license to beg congregate, very certain that from the flower-pots will fall something to their advantage.

Fortunately, however, flowers do not attract the attention of beggars alone. Many are the great men and women of France who have held these floral apostles in reverence; many have been the consolations derived by kings and queens from their twined petals and perfumed breath. Louis XIV. specially loved the scent of the orange blossom, and had one huge tree in every room of his palace. Mdlle. de la Vallière, wishing to conceal her state, surrounded herself with tuberoses, the scent of which, although peculiarly agreeable to the grand Roi, was considered as fatal to women in her situation. Marie Antoinette was passionately fond of flowers, and constantly wore natural ones on her court dresses. On the morning of the day on which she was to receive, for the first time, the Emperor and Empress of Russia, travelling under the name of the Comte and Comtesse du Nord, the Queen desired her tirewoman to bring the dress she was to wear into her houbdoir, and wreath it with fresh flowers according to her own directions. The woman was thus employed when Louis XVI. and one of his ministers entered. The King looked surprised, as his visit had been announced. "You will pardon this breach of etiquette," explained the Queen, "but the flowers are natural, and would fade if not arranged at once." The flowers she loved so well conveyed to her the last pleasurable sensation she experienced in life. When immured in the dark and damp dungeon still to be seen at the Conciergerie, Madame Richard, the wife of the *concierger* of the prison, brought her daily a bouquet of the flowers she had always preferred—pinks, tuberoses, and, above all, her favourite julinnes. For this innocent act was Madame Richard denounced to the revolutionary tribunal and imprisoned. In later years another, who likewise occupied a throne, and was also hurled from her high estate to reap the bitter fruits of humiliation, devoted her latter days of solitude to the cultivation of flowers. Empress Josephine's gardens at Malmaison were the wonder of her time. With the aid of her gardener, Dupont, she collected every variety of rose then known in Belgium, Holland, and England, and even succeeded in raising many new species, still in high repute in the horticultural world.

The lily and violet have played an important rôle in the history of France. Under the Bourbon dynasty, the great actress Mdlle. Mars was hissed and insulted because she appeared on the stage with a bouquet of violets, that flower having been selected by the First Emperor as his emblem. The circumstance was the cause of several duels being fought. In France at present the rose is the favourite flower. I believe but one woman ever lived who hated the very sight of that blossom, and still more its perfume, and that woman was Anne of Austria. At the present moment roses are the fashion, and specially sought for by lovers and *fiancés*. In winter, as well as in summer, four hundred pounds worth of roses are sold in Paris alone, which makes 4,320,000 roses in the year. As it is the custom in France only to give white roses to young girls, even throughout the winter, the gardeners of the environs have invented a special system of forcing by which this flower can be produced at any time of the year. Rose-trees are placed under frames at a heat of 20° Réaumur for thirty to forty days, during which time the plant, whatever be the original colour of its blossoms, produces white roses. To alter the colour of the plant this heat is gradually increased, and every ray of light excluded from the frame during the last days previous to the opening of the flowers. The white lilac plants and bouquets, sold at so high a price in the streets of Paris during winter, are produced in this manner. Many are the purchasers of white lilac plants who, having carefully preserved them during the winter, have planted them out in their gardens in the spring, and been amazed to see their delicate white blossoms reproduced in the coarser kind of the common tree lilac. This fact very nearly caused the rupture of a long engagement between two young friends of mine, which engagement had, however, stood the test of time and much opposition. On last New Year's Day the young *fiancée* received from her lover a beautiful plant of white lilac, covered with delicate blossoms and pale sea-green leaves. I am not learned in the language of flowers, but I am instructed by one less ignorant than myself that white lilac signifies constancy, and I know not how many other equally valuable attributes. It was a parting gift. Victor de M—— was to start the following morning for Algeria, to join his regiment of Spahis quartered at Blidah. Lucille well-nigh killed the plant with care, for the *fiancé* was to return in spring and claim her for his bride; her whole heart was set, therefore, on its reflowering then. Truly the poor lilac recovered marvellously, when planted out in the open ground, from the evil effects of spending a winter in the heated atmosphere of a drawing-room, and grew and put forth leaves; but lo! they were a horrid dark green, and blossoms came of a vulgar lilac such as one gathers in the hedgerows. The very next day after this discovery Victor de M—— returned; and, horror! his first inquiry was for the white lilac, for he had attached a superstitious interest to its reflowering. Lucille vainly tried to turn his thoughts to another subject, but he persisted, and at last, with a beating heart, she led him to the sunny spot in the garden where it was flourishing, and at that moment a mass of lilac flowers.

"But that's not the plant I gave you."

"*Mais si*, I have taken such care of it."

"That is not my plant; that has been given to you by some one else—by your cousin, perhaps, in the Garde Impériale, that Alphonse, as you call him, who was always hanging about, and, now I think of it, bringing you flowers besides."

In vain his betrothed assured him that it was the very plant he had given her on that last day when she had shed his bitter tears. She admitted the transformation was strange—inexplicable; but she had prayed so much to the blessed Virgin, maybe it was a special mark of her favour—a miracle, in fact.

"*Supristi!* Miracle, indeed! Cousin Alphonse, in the Garde Impériale,

was the miracle, and it was for his sake, or for the sake of his uniform, she had watered it, and wept over it, and prayed to the Virgin over it, and—

and—"

A thought struck poor Lucille at this crisis. "You remember where you purchased the plant?" Certainly he remembered—at Montreuil, and it had taken him half a day to get there; and he might have saved himself that journey and another beside it.

"Will you return there," sobbingly asked his *fiancée*, "and relate what has occurred, for my sake?"

Not he. He wouldn't go to Montreuil with such a *coq-à-l'âne* story. The case was plain. He would return to his regiment, and never think of woman again. They were all alike for that matter, as his father had often told him, and his colonel, and all his comrades—only he had thought Lucille was different.

It is easy to get into a rage and storm away, but is not always quite so easy to act up to what one has said in the white-heat of jealousy. The ride from Ville d'Avray to Paris was long, and M. le Lieutenant had scarcely cantered down the avenue of my friend's chateau before he repented his hasty words. The thought occurred to him he might as well turn his horse's head towards Versailles and dine at Duboux, and, perhaps, in the evening, he would take Montreuil on his way home. True, it would be fourteen miles! What cared he for fatigue? Life was all one to him now. He had come from Algeria—and, by the bye, given up the chance of a lion hunt with Pertuiset—all for the sake of the veriest coquette that ever breathed; but he ought to have thought of it before. That Alphonse was always at Ville d'Avray, and besides, his regiment of La Garde had been quartered at Versailles that winter. So convenient a lounge too! just ten minutes by rail. However, for the curiosity of the thing, and just to clear his conscience, he would go to Montreuil, and never mind the dinner at Duboux. And to Montreuil he rode, and at a slapping pace too, very much as if he cared to get there.

On reaching the gate of the nursery garden his heart beat somewhat quick. "Was Monsieur Bertin in the gardens?" Monsieur was engaged—he was making up a *bouquet de mariage*, for which he was selecting the flowers. "Monsieur le Lieutenant would find him at the white lilac frames."

"Ravi de revoir, monsieur," exclaimed old Bertin, on again seeing his excellent customer. "I am making up the wedding bouquet of the great heiress who is to marry Capitaine—"

"Hang the bouquet," thought Victor de M——, as he ruthlessly interrupted his loquacious friend by a succinct narrative of what was said to have occurred to his last purchase, adding that naturally he did not believe in any such transformation.

"Pardon, M. le Lieutenant, rien de plus simple. This is my forcing house. There are three hundred lilacs; their blossoms, as you see, are white—their leaves pale green. Next spring I plant them out; they become common lilacs, or rather return to what they originally were. Here is my system."

"Merci!" cried Victor de M——, "I am rather in a hurry, as I have to get back to Ville d'Avray before dusk;" and so saying he dashed out of the garden, much to the amazement of my quiet old friend Bertin, and to the discomfort of an officer in the uniform of La Garde, against whom he knocked as he tried to rush out of the narrow gate.

As he raised his *kepi* and attempted to apologize, he recognized the identical cousin Alphonse he had so much belied.

"So you have returned from Algeria. I invite you to my wedding tomorrow. I marry Mdlle. Bonnefonds, the millionaire," said the latter, after a hurried recognition.

"Ah, I congratulate you," responded Victor, as he jumped on his horse. One month later I received my *billet de faire part* for the marriage of M. le Lieutenant Victor de M—— and the fair Lucille; and as the bride swept past me in the aisle of the cathedral church of St. Louis, at Versailles, a delicious fragrance of white lilac perfumed the air, and I remarked that her bridal robes were profusely adorned with that graceful flower.

One of the glories of the Great Exhibition of 1867 is having produced a new rose, which has been called after a lovely American girl, Clémence Raoux, and was raised by Monsieur Granger, of Suisses, who has excited the envy of all the horticulturists of Paris, and their indignation besides, as he sold the sixty plants he had raised to Mr. Lee for the sum of fifty pounds.

The nursery gardens of Paris are well worthy the attention of the visitor. The most interesting, however, is that belonging to the city, known by the name of the Fleuriste de la Muette, situated at the Passy gate, in the Bois de Boulogne. This vast horticultural laboratory contains above forty hot-houses, some of which are of colossal proportions. There are few roses cultivated here, for the simple reason that their flowers are invariably robbed during the night by lovers anxious to win a smile from their various lady-loves by the offering of a rose. It required at least three *sergents-de-ville* in each square, and several more in such open gardens as the Champs Elysées and the Parc Monceaux, to defend the roses. This being considered a somewhat superfluous duty by M. le Préfet de Police, who required his men for different work, roses are but sparingly bestowed on the inhabitants of Paris. In the establishment in question, which is one of the most extensive in Europe and the largest in France, fuchsias, camas, pelargoniums, verbenas, calceolarias, ageratum, and chrysanthemums are chiefly cultivated. Three thousand frames shelter the young plants from the changes and chances of this variable climate, and immense subterranean chambers, lighted and heated by gas, preserve the bulbous plants during the winter. One immense hot-house is devoted to the rearing of the palm trees so successfully planted out during the summer months, four to camellia trees, and several to solanums, caladiums, begonias, hibiscus, musa gigantea, wigandia, &c. One hundred gardeners alone are occupied in the task of multiplying these plants, whose number this year amounted to 3,000,000. The City Nursery Gardens possess 350 varieties of fuchsias, represented by 100,000 plants. Of pelargoniums there are 200,000 plants, of which 15,000 are of the kind so popular in England called Mrs. Pollock. I saw but one specimen of the Lucy Grove, which single specimen is taken as much care of as though it were a delicate young duchess. Of the palm tribe, these gardens possess 400 different species, and have 20,000 trees at this moment scattered over the various public gardens of the capital, where, thanks to the immense care bestowed on them, they thrive, as will be remembered by those who visited the Parc Monceaux this summer. Several thousand are likewise employed to decorate the Imperial residences, and more especially the apartments of the Empress, who much admires their graceful form. The anorphi, with which the Tuileries Palace is decorated on *fête* nights, are here cultivated on a large scale; and I was informed by the Chef Multiplieur, who accompanied me through the gardens, that for a ball no less than 60,000 of these flowers were forwarded to the palace. Of camellias I was shown 1,400 varieties. One greenhouse is filled with plants in a state of convalescence, struggling back to life and health after a season of dissipation, sufferers from their many up-

appearances at Court balls, State dinners to sovereigns at the Hôtel de Ville, soirées at Princess Mathilde's, and all public entertainments; and, poor camellias! they had a hard life of it this year, what with the Emperor of Russia, the Sultan, and all the rest of the royalties—they had scarcely a night of fresh air, and indeed their appearance tells of gas-lighted corridors and stifling saloons. Another greenhouse is occupied by camellia trees kept in reserve, from which blossoms are cut and fastened on any bare branch of the trees intended for the decoration of one of these Court or Ministerial fêtes. Of these four have historic interest. Each measures from 20 to 25 feet in height. These, with two others, were sent to France in the year 1814, as gifts from Emperor Francis to his daughter Empress Marie Louise, and were then considered as Imperial gifts of no slight value, each plant then valuing £120. Two alone have died. The four that remain are in splendid health, and are at this moment covered with buds. Empress Eugénie's apartments, at whatever palace she may occupy, are supplied with fresh plants to the number of 80 or 100 twice every week. When her Majesty is in Paris, it is the duty of the chief city gardener to see to this. He personally superintends the selection of the plants, which are conveyed to the Tuileries in a covered spring cart. Her bouquets are sent daily.

On entering the fern houses I was struck by the subdued light which was produced without the aid of blinds. I remarked that all these houses had a white appearance on the glass as of a substance smeared over it. On inquiry I learnt that this shade was favourable to the growth of weak plants, and was obtained by a composition of *blanc d'Espagne* and *colle de poisson*—whiting and isinglass—which once applied with a brush cannot be washed off by rain or snow. Ferns and plants whose chief beauty consists in their foliage are now more the fashion in Paris than mere flowering shrubs, as they are considered more decorative. Ferns are therefore specially cultivated, and being the tenderest fosterings of nature, it is no wonder they are tended with so much care and attention. The grand object of every French gardener is not only to shelter them from the direct rays of the burning sun, but to produce for their benefit that moist and still atmosphere which prevails in tropical climes. Some of these festooning the brauches and trunks of trees sent from Australia on account of the rare ferns attached to their bark are of extreme delicacy of structure, and I could not help admiring the wiry drapery of their verdant fronds. Much struck was I also with the specimens of the lycopodium, sending out their runners or creeping stems in all directions, to the length of many yards, and which strike deep in the turf below, taking root there, and thus multiplying the plant *ad infinitum*, and without the intervention of the talented Chef Multiplicateur, to whose intelligence and kind consideration I owe these details, which I trust may have afforded my readers a few moments' interest.

What strikes one most in the treatment adopted by French gardeners is that their shrubs and fruit trees seem to be cut and shaped, and follow a fashion, as do our coats and waistcoats. Of this, for instance, you have a proof in the laying out of some of the Paris squares, and more especially in the fantastic forms given to the yew trees and hedges which skirt the alleys and terraces of the Parc of Versailles, the stiff formality of which is eminently suggestive of the stately and dignified manners of the Court of the Grand Monarque. Even the twining graceful ivy, trained screen-wise against the railings of the palaces in Paris, is trained to grow in even undulations. The artificial and somewhat stiff regularity with which the geraniums, fuchsias, &c., are planted, in admirable contrast as to colour it is true, leads one to fancy that the system of training adopted for the school-boys of France is now being applied to French flowers. The latter, it must be allowed, appear to prosper marvellously well under this system of imperial discipline.—*Evening Star*.

A PLEA FOR SMALL BIRDS.

As the subject of preserving our small birds to the destruction of wire-worms, caterpillars, aphides, and other destroyers of our crops, &c., is now broached by the Rev. F. O. Morris and others, perhaps you will allow me to say a few words on their, the small birds', behalf. First, then, by all and any means, preserve our songsters, but let us advocate and do it in all sincerity. Will the Rev. F. O. Morris cease to write books on birds, and so help to prevent the wholesale slaughter of rare and other birds as well as talk about it? This may seem rather hard on the venerable author of "British Birds," but it is a fact, and I do not think the Rev. F. O. Morris will deny it, that this and other works on birds has been the cause of death (indirectly of course) of thousands and thousands of our rare and singing birds, by so-called admirers of birds—collectors they certainly are, but not admirers. Have not the books on birds given an impetuosity to collecting? Have they not described their habits, their "nests and eggs," and when and how to find them? and so opened the way, or, at least, one way, to the destruction instead of protection of the birds he, the Rev. F. O. Morris now appears, and, I really believe, wishes to save from further harm? I would not wish collectors wholly to give up collecting; but I would wish them not to kill every rare bird they come across, whether they have it already in their collections or not. There are, no doubt, many rare birds killed because collectors in general are a most unbelieving set, and who, were I to-day to see (not kill) a rare bird, and were to send a notice of the observations up to the *Ibis*, the *Zoologist*, the *Naturalist*, or any other of our journals on natural history, would reply to such a notice, and say (perhaps not plainly) it was a lie, a mistake, or something, and would refuse to believe in the said rarity's occurrence, unless the bird could be produced for identification. I do not for one moment say or think the Rev. F. O. Morris is one of those men, because he records the seeing only of several rare birds in his history. Another cause of every rare bird being killed that ventures on our free (free?) land is the great price ornithologists—no, I had better say collectors, and then the real ornithologist will not quarrel with me—give for specimens. Let collectors give up collecting and take to observing, or, if they must collect, let them be satisfied with one or two specimens of each species. I remember a gentleman well—at least he was an undergraduate in our university—who killed nearly every nightingale in the neighbourhood, and indeed every other bird he could get at; so much so, that he was nicknamed the bloody-minded undergraduate—he was a collector! This is no romance; there are many who will well remember the circumstance. There is another case for which collectors are answerable. They give large prices for rare birds, and thus give gamekeepers and others a reason for killing them. Let them cease to do that, in fact, give up buying rarities altogether; but no, they will say the charm of collecting would then be gone, as we care only or mostly for rarities. What is to be done when northern men shoot all the dippers they can to exchange for nightingales with a south, south-eastern, or south-western man, who kills all the nightingales to exchange *vice versa*, and as long as there are men who write bird books, and such men

as the above-named undergraduate to read them, and to supply material for such books? I can say thus much to bear out what I say, that this self-same undergraduate receives honourable mention in the "History of British Birds!"

And then there are the "bird-fanciers." How many thousands of our song-birds are caught, caged, stifled, starved, or otherwise doomed to die every year by them, I could not attempt to say. Statistics have been published, and it is something enormous. I will hunt it up and send you if wished. Nightingales, whose eyes are burnt out to make them sing—a fact!—hucknaps, garden warblers, whitethroats, &c., no sooner arrive here, "all to welcome back bright May," than the bird-catchers are alert, hundreds are caught, of which two-thirds at least pine and die, who had they been let alone would—

Praise Him for gladness, and rejoice
With Him to lift on lusty voice
Hosannas to the light

in our woods, fields, and hedge-rows. Who that really loves our singing birds—singing as they only do sing when in the woods and fields—or that has heard the lark, the songster of joy and hope, who pours out his song of love in the fresh dew of glittering morning, as he rises higher and higher, trilling out his thanks as though his heart would burst with its very fullness, seeming but a mere speck in the glorious heavens above, and at last disappearing from our sight, and then "Hark! the lark at heaven's gate sings"—a "voice from the heavens," shedding its blessing o'er all the earth!—I once saw one shot, as it was rising and singing, by a something dressed in man's clothes—who, I say, that has heard and felt this could keep one of those very birds shut up in a miserable cage—oh yes, some have very fine cages; but a goal is a goal, even though they do give you an easy-chair to sit in—and call the wailing heart-broken apology for a song he then sighs out singing? No, I hold and believe, he or she that cages up a throatsle, skylark, or any other of our singing-birds, does not do so for love of the bird or its song, but simply to please their own vanity of possession. And now comes the farmer and his men who—hut let the Rev. W. Barnes say it in his Dorset dialect—

Last night the merry farmers' sons,
From biggest down to least, min,
G'ed in the work of all their guns,
An' had their sparrow feast, min.

Vor heads o' sparrows they've a shot,
They'll have a prize in cwein, miu,
That is, if they cau make their scot,
Or else they pay a fine, min.

We'll zend abroad our verry hail
Till ev'ry foe(?)'s a bled, lads,
An' though the rogues mid all turn tail,
We'll quickly show their heads, lads.

In corn, or out in open ground,
In bush, or up in tree, lads,
If we dou't kill 'em, I'll be bound
We'll makee their vearthers vlee, lads.

Do you think he would forgive me if I add a couple of verses to his, and say?—

An' when the sparrows all a-gone,
We "mit" as well be gone too,
For palmer-worms and grubbs will eat
Our barley, wheat, and whoats too.
An' that's not all, vor we've a killed
Our friends! the sparrows, God sent,
T'do eat up wireworms, and grubbs,
An' palmer-worms, that God sent.

Zo, lubberheaded clothopper,
Go poison, shoot, and prove O,
Destroy all sparrows, greenfinches,
An' linnets, do not snare O;
An' at your sparrow clubs and veasts,
You stupid vools and pigs O,
He who shows most sparrows' heads
Will show the longest ears O.

And last, though not least, comes the almost every owner of a gun, be he gentle or simple. Who does not remember *Punch's* twin pictures—the aristocratic pigeon-shooter on one side, and the—please, Mr. Editor, find me a name for him—gull or any other bird shooter, on the other. Laugh! No, did you laugh? Because if you did you made a mistake. Everything in *Punch* is not meant to laugh at. Some things go too deep for that. But I will leave *Punch*—he can take care of himself. I wish our small birds were as able.

Only two or three Sundays since I was walking with a friend "in lanes with flowers sweet," when, "bang!" and out of an adjoining field rushed three or four boys; one had an old rusty gun, but one which was evidently doing its murderous work, as another of the boys held a long string of small birds, tied by their necks, among which were whitethroats, skylarks, black-birds, &c., and I am extra sorry to say a robin. These boys certainly had no fear of broken arms or legs, which I was taught to believe every one who killed a robin or took a robin's nest would be sure to get as the necessary consequence. And then there is Christmas-day, Good Friday—bad Friday it should be, so far as the birds are concerned—Easter Monday, and any other holiday that may turn up, with their hundreds of shooters. And there is my lord and the great moneyed man: is there a mansion or hall in the country but what has its cases of rare and other stuffed birds?

Who is to blame? I should say that individual everywhere to be met with—Self; for if Self would but think and do unto others as he would be done unto, we should have no more complaints of the scarcity of birds, be it of song or not. And I fear "self" ranges from the very top to the bottom of mankind. The peer, or wealthy man, who shoots for fashion, pleases self; the naturalist and writer on natural history, who collect and write for vanity, please self; the snob who shoots for fun, or the lout who poisons his best friends rather than let them have a few grains of corn or a cherry—all, all is self. Let the wealthy man shoot birds only that are worth being shot for food; the naturalist study the habits, ways, and manners of birds, and he will find more to write about than measuring wings, legs, and bills, or counting the feathers in the tail, and the grumbling at his fellow naturalist because his measurements and countings do not agree with his own, till they get to very much the same as the Robins in Professor Kingsley's "Water Babies," where, in a dispute over a worm, one said that it was his worm, and that, if it was not, then it was not a worm at all! And lastly, let the farmer or his man open the crops of some of the birds he has poisoned, shot, or trapped; let him look the contents well over, and count the number of insects and weed-seeds against the number of grains of corn he will find there, and he will become an anti-bird killer forthwith.—CANTAB, in the "Standard."

Calendar.

WORK FOR WEEK COMMENCING NOVEMBER 2.

Kitchen Garden and Frame Ground.

ASPARAGUS AND SEAKALE for the first supply to be put in at once. All that is wanted is a mild sweet bottom-heat. A melon bed still retaining some warmth may be revived by turning it over, and mixing with the dung a good proportion of leaves, straw, grass-mowings, and other fermentable litter. A bottom-heat of from 50° to 60° will be ample. Place the roots close together, and cover with light soil. Seakale must be shut up close and dark; asparagus will want air and light; the latter to be cut when the plump purple crowns are two or three inches long above ground.

PEAS AND BEANS.—Sow at a risk First Crop and Saugster's No. 1, and Mazagan beans. In low situations, where snails and slugs abound, there is little chance of success. On high and dry positions they will probably endure the winter, and come in earlier than spring-sown crops. Aspect is not of so much importance as dryness. Raised borders under walls facing south are generally chosen for these sowings; but an exposed position, if dry, will be nearly as safe. The usual causes of failure are damp and vermin.

SLUGS AND SNAILS are now very active during mild weather, preparing perhaps to make a good fill before hibernating for the winter. It happens that most people have time now to trap them, which they generally say they have not at other seasons. Brewers' grains or buttered cabbage-leaves are the best traps known for these destructive vermin. They will leave any other food for these attractive baits, and may be trapped wholesale by inverting large flower-pots tilted off the ground by means of a few sticks over heaps of fresh brewers' grains.

Flower Garden.

ROSES planted now, though with leaves still on them, will begin to make fresh roots at once. In any case make the ground ready by manuring liberally where roses are to be planted. Briers worked this season may be lifted now, but they should never have a place in the rosery till they have made at least one full season's growth from the first starting of the buds. Plant firm, and stake at once.

SPRING FLOWERS to be thought of now, so as to secure a proper succession of Cyclamen, Primula, Cineraria, and a few potted Pansies. The chief point in managing these things is to keep them as near the glass as possible. Give water very carefully, to guard against damp at the collar, and let them have as much air as possible consistent with their forwardness and the state of the weather. Those to be pushed on for a first supply keep in warm greenhouse temperature, and constantly look out for fly, which will revel amongst them if not checked in time.

AURICULAS.—Damp is now their great enemy, and yet water must be given, if they want it, at the root. Keep the glass over them, and give air liberally. Remove dead leaves, and guard against drip.

DAHLIAS.—Take up at once, or as soon as the frost has spoilt their beauty. A few dahlias, which we took up on clean stems by disbudbing rather late in the season, are now nice standards in pots, and will make a show under glass for some time to come. This may be a useful hint to those who have heavy demands upon them to keep conservatories gay.

TULIPS to be planted at once. Lord Mayor's Day is the commencement of the season among the fanciers; if planted earlier, they break ground too soon in the frost; if later, they flower weakly. But bedding tulips may be planted any time from the 1st of October to the middle of November.

ROSE STOCKS to be planted at once. Reject all the grey hard-barked briers; the best are those with formidable spines and a greenish bark. Plant roses for blooming next season. A stiff well-manured soil suits them best, and, except in very cold districts, the more open the position the better.

GNASS TURF.—This is the best time in the whole year to lay down turf. Secure for garden lawns turf of fine quality and close growth, containing a good proportion of clover. Generally speaking, the best turf is obtained from commons where it has been continually eaten close. The ground must be firm on which the turf is laid, or it will sink in places during the winter. When laid, let it be well beaten and the joints closed.

HOLLYHOCKS of choice kinds should be taken up and potted, and a few of the shortest shoots taken from each and put round the sides of pots as cuttings; they will root without the aid of heat in a frame or pit.

CARNATIONS AND PICOTÉES to be kept comparatively dry, and very freely aired. Prepare the compost for next season's potting by chopping over two parts yellow loam with plenty of fibre in it, one part rotten cow-dung, and a half part of fine siftings from old plaster or road-sand. Lay this up in a ridge, and let it be several times turned during the winter, especially with a view to get the whole mass two or three times frozen through.

LOBELIA CARDINALIS and its kindred should be taken up and planted in boxes to keep over winter in frames, or separate the shoots and pot the offsets separately, or four or five together, in 48-sized pots.

A MIXED BED OF HARDY PLANTS.—As alterations and improvements are now in progress, we introduce here descriptions of a few good beds consisting entirely of hardy plants. This, the first bed, is a circle twelve feet in diameter. It is raised above the general level, so as to present a gentle convexity of the same degree as an ordinary watch-glass. In the centre is a fine pampas grass, *Acyroium argenteum*. At a distance of three feet from the pampas grass all round there are clumps of the gorgeous *Tritoma uvaria*, the fiery flowers of which shoot up through the fountain-like leaves of the pampas, and have a most magnificent appearance. Between the clumps of tritoma are tufts of the rather new and splendid grass, *Arioso conspicua*, which has been flowering most gaily since the middle of June. This is quite green all the winter, and always beautiful. It does not grow so tall as the pampas, and is more robust in appearance. Between these grasses and the margin are clumps of *Spiraea filipendula*, which cannot be surpassed for grace and beauty; *Statice latifolia*, a very bold and handsome plant; *Aspidistra lucida variegata*, which is quite hardy, and has all the splendour of a choice variegated toxe-plant; *Punkia Sieboldii variegata*, a most beautiful plant in both leaf and flower. The margin is furnished with tufts of small grasses, such as *Festuca ovina glauca*, *Dactylis glomerata variegata*, *Stipa pennata*, and *Eragrostis elegans*. There are spaces between the several plants, and during the summer these spaces are filled up with French marigolds.

BED OF SAXIFRAGES AND HOUSELECKS.—This bed is to be seen in the centre of the herbaceous garden in the grounds of the Royal Botanic Society, Regent's Park. This also is a circular bed, raised above the level by a

gentle swell. It is divided from the centre into compartments, each compartment being, of course, of a wedge shape, the apex at the centre, and the base forming part of the boundary of the bed. The bed measures about fifteen feet across—it is likely to be a foot or so more in width rather than anything less. The compartments are eight in number—four of them consisting wholly of saxifrages, and four of sempervivums; the effect is most remarkable, simple, yet grand; and, in the early part of the summer, a vast sheet of flowers beautifully harmonized, at all other seasons luxurious in the most elegant leafage; a masterpiece of effect with only eight sorts of hardy plants. The saxifrages are, *S. hypnoides*, *S. pulchella*, *S. oppositifolia*, and *airoides*. The first-named has swelled up into huge pillow tufts of the brightest emerald green, looking like a bed for a weary man to recline upon and forget his troubles; the other sorts are rich, without a break, and most luxuriant in growth. The sempervivums, or houselecks, are *S. hirtum*, *S. Californicum*, *S. montanum*, and *S. arachnoides*, all of a fine growth, and producing myriads of red flowers. When Mr. W. Robinson had the care of the herbaceous garden there, we have stood with him on a sunny day in June, and seen the flowers of *S. hirtum* as thickly covered with bees as the great sheet of vegetation was thickly covered with flowers; and we have agreed that, for an inexpensive and interesting sort of gardening, there could be nothing to surpass such a bed as that, as it only needs to be made of sandy loam, and planted with tufts of the proper plants a foot or so apart, and then will take care of itself, and continually improve in appearance during any ordinary lifetime. And it has this advantage, that on a small scale it is equally effective; the reason it is on a large scale there is that the place is large, and the herbaceous garden contains many things that have no beauty, and this bed is a sort of compensation to reward for their trouble of seeking it those who might feel disappointment with a collection formed for botanical purposes only.

A BED FOR THE DRAWING-ROOM WINDOWS.—The bed we now describe is in a garden on the north side of London, where it forms a distinct and beautiful feature. It is a great circle raised above the level; the diameter is twenty-four feet, and the elevation above the general level varies from eighteen to twenty-four inches, the ground being a slope where the bed is situated, but the bed itself forms a dead level. The centre consists of a mass of *Rhododendrons* eighteen feet across, which leaves a margin of three feet all round. This margin is planted with a ring of *Cabbage Roses* close in front of the rhododendrons, and outside the roses is a ring of the beautiful *Cotoneaster Simmonsi*, and the spring-flowering *Deutzia gracilis*, which is generally grown in England as a greenhouse plant. It is one of the prettiest spring-flowering shrubs we have, and is easily forced, but it is quite hardy; the plants in the outside band alternate, a *Deutzia*, next a *Cotoneaster*, next a *Deutzia*, and so on all round. The bed is kept up on the margin by a wall of large burrs, such as rockworks are mostly made of in the gardens near London; but very little of this is seen, for over it hangs a continuous sheet of the noble German ivy, *Hedera Requeriana*, which is one of the finest of all plants for the purpose, and makes a pleasant change from the common Irish ivy, *Hedera canariensis*, which we see everywhere. Amongst the rhododendrons are many very choice kinds, such as the *variegated-leaved* variety of *R. ponticum*, a most beautiful shrub; also the very early-flowering *R. dauricum*, which is dotted with little rosy flowers from February to April, and a few always appear in November and December. Also *R. hirsutum* and *R. ferrugineum*, very choice small-leaved sorts, with such hybrids as *Jacksoni*, *Hendersoni*, the *Queen*, *Roseum*, *Alarm*, and others equally splendid, when in flower. One of the very best is *Maculatum nigrum*, which is grandly spotted. There are also some plants of *Kalmia rubra*, a small-leaved sort, with violet red flowers; and *Erica Mediterranea*, and the elegant *Ruscus aculeatus* or "Alexandrian laurel." Thus, the great centre-piece is rich and varied, and from February to June there are flowers to be seen—the principal display being in the month of May. Just at that time the *Deutzias* near the outside zone of ivy begin to flower, and their snowy blossoms look most chaste and beautiful. When they are declining, the cabbage roses flower, and their delicate colours are enhanced by the fine deep green background of the rhododendrons. At the same time the cotoneasters flower, but they make little show until all the flowers are past, and then they display abundance of their orange red berries, which last through the winter. This particular bed is the more pleasing because every one of the plants has been raised on the spot, and are the results of various experiments in propagating. The cotoneasters were all raised from berries; and I saw in the garden several large batches of seedlings of the same plant, which is raised in quantities every year. How many a garden needs such a bed as this, and how easily it might be made, with a judicious outlay in the first instance! There is wanted a good position, next a platform of good loam, high enough to allow of cutting down on the outside to a regular ring, which is to be finished with large stones or burrs. In the centre there must be two feet depth of rhododendron soil, such as sandy loam, rich in vegetable fibre, or peat well chopped up with about a third part of the most silky-textured hazel loam added. The planting is a simple affair enough, and that accomplished, there is nothing more to do.

GARDEN PLANTS IN FLOWER.—*Aster Nova Zelandica*, *A. dracemoides*, *A. conchus*, *A. concolor*, *A. Sikimensis*, *A. latus*, *A. salicifolius*, *A. grandiflorus*, *Caltha sagittata*, *Sideritis spinosa*, *Aconitum autumnalis*, *Artemisia pontica*, *Armeria vulgaris coccinea*, *Artemisia lactiflora*, *A. cernuoscens*, *Baccharia dioscoroides*, *Barbarea praecox*, *Bidens procea*, *Cineraria auriculata*, *Solidago levigata*, *S. recurvata*, *S. glomerata*, *S. tenuifolia*, *S. graminifolia*, *Pyrola media*, *Liatris elegans*, *Lobelia glandulosa*, violets, primroses, and a few auriculas flower during mild weather.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Prune and plant as weather permits. Give special attention to wall fruit, and where standards have got crowded thin out the heads, but be very cautious about cutting large boughs off healthy bearing trees. Bush fruits should be pruned, and the ground forked over between the rows. Burn the prunings and strew the ashes over the newly-forked surface. Red and white currants must be cut back to skeletons; the chief of the fruit-buds being at the junction of the new wood with that of last year, leave only three or four joints beyond that point, and cut clear away at the base every branch that is ill placed, or that chokes up the centre. Black currants do not like the knife. Trim the branches to regular distances, and shorten the longest back to good joints, but preserve plenty of young wood, leaving the plumpest branches nearly their full length and cutting all weak ones clean away. Treat gooseberries in the same way; they never bear well if severely pruned. Scrub old apple-trees that are infested with blight with a strong brine, rather warm, and stop the holes with a mixture of clay, sulphur, soot, and cow-dung, beaten together into a tenacious paste. Put stakes to everything fresh planted, or, better still, three lengths of tarred rope fastened to posts driven firmly in the ground. Plantations to be

made ready for planting without delay. Let the earth be deeply stirred. Stubborn clays are greatly improved for planting fruit-trees by digging in plenty of broken oyster-shells, half-inch bones, and building rubbish from which all large bricks and stones have been removed. Of course drainage is the first requisite of success.

WALL TREES to be pruned, and as much good wood as possible laid in.

Greenhouse and Conservatory.

PERLARGONIUMS have been pretty free from disasters hitherto, but the season of mildew is upon us. Use fire-heat by day only during frost and damp; train and stop; water sparingly; do not wet the foliage.

SCARLET SALVIAS may be kept in bloom a considerable length of time in a warm light place in the conservatory, especially if rather pot-bound, and kept in vigour with manure-water.

VIOLETS potted now, by taking up strong runners, will bloom early and be of service. Use plenty of charred rubbish to lighten the compost, which should be rich.

AZALEAS.—Keep cool, or they may start too soon; a few may be started very gently for the first bloom.

CAMELIAS are now in fine bloom in many places, and only need moderate protection to keep them gay; but, as they are not yet wanted, those showing colour must be retarded as much as possible to keep them back till the chrysanthemums are over.

CHRYSANTHEMUMS to have plenty of water, and no more liquid manure. By keeping the backward plants out to the latest moment which it is safe to do so, they will come in usefully as a succession to keep the conservatory gay till after Christmas.

FUCHSIAS done blooming to be left out as long as possible to harden the wood, and those for specimens next year to be started gently as soon as they have shaken off their leaves, preparatory to repotting in a month's time. Standards must be kept slightly on the move all winter to make sure of them. Fuchsias stored under stages had better not be pruned, except just the points of the longest shoots, as it causes them to break before they are wanted. Late-struck plants will be in nice bloom now for the conservatory, and cuttings may now be put in for early plants.

GERANIUMS potted from the borders to be pruned in, but not severely—sufficient only to remove the soft sappy growth, as severe pruning would cause them to grow again too quickly. Those for special purposes and for early bloom should be cut in close and put in bottom-heat for a month. If any remain out, get them up before they melt into a jelly, and give them a warm berth for a week or two, to enable them to get hold of the new stuff in which they are potted. Poor sandy stuff for all bedders that are merely to be kept, as the less growth the better.

SUCCULENT PLANTS must now be arranged in their winter quarters. In a mixed collection the best place for them is a top shelf in the full light, and where they are not likely to suffer by drip. The requirements for their winter safety are a dry position, plenty of light, air when needful, and security from frost. Give them no water from this date, or at most water with caution only such as obviously need it; and any in active growth or flower keep warm until they go to rest.

GREENHOUSE PLANTS IN BLOOM.—*Acacia corymbosa*, *A. lophantha*, *Cytisus Atleana*, *C. racemosus*, *Coronilla glauca*, *Correa pulchella*, *Tropæolum Lobbianum*, *T. Ball of Fire*, *T. Lilly Schmidt*, *Lambertia rosea*, *Salvia fulgens*, *Chimonanthus fragrans*, *C. sinense*, *Jasminum nudiflorum*, *Globulea hispida*, *Escheveria retusa*, *Citriobatus multiflorus*, *Myoporum pumiliifolium*, *Euphrasia nivalis*, *E. purpurascens*, *E. miniata*, *Tree Violets*, *Tree Carnations*, *Camellias*.—*Ericas*: *Distans*, *Gracilis*, *Autumnalis*, *Templeana*, *Pilularis*, *Leana*, *Cubica*, *Acuminata*, *Princeps*, *Solandriano*, *Rubens*, *Viridiflora*, *Aitoniana*, *Caffra*, *Muscoides*, *Verticillata*, *Banksia*, *Cruenta*, *Droseroides*, *Rupestris*, *Taxifolia*, *Aspera*, *Pulchella*, *Hyemalis*, *Florida*, *Ralliformis*, *Niellii*, *Syndriana*, *McNabiana*, *Glandulosa*, *Lambertiana*, *Easonii*.

Stove and Orchid House.

ORCHID HOUSE.—All orchids requiring rest now should have less water and a cooler and drier atmosphere, and a more liberal ventilation, than in the growing season. Evergreen kinds will require a moderately warm position. It is at this time of year that rot and spot begin their havoc in the orchid house. Both these maladies are the result of improper treatment by the cultivator, one cause of both diseases being the continuance of too high a temperature with much moisture during the period when the plants ought to be at rest, and another frequent cause is too much damp when the temperature is low. The drip from the glass falling on the pseudo-bulbs frequently causes rot, and whenever rot appears the parts affected should be cut clean away, and the parts filled up with sulphur. Discolouration of the pseudo-bulbs is one of the indications of approaching rotteness. Spot appears to result frequently from cold draughts passing through the house when there is much vapour and the plants are damp. Removal to a drier and warmer air will generally stop its ravages; but as soon as the growing season returns the plants that were affected should be started in a brisk heat, and have every possible encouragement to grow, and they will generally grow out of it. In preparing for the winter wash all the glass and woodwork of the house.

ORCHIDS IN FLOWER.—*Cypripedium Farriaeum*, *Lælia superbiens*, *Odonoglossum Uro Skinneri*, *Sophrontes grandiflora*, *Læliopsis Domingensis*, *Stanhopea oculata*, *Cattleya maxima*, *Barkeria Skinneri*, *Lycaste Deppii*, *Dendrobium discolor*, *D. veratrifolium*, *Angrecum bilobum*, *A. sesquipedale*, *Phalænopsis amabilis longifolia*, *P. rotundifolia*, *Oncidium reflexum*, *Denbromium moniliforme*, *D. majus*, *Calanthe Veitchii*, *Oncidium Forbesii*, *Lælia albida superba*, *Grammatophyllum speciosum*, *G. Ellisii*, *Dendrobium Lowii*, *Goodyera discolor*, *G. Domini*, *G. pubescens*, *Miltonia Karwinski*, *Sophrontes cernua*, *S. violacea*.

Forcing Pit.

FORCING to be commenced now, and in accordance with hints already given preparatory to it. First clean the glass, to make sure of the utmost possible amount of light; then get together the fermenting materials—leaves and sweet dung chiefly, and over this lay six inches of tan or spent hops to plunge the pots in. Put in nothing but what has been prepared for the work, and has ripe wood and well-formed flower-buds. Azaleas, Camellias, Gardenias, Roses, hybrid Rhododendrons, double Plums and Peaches, double Cherry, Weigelia, Tree Pæonies, Chimonanthus fragrans, Rhododendron ciliatum, Cytisus Atleana, Kalnia, *Andromeda floribunda*, Daphnes, and *Jasminum nudiflorum* are all cheap and easy subjects to force, and all beautiful in their season. It requires more skill and a good stove to manage *Poinsettia pulcherrima*, *Euphorbia Jacquiniflora*, *Achimenes*, and *Gloxinias* nicely, but these may be forced in dung-heat where there is plenty of room, plenty of material, and some experience at command for the purpose.

VINES breaking to have air cautiously, as a chill may result in disease of some kind hereafter. If red-spider appears on vines planted inside, give the roots a liberal watering, in addition to the other means of eradication; a vigorous growth will prove as powerful a preventive as any special applications of Gishurst, &c. Where grapes are still hanging keep the atmosphere dry.

Correspondence.

SCARCITY OF BIRDS.—In reply to your correspondent, the Rev. F. O. Morris (p. 423), I have to report that the scarcity of such birds as blackbirds, thrushes, and starlings, has been the subject of many remarks during the past summer. Those who have known the spot from which I write (the lower part of Somerset) for the last thirty years, say they never knew so few, and they attribute the scarcity to the severity of last winter. Few places are more surrounded with woods than is the mansion here, yet I have not seen more than one blackbird during the last two months. I have seen here during the summer a large bird of unusual beauty, visiting the walks in the kitchen-garden frequently, apparently searching for the little red ants. It was not of a tame character. The prevailing colours of the feathers appeared to be brown, red, and green; and when disturbed, it started up with a shrill bold note. In Surrey I have heard them called "Yaffols." I should be obliged if your correspondent can furnish me with the name of this bird. J. C. CLARKE.

[This letter has been kept back a fortnight in the hope that we might be able to discover the proper name of the bird Mr. Clarke refers to. But we have not succeeded, and therefore join him in asking of our readers what is a "Yaffol"?—ED.]

SEA-SIDE PLANTING.—I am in difficulties about what to plant in the way of shrubs and trees, for the sea-breeze has killed many things that I planted last winter. Our garden is situated about three-quarters of a mile from the sea-shore in Lancashire. Could you recommend any kind of shrubs that would be likely to stand the climate? I find that the salt wind kills the American Thuas, likewise the Chinese, Irish, and English yews, and the common lilac. It is a very stormy situation, and we have but very little shelter from the west, and none from the north and east. We want something very hardy. If you could name a few things that would be likely to live, I should feel greatly obliged, as my employer does not mind spending money if we can get things to live. G. G.

[Can any of our friends living near the coast assist G. G.? Some practical information on this subject would be of great value to many of our readers. The following are usually considered safe subjects to plant in windy places near the sea: *Tamarix Gallica*, *Quercus ilex*, *Arbutus unedo*, *Lycostera formosa*, *Abutilon vitifolium*, *Ribes sanguinea*, common Juniper, *Pinus austriaca*, *pinaster*, and *strobis*, *Abies excelsa*. Amongst humbler subjects, the following are admirably adapted for the purpose: *Hydrangeas* of all kinds, *Fuchsia virgata*, *Atriplex halimus*, *Cineraria maritima*, and *Helleborus niger*. In such a position true sea-side plants, such as *Eryugium maritimum*, &c., should be made the most of.]

A CORRESPONDENT desires to know the address of Mr. Henry Baker, the agent for Hays's Patent Stoves. Address, G. B., care of the publisher, GARDENER'S MAGAZINE, 11, Ave Maria Lane, London. E.C.

PLUM RAISED FROM THE STONE OF A PEACH.—By the kind permission of an old cottager, I have been permitted to send you a sample of plums he has been successful enough to raise from the stone of a peach. The fruits that I have sent you are from a tree standing at the end of his cottage, north-east aspect. I am sorry to say they are not quite ripe; but I hope you will be able to inform me, through your GARDENER'S MAGAZINE, if they are new or not. I thought myself I had not seen anything like them before. I must here inform you it will not be any advantage to me, but, as the old man has asked me to look at them, and I could not think of anything to equal them, and as a constant reader of the Magazine, I thought I would send a sample to have your opinion of them through the same.

WILLIAM DALE, Gardener to T. Townsend, Knockholt, Kent.

[The plums sent were in colour, texture, and flavour, very like the Belgian Purple, and therefore quite second-rate in quality. There must be some mistake about their origin. The old cottager no doubt believes he raised the tree from a peach-stone, but there is, physiologically, too wide a difference between peaches and plums for one to give rise, by means of a seed, to the other.]

A QUERY ON THE EXHIBITION OF BOUQUETS.—At our last show, August 27th, a gentleman amateur, who was known to be from home, sent his plants, &c., to the show, and, amongst other things, a bouquet. An objection was raised that, as he was from home, the bouquet could not be his making, and it was admitted that it was not, but that his house-keeper made it from flowers gathered from his garden. It was contended that it was immaterial where the flowers came from, so long as the exhibitor made the bouquet, inasmuch as the prizes were awarded for the arrangement, and not for the quality of the flowers. I stated the question to the judges, and they decided the bouquet could not be shown. Was that decision correct? and, in fact, is it not a law well understood by exhibitors, and judges as well, that where prizes are offered for bouquets or designs in flowers, it is to the arrangement in the one case, and the design in the other, that the prize is awarded, and that it is not necessary, unless so provided by the rules, that the flowers should have been grown by the exhibitor; but it is necessary that the exhibitor should be the designer in all cases? W. G.

[The judges were too precise; yet, in strict interpretation of rules, they were right, provided the bouquet was shown in the name of a person then away from home, and who it was known had not made it.]

IT'S AN ILL WIND, &c.—Fontenelle had a great liking for asparagus, and preferred it dressed with oil. One day a certain *bon-vivant* abbé came unexpectedly to dinner. The abbé was very fond of asparagus also, but liked his dressed with butter. Fontenelle affirmed that for a friend there was no sacrifice of which he did not feel himself capable, and that half the dish of asparagus he ordered for himself should be done with butter. Whilst they were talking, waiting for dinner, the poor abbé falls suddenly down in a fit of apoplexy. Upon which Fontenelle instantly springs up, scampers down to the kitchen with agility, and cries out to his cook, "The whole with oil! The whole with oil, as at first!"

CATALOGUES.

JAMES VEITCH AND SONS, KING'S ROAD, CHelsea. *Catalogue of Hardy Trees, American Plants, &c.*—This is a fine list of coniferous, deciduous, and cistaceous trees and shrubs. Amongst the novelties and specialities we notice *Retinospora plumosa* and *pilifera*, *Cryptomeria elegans*, *Pseudo-larix Kämpferi*, the Golden larch, *Castanea chrysophylla*, *Griselinia littoralis*, &c. There are in their several places large lists of *Berberis*, *Hedera*, *Quercus*, and other genera interesting to collectors.

T. S. WARE, HALE-FARM NURSERIES, TOTTENHAM. *Catalogue of Trees, Shrubs, Roses, Herbaceous and Alpine Plants, &c.*—We have several times referred to the extensive collections of herbaceous plants at the Hale-Farm Nurseries. This neatly printed list represents the nursery fairly, and we are glad to see in it a host of good things that lovers of hardy plants will consider themselves fortunate to obtain.

J. R. TANTON, EPSOM NURSERY, EPSOM, SURREY. *Descriptive Catalogue of Select Roses.*—A capital short list, comprising all the good established varieties. It is a curious circumstance that neither general nor particular prices are given. This is a mistake; many persons will order things if they know what will be the cost, but will not take the trouble to make inquiries about prices.—*Catalogue of Imported Dutch Bulbs.* A short but very comprehensive list.

HOOPER AND CO., CENTRAL AVENUE, COVENT GARDEN. *Autumn Catalogue of Flowering Bulbs.*—A copious and interesting list, the value of which is greatly enhanced by the numerous admirably executed engravings of new and interesting plants.

PAUL AND SON, THE "OLD" NURSERIES, CHESHUNT, HERTS. *Rose Catalogue for 1867-68.*—To praise this would be waste of words, but it may be proper to say that the new roses of 1867 are classed and described separately, and the best varieties of the past season are pointed out with care and impartiality.

WILLIAM ROLLISSON AND SONS, Tooting, London, S. *Catalogue of Dutch and other Bulbs.*—This contains, in addition to the usual selections of bulbs, lists of new Japanese plants, new tender and hardy plants of special value and importance, lists of roses, grape-vines, &c.

GEORGE GIBBS AND CO., 25, DOWN STREET, PICCADILLY. *Catalogue of Dutch Bulbs.*—Messrs. Gibbs have named, amongst bedding tulips, *La Candeur*, *Rex Rubrorum*, *Tournesol*, and *Yellow Prince*, as the best four for bedding, having proved this by their extensive trial of bedding tulips in Hyde Park, in the spring of the present year, when these four kinds were all in bloom together and produced a most telling effect.

T. PIERPOINT, WARRINGTON. *Autumn Catalogue of Dutch Bulbs, Gladioli, Roses, Fruit-trees, &c., 1867-68.*—This is quite a model in respect of the amount of information given, without puffing, and with a view solely to bring before the public the best subjects in the several classes. The lists of fruits are admirably prepared.

Replies to Queries.

Marsh Plants.—J. Westcott.—The pampas does not answer on wet land in this country; it grows well in summer, but is too likely to die in winter. The following are good marsh and water plants: *Botomus umbellatus*, *Caltha palustris*, *Calla palustris*, *Acorus gramineus*, *Arundo donax*, *Cyperus longus*, *Epilobium angustifolium*, *Lythrum salicaria*. The "Garden Oracle" for 1868 will contain carefully prepared lists of such things. The query about books we do not quite understand. Thompson's "Gardener's Assistant" is one of the best books on gardening generally.

Variiegated Geraniums.—J. H. W., Manchester.—In the Magazine of the 20th of April last (page 170) appeared an article on the cultivation of Tricolors, from the pen of Mr. F. Smith, of Dulwich. You could not have a better guide. The sorts likely to be most in demand next season are—of Henderson's, *Lucy Grieve*, *Sophia Dumaresque*, and *Caroline Longfield*; of Smith's, *Louisa Smith*, *Defiance*, *Jetty Lacy*, *Souvenir de Sir Joseph Paxton*; of Wills's, *Her Majesty*, *Beauty of Ribblesdale*; of Saltmarsh's, *Meteor*. You would do well to consult the Magazine of July 27 and August 17 last. The issue of the "Garden Oracle," now preparing, for 1868 will contain carefully prepared lists of the best in every class. One of the best books to expend your money on is Thompson's "Gardener's Assistant."

Country Gardener.—The offices of the City Soap Company are in Milton Street, London, E.C.

H. Camell.—Your boxful of fuchsia flowers came to hand without any intimation of the sender, and your note respecting it arrived after last week's Magazine was printed. We have never seen a finer lot of single fuchsia blooms, and of gigantic size, leathery substance, and gorgeous colours have anything to do with relative merit, the varieties here represented are of great value, and must displace many of the very best in cultivation. Some of the flowers spread over a space three inches in diameter, and yet are symmetrical, finely proportioned, and as finely finished as they are huge in size. There is but one white flower in the lot, a very delicate thing, with waxy or crystalline sepals. This is small and peculiar, but will no doubt prove a gem in the class it belongs to.

J. W., St. Albans.—We think it best for all parties that the subject should drop.

Mr. Charles Quince, Florist, Gravesend.—It is a strange thing that we should find two ivy-leaves between two cards, and nothing more. Did you forget to enclose the ipomea, or has it vanished on the road? We should have replied earlier, but could make nothing of it.

Friend.—Any of the varieties of male *Aucubas* will serve to furnish pollen for your old trees. One male will supply pollen enough to fertilize twenty or fifty plants, if the business is conducted with care. The best male to buy for the purpose is the one called *A. Japonica mascula naeuclata*.

Novice.—Your edging plant is the well known variegated *Alyssum*.

Grapes for Verandah.—B. T.—Your verandah 30 feet long and 6 feet wide would afford room for four vines; and the best sorts for the purpose are *Esperione*, Cambridge Botanic Garden, *Grove-End Sweetwater*, and *Chasselas Violet*. The article on pruning the vine to which you refer will be found at page 14 of the present volume (Jan. 12, 1867).

Sonnet Amateur.—One vine will be quite enough for your little house, but you may plant the three, and restrict them. The border you propose will answer well, if it is really drained. You speak of putting clinkers on the surface. You are, we suppose, aware that clinkers laid on the soil will not promote the escape of water; probably you mean that the clinkers form the foundation. If you want to grow choice greenhouse plants in the house, you

advise you not to plant vines at all. The double *Sanvitalia procumbens* is a pretty annual.

Hedychium Gardnerianum.—Ensigne.—This fine plant grows to a height of six to ten feet, and flowers gloriously if well managed. The principal requisites of success in the cultivation of the plant are five in number, namely, a light rich sandy soil; a sufficient temperature when growing, say 70° to 90°; abundance of water while growing; a thorough rest, with small allowance of water, in a temperature of 45° to 60°; full exposure to light at all seasons. Propagation is effected by division. The best compost for them is one consisting of equal parts mellow loam, leaf-mould, thoroughly rotten hotbed manure, and sharp sand. They are sometimes grown in peat, but a mixture without peat is preferable.

** The Editor can recommend a person possessed of spirit, ability, and probity as Head Gardener in a garden where pines, grapes, and orchids are grown. His testimonials are all that can be desired, and he is prepared to take a fresh place at once. Letters addressed to G. G., care of the Editor, will have prompt attention.

WHAT BECOMES OF STRAY DOGS?

While searching for artificial manures, I was directed to a man who was reported to prepare a cheap and powerful manure from the stewed carcasses of stray dogs. I was a little amused, and obtained the services of a friend who is one of the principals in a great nursery firm, somewhere to the north of the metropolis, and less than a thousand miles distant. At the time of my expedition, harvest was in progress, and the weather was rainy. As we drove along a narrow lane in a very romantic spot, mutually regretting that a piece of oats in the harvesting of which my friend was particularly interested seemed likely to be much injured by the weather, I noticed in a field near the road a low shed-like building, with a chimney from which a thin column of smoke rose slowly. "What's here?" I asked, "a pottery or a steaming apparatus for cattle food, or are they kiln-drying the wet corn?" My friend smiled, and replied, "That is the place you are bound for—that is the manure factory. We will not go in yet, or at all if we can help it, for it's not a nice place, but drive down to the proprietor's house, and look for him first." I shall not narrate all that happened, or give any opinion (at least just now) upon the dead-dog manure. But a few particulars of the industry may be interesting both to lovers and haters of the canine race. Well, to begin the story, the London police are now authorized to catch and kill stray dogs. They follow their instructions with vigilance, and mayhap with gusto. They catch and kill, and the dead dogs are transferred by night in carts or wagons to this spot, and here they are boiled down just as they are, skins, hair, and all. They are tossed into the cart in a solid mass, and as soon as they arrive they are taken out of the cart by means of pitchforks, and thrown at once into the coppers, or piled up in heaps ready for the next hoil. The men employed make it a rule never to touch them with their hands if they can help it, and the prejudice against handling them is the reason for boiling them whole without peeling, else no doubt the skins would pay better as leather than as glue, or whatever else is got out of them. Some of the dogs, perhaps, are mad when the police kill them; all of them, perhaps, have been killed by poison; some, for certain, are in a dreadful state of disease when their lives are extinguished. These are doubtless good reasons for sacrificing their skins for manure and glue rather than keeping them for leather. It occasionally happens that, as the cart comes along at night, a whine or faint yelp is heard from the midst of the canine corpses. The carman is not alarmed; he has heard such a noise before from the unsightly heap, and he just takes hold of a small pole-axe which he carries with him for the purpose, and proceeds to discover which of the corpses has come to life again, that he may knock it on the head. The fact is, a dog now and then escapes complete killing, the poison administered acting only as a powerful narcotic, from which, after long sembling death, and being kicked, forked, and jammed in the mass, the poor wretch begins to revive, and perhaps struggles to the top, and gets a gulp of reviving fresh air ere emitting the expression that secures his second execution. More than once a handsome dog, not very much hurt either by pitchfork or poison, has sat up in the cart and begged to be spared his ignominious doom, and has gained a tender hearing, and now lives to tell the tale for the benefit of all dogs given to straying. As a rule, however, it is a merciful proceeding to finish the revivalists, for if spared it would only be to suffer and drag on for a brief space of time a miserable existence. The consignment of dead dogs to this particular factory has for a long time past averaged *two tons weekly*. TOM TIDDLER.

HEIGHT OF AUSTRALIAN GUM TREES.

The marvellous height of some of the Australian, and especially Victorian, trees has become the subject of closer investigation, since of late, particularly through the miners' tracks, easier access has been gained to the back gullies of our mountain system. Some astounding data, supported by actual measurements, are now on record. The highest tree previously known was a *Kauri-Eucalyptus* (*Eucalyptus eolossca*), measured by Mr. Pemberton Walcott, in one of the delightful glens of the Warren River of Western Australia, where it rises to approximately 400 feet high. In the hollow trunk at this kauri, three riders, with an additional pack-horse, could enter and turn in it without dismounting. On the desire of the writer of these pages, Mr. D. Boyle measured a fallen tree of *Eucalyptus amygdalina* in the deep recesses of Dandenong, and obtained for it the length of 420 feet, with proportions of width indicated in a design of monumental structure placed in the exhibition; while Mr. G. Klein took the measurement of a *Eucalyptus* on the Black Spur, ten miles distant from Healesville, 480 feet high. Mr. E. B. Heyne obtained at Dandenong as measurements of heights of a tree of *Eucalyptus amygdalina*: Length of stem from the base to the first branch, 295 feet; diameter of the stem at the first branch, 4 feet; length of stem from first branch to where its top portion was broken off, 70 feet; diameter of the stem where broken off, 3 feet; total length of stem up to place of fracture, 365 feet; girth of stem 3 feet from the surface, 41 feet. A still thicker tree measured 3 feet from the base, 53 feet in circumference. Mr. George W. Robinson ascertained, in the back ranges of Berwick, the circumference of a tree of *Eucalyptus amygdalina* to be 81 feet, at a distance of four feet from the ground, and supposes this eucalypt towards the sources of the Yarra and Latrobe Rivers to attain a height of half a thousand feet. The same gentleman found *Pagus Cunninghami* to gain a height of 200 feet, and a circumference of 23 feet. Ner is it at all likely that in these isolated inquiries chance has led to the really highest trees, which the most secluded and least accessible spots may still conceal.—PROFESSOR MUELLER, of Victoria, in "Seaman's Journal of Botany," July, 1867.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. temp. avg of 43 yrs. Gravh	Orchids that may be in bloom. I, Indian House; M, Mean; a House; G, Greenhouse.	M D	
			rises.	sets.	rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.		Rain.				
1867			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.		1867	
10	S	21st Sunday after Trinity	7 10	4 19	4 0 p.m.	4 41 a.m.			30 15	29 85	55	32	43 5	31	42 2		Dendrobium discolor, I. ... Java	10
11	M	East Tower Hamlets Chrysanth., 11th & 12th.	7 12	4 17	4 31	5 57			29 91	29 73	60	27	43 5	30	42 2		veratrifolium, I ... Quino	11
12	T	Full moon at 1h. 9m. a.m. [13h-15h.	7 14	4 16	5 8	7 12			29 94	29 61	59	45	52 0	30	42 2		Angræcum bilobum, I ... Cp. Coast	12
13	W	N.-Weston Am. Chrys., Rly. Inst., Chalk Fm.,	7 16	4 14	5 54	8 27			29 68	29 50	59	37	48 0	14	42 0		sequipedale, I. ... Madagas.	13
14	Th	Stoke Newington Chrysanth., 14th and 15th.	7 18	4 12	6 46	9 57			30 11	29 80	52	26	39 0	30	41 7		Phalenopsis amabilis longifolia Manilla	14
15	F	Bristol Chrysanthemum Ex., 14th.	7 19	4 11	7 48	10 40			30 12	29 78	56	43	49 5	32	41 4		rotundifolia, I ... "	15
16	S	National Volunteer Assoc. established, 1859.	7 21	4 10	8 53	11 33			29 44	29 31	57	27	42 0	30	41 0		Oncidium reflexum, M ... Mexico	16

The Gardener's Magazine.

SATURDAY, NOVEMBER 9, 1867.

THE CAUSES OF SUCCESS IN FRUIT CULTURE are not wholly under the direction of human intelligence. The various stocks on which the several varieties of fruits are grafted, the various modes in which trees are planted, pruned, trained, and otherwise tended, exercise their respective influences on the final result. But the most important matter of all is THE INFLUENCE OF CLIMATE. The best practice possible will not suffice to produce luscious peaches in the open air in the bleak climate of the North Cape, nor sprightly-flavoured apples in the hot and arid atmosphere of Idumea. It must be granted that to grow fruit well there must be something known of the best modes of training, pruning, planting, and so forth; but the foundation of success lies in adapting, in the first instance, the kinds of fruits to the climate in which they are to be cultivated. If we are wrong in our modes of training, we can be taught better. We may even go so far as to say that if the soil is unsuitable we can alter it, for, in the very worst of cases, we can do something to improve its texture, condition, and constituents. But what are we to do if the climate is against us? We are then driven to the employment of glass, of walls, of apparatus for the production and diffusion of artificial heat. Simple fruit culture in the open air is an affair of climate chiefly, every other condition of success is secondary to that; give us a suitable climate, and we will somehow or other accomplish all the rest. We fear this very simple and very self-evident consideration of the subject of fruit culture does not obtain sufficient attention. There is a brisk discussion in progress as to the relative merits of English and French modes of fruit cultivation, and the parties who have taken the most prominent part in it appear to undervalue the fact that there are some differences discoverable in the climates of the two countries. We may not be far wrong in alleging that it has been boldly asserted that between London and Paris there is no appreciable difference of climate; but the facts of nature are against the allegation, and we invite our readers to consider this subject for a few moments, as the conclusions arrived at may bear very directly on English practices, and the influence upon them of the examples and practices of our neighbours.

Between London and Paris there are 2° 40' difference of latitude, that of London being 51° 30', that of Paris 48° 50'. According to Humboldt, this should make a difference of about 4° in the mean annual temperature of the two cities. Now, the actual difference in the mean annual temperature is only 0° 53, the mean of London being 50° 8, that of Paris 51° 1. The energies of vegetation are less influenced by mean annual temperatures, however, than by winter minima and summer maxima; and if we compare the two localities selected for the present argument in respect of the two extremes, we shall find that the Parisians enjoy some special advantages over us. The mean temperature of the month of October in Paris is 51° 3, which is very nearly the mean of the year, but in the same month the mean of London is 52° 3. Again, in April the mean of Paris is 48° 2, that of London 49° 8. The mean temperature of the winter in Paris is 38° 7, that of London 37°. Again, the mean of the hottest month in Paris is 69° 8, the mean of the hottest month in London is 64°. Reference to any good map of the distribution of temperature over the surface of the earth (such as one of Keith Johnston's, or Mr. Petermann's map in Milner's "Gallery of Nature," or those in Mr. Alexander Buchan's admirable Handy Book of Meteorology) will show that the isothermal line of 50°, which dips so low on the American continent as the 40th parallel, rises to the 54th parallel in the course of the Gulf Stream to the north-west of Ireland, and then passes down in a slanting course through Dublin, London, Brussels, and Vienna, the Gulf Stream affording to us, and to the west of Europe generally, a higher mean than is due to latitude alone. But even in respect of this mean, it will be seen that Paris has the advantage of us. The capital of France enjoys a higher mean temperature than Vienna, though it is half a degree farther north than Vienna; and London enjoys the same mean temperature as Brussels, though it is 40 minutes, or two-thirds of a degree, farther north than Brussels.

No. 132, NEW SERIES.—VOL. X.

Restricting the comparison to the respective climates of London and Paris, it will be observed that in London the extreme cold of winter is severer than in Paris to the extent of 1° 7 Fahr. This difference is literally of no consequence at all; a few degrees more cold in winter cannot affect our fruit prospects seriously; possibly we have the advantage in that matter. In April, the London temperature is 1° 6 Fahr. higher than that of Paris, and here is our first disadvantage. Our climate is much more variable everywhere than the climate of France; the outbursts of hot weather we experience almost every year in March and April cause a premature activity of the sap in fruit-trees, and they begin to grow and flower ere the season is sufficiently advanced to sustain their activities. It is quite true that in French orchards the crop is occasionally destroyed by untimely frosts; but we are much more exposed to that danger, and the reason of it may be seen in the fact that the Paris mean in April is 48° 2, that of London 49° 8.

But when the summer has commenced, the temperature of Paris rises higher than that of London, and the maxima of the cities differ to the great extent of 5° 8 Fahr. Now, a difference amounting to within a fraction of 6 degrees of Fahrenheit is something enormous in the consideration of the subject now before us. Students of climatology know that a difference of only 2° either way in the heat of the summer of Great Britain will make a difference to the extent of a bountiful harvest and prosperity, or a meagre harvest and starvation. It cannot be wondered at that the cultivators of fruits in the neighbourhood of Paris should outstrip the growers of fruits in the neighbourhood of London, especially in the production of peaches, cherries, and pears; for they have the advantage to the extent of six degrees, and no skill of man can find a compensatory equivalent for so much solar heat and light by which to place the London cultivator on terms of equality with the Parisian. Observe, again, that when the summer is past London is warmer than Paris, for in October the London mean is 52° 3, and that of Paris is 51° 3, a difference of exactly one degree. Possibly some of our fruit-growing friends may consider that London is the gainer thereby; but our own opinion is that the Parisian pomologist is directly advantaged, for, after having had a brisk growing and fruiting season, the cooler autumn disposes his trees more immediately to rest; he has the advantage, in fact, of one degree for the prevention of late and useless growths, to add to his advantage of six degrees for better growing and ripening, and the advantage in April of one and a half degrees (1° 6 Fahr.) for retarding the bloom and leafage of his trees until the danger of frost is past. Here are three signal advantages in respect of temperature enjoyed by the cultivators of Paris over the cultivators of London; and what is true of the two cities is true of the two countries; and if we were to make a more extensive comparison, we should find more striking differences. What does M. Baltet, of Troyes, say upon the subject in that able and interesting paper of his which we published last week? He says, "We are sheltered from the rigorous cold of the north, from the burning heat and dry winds of the south, from the salt breezes which blow from the sea-shore, and from the sudden changes of temperature which generally occur in the neighbourhood of mountain ranges, checking the normal vegetation, the fecundation of the flower, and the growth of the fruit. Then add to this happy climate the geographical position so favourable to the transportation of our wares; the proximity to the capital, the means of transport by railway, by water, or by our admirable roads, the easy access to Paris and London, as well as to Belgium and Germany" (vide G. M., Nov. 2, 1867, p. 468).

When, therefore, it is asserted that French methods are applicable without reserve to English gardens, and that whatever French cultivators can do can be done as well by English cultivators, we reply that such assertions are made in ignorance or in defiance of the facts of climatology, and the wise man will not invest his money or his land or his time (and the term "money" comprehends all these with talent added) in the introduction of French systems, until he has fully considered how far the subject of climate may be associated with the chances of success. Let it not be thought that the GARDENER'S MAGAZINE is an enemy to improvement. All we wish to do in respect of these discussions on fruit cultivation, is to direct attention to the facts on which opinions should be formed and

practice founded. English growers have been much beguiled by starving stocks and excessive pinching, and we have no desire to see developed any new phases of delusion in the English fruit garden.

MR. SALTER'S EXHIBITION OF CHRYSANTHEMUMS at the "Versailles Nursery," William Street, Hammersmith, is now in its full splendour. As usual, Mr. Salter has some fine seedlings both of the large-flowering and pom-pom kinds, and the exhibition is enriched with interesting examples of ornamental foliage and other subjects of like suitability.

MR. FORSYTH'S EXHIBITION OF CHRYSANTHEMUMS at the "Brunswick Nursery," opposite West Hackney Church, Stoke Newington, was opened on Wednesday last, and the flowers are now beautiful. There are several good novelties here, and the general display will afford much gratification to visitors.

THE EAST TOWER HAMLETS SOCIETY'S EXHIBITION OF CHRYSANTHEMUMS will be held at the Edinboro' Castle Tavern, Rhodeswell Road, Stepney, on Monday and Tuesday next, the 11th and 12th of November.

THE STOKE NEWINGTON CHRYSANTHEMUM SOCIETY'S EXHIBITION will take place in the School-room connected with Abney Chapel, Church Street, Stoke Newington, on Thursday and Friday next, the 14th and 15th of November.

THE NORTH-WESTERN CHRYSANTHEMUM SOCIETY'S EXHIBITION will be held in the large room of the Railway Institute, Chalk Farm, on Wednesday, Thursday, and Friday next, the 13th, 14th, and 15th of November.

THE BRISTOL CHRYSANTHEMUM SOCIETY'S EXHIBITION will be held on Thursday next, the 14th of November.

THE SOUTH ESSEX CHRYSANTHEMUM SOCIETY'S EXHIBITION will be held in the Artillery Hall, Stratford, on Tuesday and Wednesday, the 19th and 20th of November.

THE BRIXTON HILL CHRYSANTHEMUM SOCIETY will hold its Annual Exhibition in Christ Church School-rooms, Roupell Park, Brixton Hill, on Tuesday and Wednesday, the 19th and 20th of November.

THE EAST LONDON AMATEUR SOCIETY'S EXHIBITION OF CHRYSANTHEMUMS will be held in the Vestry Hall, Bow, on Thursday and Friday, the 21st and 22nd of November.

A SHOWER OF METEORS OR BOLIDES, on a grander scale than that of last year, is anticipated by astronomers on the night of Thursday or morning of Friday next. It is expected to attain its maximum splendour about four a.m. on Friday.

RIPE STRAWBERRIES are less abundant now than at this time last year; but we have seen a few of the Alpine varieties fully grown and nearly ripe during the past week, and we have now before us a very handsome berry, three-parts ripe, which was taken from a garden at Tulse Hill and brought to us by Mr. Chitty. The sharp frost of Sunday last no doubt made an end of the strawberry season everywhere.

RICINUS COMMUNIS at Stoke Newington survived the frost of October 8th, and remained fresh four weeks after dahlias, vegetable marrows, kidney beans, and other tender subjects were destroyed. But the sharp frost of Saturday and Sunday last destroyed the Ricinus, and we may now properly believe that the summer is at an end. Chrysanthemums are not in the least injured by the frost of Sunday last, which amounted to 7 degrees.

OCTOBER 10 was observed throughout the Canadian dominion as a day of thanksgiving for an abundant harvest. The crops in Canada this year are reported to have yielded as bountifully as those in the United States.

THE CHINESE TALLOW TREE.—The tallow tree of China has been transplanted in the Punjab with great success. Dr. Jameson has prepared hundred-weights of grease from it, and has forwarded on trial a portion of it to the Punjab Railway, to have its qualities tested as a lubricant. The grease thus obtained, it is said, forms an excellent tallow, burning with a clear, brilliant, and white light, emitting no unpleasant odour or smoke.

OVER-CULTIVATION OF THE POTATO.—In an article on the high prices of provisions in the *City Press* of last week occur the following remarks, which, whether we agree with them or not, certainly deserve attention, for it is quite a question if the potato is entitled to the extent of space allotted to it in gardens, since it has become to all appearance a permanent prey to disease: "The agriculturists must bear some of the blame of high prices, though they are not much benefited by them. High prices are simply tantalizing to a man who has no crop to sell, and the extensive failures of cereals in the present year have made this a dark time for farmers. But there are two points in agricultural practice in respect of which the agrarian classes are to blame, and the first is the too restricted cultivation of meat, and the over-extended cultivation of potatoes. There has never before probably been so large a breadth of land planted with potatoes as in 1867, and never before probably been so general a devastation of the crop by disease. Every farmer in the land should have known that this would be a cold season, and that a cold season is of necessity fatal to the potato, which lives on sunshine, even more than wheat does. The potato crop is almost wholly lost, and the entire community must pay for the loss in the end, though it falls first on the farmer. The darkness of the agricultural mind contributes its portion of gloom in this way to every man's household."

EARLY WINTER.—A letter from Briançon (Hautes-Alpes) states that snow has fallen heavily in that neighbourhood, and in a few hours lay upwards of a foot deep. The passengers by the Grenoble diligence had to get out and walk three miles, nearly up to the knees in snow, the storm during the night being so violent as to prevent the road being cleared. The agriculturists will suffer considerably, as much of the after-growth on the artificial meadows is still uncut, and the potato-digging is not yet terminated.

SILKWORMS IN CALIFORNIA.—Mr. Prevost, a famous silkworm breeder in California, writing to the American Board of Agriculture, says: "Just a month ago I was in Sacramento, and think how pleased I was to find that over 3,000,000 of mulberry trees were growing there finely in different places. And I found also that Mrs. Haynie had a fine crop of cocoons—the finest I have ever yet seen. The question is now settled that the mulberry tree and the worms succeed finely all over our State; but, by what I see, Sacramento will be the first silk district of California. I think that for the next season they will have there food enough for 10,000,000 silkworms."

AGRICULTURAL RETURNS FOR GREAT BRITAIN IN 1867.—We are favoured with the following official return from the Statistical Department of the

Board of Trade: The aggregate of these returns has just been made up, and under corn crops of all kinds there were in England and Wales 7,941,578 acres, against 7,921,244 acres returned in 1866; and in Scotland 1,367,012 acres, against 1,366,540 acres in 1866. The land under wheat is returned for England and Wales at 3,255,917 acres, against 3,275,293 acres in 1866; and for Scotland at 115,118 acres, against 110,101 acres in 1866. The number of cattle is returned for England and Wales as 4,017,790, against 3,848,435 in 1866; and for Scotland as 979,170, against 937,401 in 1866. Sheep are returned for England and Wales to the number of 22,097,286, against 16,793,204 in 1866; and for Scotland to the number of 6,893,603, against 5,255,077 in 1866. The large increase in the number of sheep returned in 1867, as compared with the previous year, is to be accounted for by the fact that the returns in 1866 were made for the purpose of the Cattle Plague Inquiry at a date preceding the lambing season in some parts of Great Britain.

MR. JABEZ J. CHATER'S GONVILLE NURSERIES, CAMBRIDGE.

Mr. Chater's nurseries occupy a delightfully-rural position, within view of the big elm-trees that hug the colleges in the rear of Trumpington Street, Cambridge. The day of my visit, in the middle of September last, was bright and bracing, and I spent a couple of hours very pleasantly in rambling about the place, with Mr. Willers, the able foreman, who, in Mr. Chater's absence, played cicerone admirably, and took care I should miss nothing that was at all likely to interest me. The nurseries cover about eight acres of ground, and are as interesting as some that cover eighty. It does not need to be said that mere superficial area is no measure of value or excellence in a matter of this sort. There is an ample extent of glass, and good collections of stove and greenhouse plants of all kinds, and a remarkable collection of zonal and variegated-leaved pelargoniums, mostly of Mr. Chater's own raising. Hardy trees and hardy herbaceous plants are largely grown, and collectors of such things are sure to find here a few rarities amongst species and varieties that are desiderata in all good gardens. All about the place were beds of pelargoniums, many of them evidently in advance of the average character of the classes to which they belong, and all in a superior style of keeping, and creditable alike to the cultivator and to the pure air of the locality. Whether by instinct or whatever other impulse, I made for the geraniums, and soon found enough to occupy a few days of leisurely criticism, if the days could be spared; but, as hours were scarcely at my service, I at once made note of a few most select kinds, that our selectest collectors may book as necessities of life; for I can assure you the best of Chater's are among the very best that exist. Imprimis, for a collection to show for large, round, thick, richly-coloured, genuine florists' flowers, take *Mary Eveline*, a zonal with huge flowers of a clear pleasing peach colour; *Beauty*, a zonal with large round blush flowers; *Acme*, rosy scarlet, superb; *Crimson Queen*, grand crimson scarlet, quite a desirable colour, and the quality first-rate; *Seraphine*, clear salmon-flesh, fine form and substance; *Estival*, one of the most magnificent rose-coloured varieties in existence; *Fiery Star*, a brilliant scarlet; and *Eunice*, a charming rosy scarlet. There are hundreds of good varieties here, and, indeed, there are few grown except their own, and they constitute a race peculiar to the place, just as the tulips and gladioli at Stapleford, hard by, do in the garden of Mr. Heady. Let us now try the variegated section. *Yellow Sovereign* is the name given to the one I praised so highly in the *Geranium Papers* as Chater's "mysterious 240." Here I saw it blazing like a sheet of Cloth-of-Gold, beating Goldfinch and Canary, and all the newer lot of yellow "unicolors" of Chater's classification, and "golden-leaved" of my classification. For a glorious golden pavement, go in boldly for "Yellow Sovereign." Once more I was very much pleased with *International*, which I find characterized in my note book as offering a "grand contrast between leaf and flower." The leaf is bright sulphur-green, the flowers are bright carmine. This would make a capital companion bed in a geometric system to F. and A. Smith's Aureum, which has been already characterized in these pages as one of the best yellow-leaved geraniums known.

Next we turn to the variety described in No. XLII. of *Geranium Papers* (Aug. 10, 1867), the nearest to which in the old varieties is Daybreak. This of Chater's is called *Silver Ring*; it is perfect in style of growth, purity of colouring, and hardihood of constitution. I would as soon order a thousand of it direct, and plant it for the front of a fifteen hundred feet of ribbon, at 18 inches apart, as I would order so many chaldrons of coke for the furnace fires, being as well satisfied as to the result in one case as the other, and having no idea of risk about it. Again, we look for another of my favourites, and find it under the name of *Saturn's Ring*. This is a richly-coloured bronze zonal, the zone being of a light rust-red colour, laid sharply on a strong yellow ground; it is a capital bedder, and very telling when viewed in the mass from any distance. *Sulphur Queen* is also good in this way; it is a golden-leaved variety, very clear and distinct in colour, with excellent habit of growth. Plenty more such; but none of us expect to live for ever in these scenes, and therefore we will hasten to another section of this great pelargonium family. Some remarkable nosegay varieties here, and one amongst them that must attain to lasting fame. What do you say to a white-flowering nosegay in the style of *Stella*? Well, here is such an one, and its name is *Sprite*—a bad name, I will say, for sprites are generally blue, black, and red, and very evanescent in their appearances, and always bent on evil missions. The name to sell it by is *White Stella*. By St. Nomenclator, I'll find names for flowers at a crown each, money first: I've named thousands for nothing hitherto. But to return to the *Sprite*, I can assure you it is a capital thing, grows well, blooms abundantly, and stands any weather. Another good one is *Stella's Spouse*, the habit neat and pretty, the flowers pleasing light pink. *Thor* is a dwarf nosegay with purplish scarlet flowers. *Arthur B. Chater*, with versicolor foliage (golden zonal of our system) and puce crimson flowers; fine. *Fiery Queen*, with light zone and lively orange scarlet flowers; good for all who want yellowish geranium flowers, and for such as are aiming to breed pure yellows; may they live to see them, and no'er grow old or cold! Another in the same line is *Orange Prince*, a companion to *Le Grand*, and by its strong tone of orange well calculated to bring out the purplish tone of *Le Grand*. Clear out of the track as respects colour, but entitled to lead and govern, is *Robert Fish*, a most worth souvenir of one of the worthiest of men. The colour of the flowers is crimson-scarlet, or very nearly what is called pure crimson in the silk and sarenet trade; the trusses put together with wondrous solidity and taste. I am sorry I missed two more in the same class—*Satisfaction* and *Alex. McKay*. Next time I go to Cambridge, I shall inquire about them. If I were buying now, I should order them at a risk; but I don't advise that course, for there are plenty of good things to be got without risk. Have patience

with me while I pick out three more, and then I will leave you to study Chater's catalogue, and select further for yourself. *Christine Surpass* is a bonny thing, with benet-like (old fashioned bonnet-like) flowers of great substance, and a delicate clear Beauté du Suresno colour. *Fearnought*, a scarlet, with clear large white eye; the form of the flower most beautiful. If you can afford to order only one of this glorious batch, have *Fearnought*, if only for the joy of discovering that, in the midst of thousands of scarlet geraniums, a new and distinct character may yet be found. *Enchantress* is a painted flower, the centre rosy salmon softly shading to white margin, the petals stout and broad, and the flower finished with exactitude. Now I've done with these things, and sorry am I that I dare not say more.

Mr. Willers looked so proud and defiant when I asked after herbaceous plants, that I did not need his reply, that they had a few. A few! I was agreeably surprised to find they had many, and some very choice subjects too. Of course such things as Rudbeckias, Inulas, Asters, Phloxes, Sedum spectabile, and (Gnotheras, were at their best at the time of my visit, but the stocks of all good things are good; there are primulas, violas, swallow-worts, saxifrages, coronillas, spireas, &c., &c., &c., &c., too many to count; and the pick and prime of the best herbaceous lists are grown in as great quantities as the laws of propagating them permit, to meet the great and increasing demand for such things. Lots of things live out here the winter through that we cannot make sure of near London. The two Plumbagos, *Larpena* and *Capensis*, live out; all the Rudbeckias ditto; and so on with many other good things. I found here the scarce *Viola papilionacea*, which has a bulbous or rather tubercous root, and produces flowers that remind one of butterflies and bean-blossoms. A great stock too of the double crimson and white rockets. How delightful it must be to live within hail of a place where the double rockets have justice done them, and to have the shelter also of the College elms, to know the classic Cam flows quietly by, and to hear the soft swell of the organ in King's College Chapel when the thrushes pause in their songs during service hours! Happy Mr. Chater, yours is the very spot Prince Rasselas of Abyssinia—a better prince than Theodore of these degenerate days—searched all his life for, and died without finding it!

A turn amongst what Mr. Willers calls the "pictorial trees" ended my hurried survey. Well, all trees are pictorial, more or less. A gigantic beech, standing all alone in a great space of greensward, is one of the most picturesque objects in nature. A group of cloud-aspiring elms, with a bit of homely thatch and a wreath of azure-blue smoke curling up amongst their branches, go some way towards the formation of a picture. But horticultural and arboricultural people who talk about pictorial trees have in mind such things as *Liquidambar styraciflua*, with its fingered leaves, dying off now a rich purple-red with splashes and sparks of flame-colour and amber, or the drooping variety of *Sophora Japonica*, the dark leaves of which clothe pendent branches that fall like ringlets, or the "Eagle's claw" maple, the leaves of which are lobed and cut in close resemblance to the foot of some great bird; or the elegant, fairy-like weeping birch, which weeps indeed, with the pensive, pensile, and penitential attitude, as if doing penance for all the trees in the wood. There is a large stock of elegant trees in almost endless variety here—the ghostly *Negundo*, the fern-like *Salisburia*, several *Poplars*, with leaves snow-white on the under-side; the variegated-leaved *Walnut*; all the slender-stemmed and drooping *Willows*, the *Scampston Elm*, the *Weeping Lime*, the *Calyanthus floridus*, from which you may snap a twig now and then as you walk about the garden, in order to induce a reverie of cinnamon groves, and that blest isle "where spices breathe and fragrant roses smile." On the way out I noted two good bedding plants—*LOBELIA erinus sueciosa picturata* (first and last names enough for ordinary purposes) is a capital dwarf habited variety, with dark-blue flowers. *Tropaeolum Lobbianum Premier* is eminently effective; the leaves small and of a dark colour, the flowers deep crim-on-scarlet; fine. Lovers of fuchsias would do well to look after one here called *Magniflora*; it is a huge double flower, colours purple and red; extremely rich and bouncing. S. H.

VARIEGATED LEAVED TREES AND SHRUBS FOR ORNAMENTAL PLANTING.

A visit recently to a nursery celebrated for an extensive collection of hardy pictorial trees, both evergreen and deciduous, has suggested to me several ideas in relation to ornamental planting which possibly may assist or interest such of our readers as are at this, the most seasonable portion of the year, about to add to those they may already possess; and as my mission was to purchase some of the most beautiful of them, I had therefore, in the course of my selection, ample opportunity of noticing their peculiar attractions. When speaking of ornamental planting, I do not think that in this department of gardening we have made progress corresponding to what we have done in other branches of our profession. In fact, there is a wide field open for improvement, not only in our choice, but in the distribution of our trees and shrubs. When planting we sometimes show an absence of taste; for too often are several plants of the same variety crowded together, for no other purpose but that of shutting out some objectionable view, or that of defining a boundary; and this is frequently done without any consideration as to the size, both in bulk and height, they will from their permanent position gain in the future. Certainly there are exceptions to this rule, but they belong more especially to public than to private gardens. If we allude to the conifers and their allies, we shall find that in many private gardens there are some glorious examples of good taste in their distribution for effect, and also superior culture in regard to their training and general uniformity of growth. The care thus given may partly be attributed to the grace and dignity of contour which belong to this class of plants, and which render them specially adapted for being cultivated as single specimens planted on lawns, or in any other situations where there are no other objects likely to detract from their beauty. Passing from this, in connexion with our subject, we may observe that our present system of flower-garden bedding has never been equalled in the annals of gardening. We may then ask, what is it that has tended so considerably of late years to enhance its beauty? Why, it is the addition to the list of bedders of the many variegated or tricolored zonal geraniums, the number of which are being constantly increased. Ought we not, then, in the formation of our shrubberies or plantations, to be governed to some extent by the striking examples afforded in the arrangement of our flower-garden decorations, and that by introducing those choice variegated trees and shrubs which can be readily purchased at our nurseries? With these brief remarks I will describe several of those varieties which I have selected for planting this autumn. Of course, large plants of many of the sorts are not obtainable, owing partly to their recent introduction, and the demand there is for them. We must expect years to

elapse before the markets will be overstocked with such varieties as I shall here enumerate.

Acer negundo variegatum (a deciduous tree).—When full grown it is said to attain the height of twenty feet. Without any exaggeration, it is the most striking tree I ever saw; any description of mine is imperfect as regards its beauty. Its silvery foliage is sure to arrest your attention even in the distance. Wherever sombre-looking trees abound and this is intermixed with them, it is sure to afford a bold relief.

Ligustrum vulgare variegatum (evergreen).—This is a variegated variety of the common Privet. The broad margin of bright gold which surrounds the leaf is very effective. No doubt ere a few years have passed away this will be so far increased as to induce some persons to plant hedges of it, and a fine sight such will afford, especially on bright sunny days.

Weigelia rosea variegata (deciduous).—This is a welcome acquisition as a variegated plant. Should it prove as valuable as the plain-leaved variety, *W. rosea*, for forcing in pots, it will be a great acquisition to the list of early forced plants.

Populus argentea vera (the Silver Poplar).—Who would not strive to diversify the character of the scenery, where rapid-growing trees are desirable, when we are enabled to obtain such beautiful objects, and of such quick growth as the silver poplar, its delicate white foliage presenting a grand relief to the green leaves of others of the same species?

Prunus padus acubasifolia (or spotted-leaved Bird Cherry).—Of all the singular but curiously spotted-leaved trees, this is one of the most curious. It is exceedingly attractive on account of the multitude of yellow spots which are thickly dotted over the leaves, the latter being as large as the well-known *acuba*, which render it the more conspicuous, especially as it attains a height of upwards of twenty feet.

Euonymus atropurpureus (deciduous).—The foliage of this plant is strangely tinted, its prominent colour being a dark purple during the latter months of the year. This is overlaid with patches of scarlet and light purple. It will make a very good tree for a second row or line, as it does not exceed six feet in height.

Castanea vesca variegata (the golden-leaved Spanish Chestnut).—There is something very bold and showy in the bright gold margin of the leaves, which will constitute it a very effective tree in whatever spot it may be planted. Its height is about ten feet.

Corylus Avellana purpurea (the purple-leaved Nut).—This is a variety of the common wood-nut, the foliage being in every way similar, except in colour, which is of a dark purple. The leaves may perhaps be rather larger than the common variety. Altogether it makes a very excellent addition to the list of deciduous coloured foliage trees.

Cornus mascula variegata (variegated Dogwood, deciduous).—This is an improvement in respect to the foliage, the leaves being margined with silver. The parent variety is a very rapid grower, though dwarf, seldom exceeding four feet in height; but it is a capital tree for planting as undergrowth in a shrubbery. The red bark of its wood produces a very striking effect intermingled with the green leaves of other shrubs.

Taxus baccata variegata (the Golden Yew).—It is not uncommon in large gardens, in our stroll through the country, to witness hedges formed entirely of yews, and many of them at least fifteen to twenty feet in height; but the golden portion of the foliage of the above variety is so strongly marked as to make it a very desirable evergreen for planting as a single specimen, it being very effective.

Chamaecyparis sphaeroidea variegata.—In making choice of this evergreen tree I was particularly interested with its elegant but graceful cypress-like appearance. The foliage being beautifully blotched with gold, it is well adapted for fulfilling the purposes recommended for the preceding.

Rhododendron Ponticum foliis auris (the variegated-leaved *Rhododendron*).—As regards the flower of this variety, it is no improvement on the old *Ponticum*, but its variegation is boldly defined, the green leaves being broadly edged with gold, which makes it very effective whether in the distance or the foreground. It is very hardy, for it was not injured in any way by the severe frosts of last winter. As most of our choice *Rhododendron* beds are planted near the residence, single plants of this variety, planted in the centre or ends of the beds, would tend to relieve them of that monotony which the dark green foliage of the other varieties present during the winter months.

Ilex aquifolium.—The Holly is familiar to individuals of every age, from its associations with one of our most festive seasons of the year; but it would be scarcely credited by those who are not familiar with the fact, that a tree that abounds so plentifully in our uncultivated woods and commons should embrace about one hundred varieties, consisting of plain green and gold and silver variegation, some of which are beautiful in the extreme, and conspicuous for their fruitful qualities, yielding berries of many colours. But in making choice of your sorts, and that you may the better appreciate their distinctness of character, your most advisable plan is to visit the nurseries where they are cultivated, and select for yourself.

Hedera (the Ivies).—Of these there are a vast number of varieties in cultivation, and very handsome many of them are, including all tints and shades of variegation. There are gold-leaved, silver-leaved, marble-leaved, notched-leaved, and finger-leaved varieties, and many of them yield yellow as well as black berries. Would not the several varieties present a very imposing and interesting appearance, if they were planted against some of our tall but clear-stemmed trees? No matter whether in the pleasure ground, the avenue, or the shrubbery, they would be equally effective.

Euonymus radicans variegatus.—The species and varieties of *Euonymus* are very striking and beautiful. There are several varieties, varying in height from one to eight feet; but the above variety does not exceed one foot in height. The green leaves are brightly margined with silver. It is first-rate as a variegated edging for large beds, and is quite hardy.

Vinca major elegantissima (the Silver Periwinkle).—This is a very desirable plant for a permanent dwarf bed. I saw a bed of it in full growth a fortnight ago, and the effect was fresh and striking, especially as the most of the bedding plants surrounding it had their beauty destroyed by the late frosts. Mr. Salter has a collection of about a dozen varieties of variegated Periwinkles. Jno. F. McElroy.

JONES wagged Brown that he had seen a horse galloping at a great speed and a dog sitting on his tail. It seems an impossible feat for a dog to accomplish, but Jones was right, and won the money. The dog was sitting on his own tail.

A SOLO IN PARTS.—Wilson, the celebrated vocalist, was upset one day in his carriage, near Edinburgh. A Scotch paper, after recording the accident, said, "We are happy to state that he was able to appear the following evening in three pieces!"

THE BEST OF THE ROSES OF 1867.

The best varieties for the past year—*i. e.*, introduced in the autumn of 1866, and grown and shown in 1867—are as follow:—

Antoine Ducher, H.P.—From Madamo Domago: bright red, large and full; very vigorous. Large but dull.

Bouton d'Or, Tea.—Bright deep yellow, small buds, little golden buttons, for the button-hole; from "Canari."

Charles Verdier, H.P.—From Victor Verdier, and somewhat of the same style and colour.

Comte Litta, H.P.—Purple and scarlet; one of a numerous line from Beaux Arts to Xavier Olibo; all more or less double.

Eugène Seribe, H.P.—Very brilliant bright red, also one of a numerous tribe.

François Treyve, H.P.—Dark, bright scarlet, double, "cabbage rose" form, vigorous habit.

Horace Vernet, H.P.—Another of the dark reds, with purple tinge.

Madame Margottin, Tea.—Pale citron yellow, centre tinged rosy peach.

Madlle. Annie Wood, H.P.—A fine flower, vigorous grower, colour bright clear red, large, full, and a decided acquisition.

Napoleon III.—Brilliant colour, scarlet and violet, in clusters.

Princess Mary of Cambridge, H.P. (Paul and Son).—Pale; an addition to a valuable line of colour.

Paul Verdier, H.P.—Bright rose.

Sœur Thècle.—Carmine rose.

Thorin.—Bright rose (by a first-rate raiser), very promising.

W. D. PRIOR.

OWN-ROOT ROSES.

My name is not Abel Hoyle, who was advertised for in a note from an excellent article by the Editor on the above subject, in the Magazine of Oct. 19; but I am glad to be able to supply some statistics of my own concerning the growing powers of rose-cuttings, in about fifty different varieties, which may in some degree furnish the supplement which the unfortunate loss or mislaying of the Editor's paper on the subject would have more ably supplied.

I give the results I have obtained in rather round numbers, feeling sure that they are sufficiently accurate for general purposes, and also that a change of locality, or even of position in the same garden, or the substitution of better for inferior cuttings, might have more widely altered those results, had they been supplied with the most scrupulous accuracy.

I divide these varieties mentioned in to four classes.

First, those roses whose cuttings yielded plants in a bed out of doors at the rate of 50 per cent. and upwards:—

Maréchal Suchet (Damaizin)	Aurore Boréale
Victor Verdier	Léopold I.
Madame C. Joigneaux	Gloire de Vitry
Dr. Andry	Abel Grand
Charles Lefebvre	Adolphe Noblet
Louis Odier	Vicomte Vigier
General Jacqueminot	John Hopper
Vainqueur de Goliath	Fanny Petzold
Jules Margottin	

Second class. Roses yielding about 30 to 35 per cent. of plants:—

Maréchal Vaillant	Goujon
Catherine Guillot	Baron Gonella
Anna de Diesbach	Duc de Rohan
Duchesse d'Orléans	Sœur des Anges
Alpaide de Rotalier	Madame Caillat
Maurice Bernardin	Sénateur Vaisse
Monsieur Boncenne	Madame C. Wood
Pierre Notting	Duchesse de Morny
Claude Million	Comtesse Chabriland

Third class. Names of roses whose cuttings yielded from 15 to 20 per cent. of plants:—

Madame V. Verdier	Madame Crapelet
Marguerite de St. Amand	Madame Boll
Sénateur Favro	

Fourth class. Bad doers, yielding less than 5 per cent.:—

Baron A. de Rothschild (none)	Lord Herbert
Madame de Cambacérès	George Prince
Duchesse de Caylus	Eugène Verdier
Xavier Olibo	Duchesse de Medina Cæli
Camille Bernardin	Jean Lambert
Mademoiselle Bonnaire (none)	Souvenir de W. Wood
Madame Vidot (one)	Lord Macaulay

These results are obtained from observations extending over two years, as regards many of the varieties named, the number of cuttings taken exceeding four thousand. I could add to the list, but think it unnecessary so to trespass on your space.

I may, however, add, that experiments made are full of interest, and experiments tabulated are very useful; and, taking a hint from the Editor's most practical remarks, I have this year started an experiment on rose cuttings placed under seven different circumstances, and shall be glad, if we live to another season, to state the results established thereby.

When own-root roses are well started, they are less liable to damage from frost than budded roses; but last winter I lost by far the most from amongst the rooted cuttings of 1865

(autumn), which were planted out in November, 1866, more so than from any other bed of roses on briars or manetti stock.

In full corroboration of the Editor's experience, and in full refutation of those who discredit the method he has adopted, and kindly recommended and published, I can add that I have gathered roses in the summer from cuttings made the previous October, and have exhibited them in winning stands against no mean competition; and what one has done others may also do.

EDWARD N. PECHIN.

Sibley Vicarage, Loughborough, Oct. 29, 1867.

A LESSON IN POULTRY KEEPING.

The truth is, that only a trifling portion of what poultry eat at a farm homestead involves any outlay, the birds picking up off the ground and redeeming from waste probably one half of their living; while the greatest proportion of the other half consists of the tail and refuse corn, which is only of nominal value. I am speaking of course of ordinary cases, where fattening heavy and early birds is not made a regular business, to which other departments of farm management have to give place. I know, for instance, of a yard where the mistress sells over £20 worth of eggs, beside furnishing a plentiful house consumption, raising pullets for keeping up her stock of one hundred hens, and feeding a few birds for her own table. The purchased food costs but a few shillings per year; the collection of eggs being the chief expense. I could name another yard where, for years, the proceeds from a brood stock of sixteen cross-bred hens with two cocks, and six ordinary brown ducks with one drake, have been over £25 per annum, in addition to the household supply of birds and eggs; no food bought excepting a few pounds' weight of chicken rice, only a few eggs sold, and the birds disposed of at the country market price of 2s. 6d. to 3s. 6d., and occasionally 4s. 6d. per couple. The henwife has been paid one-third of the gross receipts; but if the farmer's wife herself attended to the fowls, of course this deduction would all be saved.

A good profit may be made by the farmer's wife when selling eggs and birds at common market prices; and though the total income from this source may not be very large, yet it is too important to be sacrificed for lack of a little wholesome interest and attention.

The floor is not so well of brick or stone slabs as of earth, well rammed down and covered with loose gravel. This is to avoid harbouring the great pests of the henhouse, fleas. Dimensions will be very much matters of fancy, but shun overcrowding. Architects often plan roosting houses with perches one higher than another, rising like a ladder from floor to ceiling, taking care that one is not placed directly over another, as in that case the droppings of the upper row would fall upon the birds below. But all lofty perches are objectionable; heavy fowls injure their feet in jumping down; for though they will fly up or walk up a ladder to bed, they will generally take the shortest cut down in the morning. The best plan is to have perches all on a level, 2 to 2½ ft. from the ground; the best perch being a wooden bar of 3 or 4 in. in breadth; and if supported by legs like a stool, so as to be readily moved, so much the better. Clumsy birds like Cochins prefer a roost at even lower elevation, unless a very easy ascent is prepared for them. It is not necessary to have a separate house for laying, provided the nests be at the side, far enough from the perches. But a sitting-house should be prepared, in order that the sitting hens may not be disturbed by the other fowls. I need scarcely urge the importance of cleaning out the houses, say twice a-week, and of once or twice in the summer cleaning and limewashing the whole of the interior. Various notions are seen in the matter of nests. Some poultry-keepers have a number of wooden cells, like pigeon-holes on a large scale, with a hinged flap or door, or a slide, in front to fasten in unsteady sitters and to keep out intruders. The nests in my own hen-house are simply rectangular cells made of board 20 in. high, and 18 to 20 in. long and broad, set upon the floor and close to the wall—a bar running along the front edges of the boards, to keep the eggs from rolling out. But round shallow dishes of wicker are good; so also are shallow pans of earthenware half filled with sand; and some managers prefer simple cells of loosely laid bricks. As to the proper fibrous or other material for bottoming the nests, avoid long straw, for this is liable to pull eggs out of the nest by getting entangled about the hen's legs. Hay, again, is safer, but harbours abundance of vermin. The best materials are cocoa-nut refuse or short straw, dusted with flowers of sulphur to expel the fleas; while a sod with rough grass on it makes a good and moist foundation for all.

A common error is to coop successive broods in the same small enclosure, probably because this is near to the kitchen door, and convenient for the constant attention which is required. But separation is a main point in rearing healthy birds. Distribute your coops about your yards, of course choosing safe and sunny places; and if your early broods occupy a space before your house, you may put the later broods on a plot behind, and so on, always allowing a considerable interval to elapse before following upon the same ground, to avoid getting the walk "tainted," as it is termed, with liability to disease.—JOHN ALGERNON CLARKE, in *Science with Practice*, just published by Messrs. Longman and Co.

A CONE OF IRESINE HERBSTI.

Having first prepared and struck a lot of cuttings, a seed-pan of any desired diameter is got, together with a supply of light turfy peat, moss, and some strong wire. Having settled on the height, strands of wire sufficient to retain securely the material enclosed within them, when brought up longitudinally and secured to a point, so as to form the cone, are fixed to the seed-pan or base. The drainage is provided for in the usual way, and the pan is filled with rough peat, &c., to a level with the edge; then the little plants of *Iresine* are laid on the surface; over them a layer of peat and moss, then more plants, and so on till the cone is finished, when the whole is neatly mossed over, the wires brought into their places and secured at the point, and the work is complete. A tepid syringing gives the finish. It is introduced into the stove, where the plants have nothing to do but grow. They quickly lay hold of their quarters, and turn up their heads boldly, and soon the whole is a pyramid of beauty, and our plant becomes really valuable and highly decorative and ornamental. After standing in the house or conservatory, it may now be cut back, and introduced again into heat. It is only when grown in heat, we apprehend, that it is properly developed, or the peculiar beauty of its foliage fully brought out.—*Irish Farmer's Gazette*.

REPORT ON TRIAL CULTURE OF PEAS AT STOKE NEWINGTON, 1867.

The trial of peas at Stoke Newington in the past season was limited to 100 varieties, which were selected for the purpose, and were all sown on the 23rd of February. The ground was prepared by deep trenching and liberal manuring, and the rows were placed eight to twelve feet asunder, a plan which favours full development by the free access of light and air to the plant, and, what is not less important in such a case as this, affords facilities for conveniently inspecting the rows at every stage of their growth. The intervening spaces are appropriated for other crops, and as the peas are removed the spaces they occupied are planted with celery, winter greens, or sown with turnips, coleworts, &c. The peas sown on the 23rd of February made a good start, but the untoward weather of March and April so thoroughly decimated them, that on the 1st of May the ground was almost as bare as a newly-ploughed field. A few rows were but little hurt, but generally speaking the plant was wholly destroyed, for in dozens of rows there was not a single plant left, and in many others only a few dotted at long intervals, like chance weeds that the hoo had missed. The few that remained were therefore destroyed, fresh drills were drawn, and on the 2nd of May the collection was sown again. Unfortunately, in the first sowing the entire samples of several sorts were sown, so that at the second sowing a few important varieties were *non est*. The loss was, however, not of great consequence as matter for regret, except in one case, namely, the fine pea called "Newington Wonder," figured at page 440, in the report of last year. At one time it appeared that this variety was utterly lost; but three plants were discovered, the sole remnants of a run of about 200 feet, and these were watched, and a few pods of seeds were saved where-

time they began to afford distinct characters of bloom and pod to the time when it became necessary to destroy them, when their productiveness was past. The report will show the period from blooming to gathering in the number of days in every case; the date of sowing is never taken at Stoke Newington, for the simple reason that it is of no use. In respect of dates, there are but three that are of any importance in a business of this kind—the date of sowing, date of first gathering, and date when the variety ceased to be useful. It will be observed that the period from sowing to gathering is in every case shorter than in former trials; this is owing to the advanced state of the season when the seeds were sown, a rapid growth ensuing immediately afterwards. The samples for this trial were obtained from Mr. W. Clark, of 42, Bishopsgate Street Without, except in those cases where it was thought desirable to apply to the raisers or their appointed agents.

FIRST CROP (syn. *Ringleader*, supplied by Messrs. Carter and Co. and Messrs. Sutton and Sons), sown May 2, first gathered July 1, *period* 61 days. The earliest pea known, and having the peculiarity of giving the whole yield of its pods at once, its time of bearing extending only from 7 to 9 days. Thus the plant can be cleared off, and the ground be again planted with another crop while the season is not yet too far advanced for securing a free growth.

DICKSON'S FIRST AND BEST (F. and A. Dickson and Son, Chester), sown May 2, first gathering July 3, *period* 63 days. A compact, wiry-habited, free-bearing pea, which continues in bearing 9 to 12 days.

DILLISTONE'S EARLY (Dillistone), sown May 2, first gathering July 9, *period* 69 days. This sample resembled in all its characters Sangster's No. 1, yet could not be resolved into that variety, being more leafy in habit, less prolific of pods, and more robust in growth.



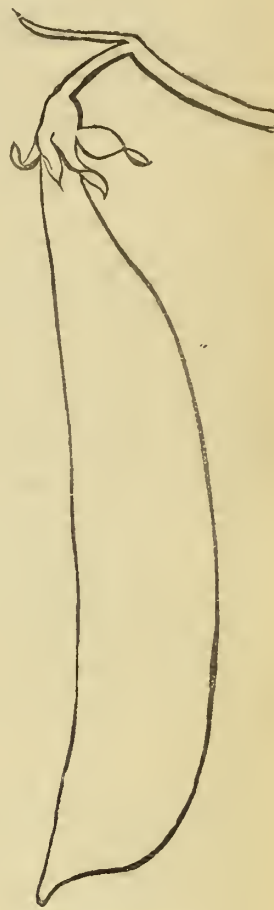
Lord Palmerston.



Smythies' Prolific.



Peabody.



Duke of Edinburgh.

with once more to raise a stock. The result of the second sowing was eminently satisfactory, the varieties all grew freely, and bore well according to their several qualities; there was not a particle of mildew or blight; and generally speaking most of the samples continued in bearing longer than ordinary, the result of beneficial rains when they were for the most part in full bearing. As in the trials of 1865 and 1866, many important and interesting points arose in the comparison of the varieties, as the report will show, and the decisions of the Fruit and Vegetable Committee of the Royal Horticultural Society were found to be erroneous in several instances, and especially in the case of a fine pea called Stuart and Mein's Early, which the committee pronounced to be identical with Dickson's Early Favourite, but which is in truth far superior to that variety, and so different in growth and habit as to be distinguishable from the other by the most casual observation. As to the question of the identity of First Crop and Dillistone's Early, it would seem desirable to ignore the second altogether, or rather, to extinguish the name, and refuse it any further recognition. Half a dozen different sorts at least are sold under this name, and one of the most plentiful forms of it is simply a bad stock of Sangster's No. 1. Certainly Mr. Dillistone has for many years past sent out in this name a pea which is much more like Sangster's than like First Crop; and if First Crop is a revival or restoration of the original form of Dillistone's Early, the new name is better than the old one, for it has but one meaning, whereas Dillistone's Early has come to mean almost anything, so that no one knows when ordering seeds what sort of pea will be sent under that name. We propose therefore to cancel the name, and henceforth we shall know no more of it; for if a name does not direct us to the thing it is supposed to signify, the name is a deception, and as a catalogue and garden designation "Dillistone's Early Pea" may be fairly considered a myth.

The trial peas of 1867 were inspected twice a week, or oftener, from the

TABER'S PERFECTION (G. Gibbs and Co. and Barr and Sugden), sown May 2, first gathering July 5, *period* 65 days. The growth was irregular, but in general habit and mode of bearing this variety most nearly resembles Dickson's First and Best. It is, however, a quite distinct pea, making a larger quantity of straw than any other variety equally early, and producing a good crop of well filled-pods. This is an excellent market pea, but is less desirable for the garden, as it is four days later than first crop, and a number of varieties come in with it. Nevertheless in every garden where the earliest peas are valued, this variety should have a fair trial. To the market grower it is important for its hardiness, earliness, fruitfulness, and the comparatively large amount of straw left when the crop is cleared off—a matter of some consequence where horses are kept.

PRINCE ALBERT (Carter and Co.), sown May 2, first gathering July 8, *period* 68 days. This was sown in order to compare one of the best representatives (which it is) of the old race of earliest peas, of which Early Kent and Early May are examples, with First Crop, Taber's, and other candidates for the first place in the order of supply. It is a good variety of its kind, but possesses no special qualification for esteem.

CARPENTER'S EXPRESS (W. Clark), sown May 2, first gathering July 7, *period* 67 days. As bad as last year—if possible, worse. A quite worthless and very much mixed variety; strictly speaking, it is not a variety at all, and, with Dillistone's, should be cancelled.

DUNNETT'S EARLY (Carter and Co.), sown May 2, gathered July 8, *period* 68 days. Not distinguishable from Early Frame.

EARLY FRAME (W. Clark), sown May 2, gathered July 8, *period* 68 days. A leafy, robust, but scarcely prolific variety. Now that First Crop and Dickson's First are established, we may dispense with Early Frame. But it must not be forgotten that it has rendered long service, and is still a good pea, though superseded by improved varieties.

WHEELER'S FIRST (Wheeler and Sons), sown May 2, gathered July 8, *period* 68 days. In character intermediate between First Crop and Sangster's No. 1; a good useful variety, evenly covered with pods of a fair size, considering its earliness.

POYNTER'S EARLY (W. Clark), sown May 2, gathered July 8, *period* 68 days. Identical with Early Frame, and therefore may be cancelled. It is a curious circumstance that several first-class London houses have given prominence to this variety in their seed-lists—a proof that catalogue descriptions are to be taken *eum grano salis*. It is much to be regretted that respectable houses should recommend a thing of this sort in entire ignorance of its value or genuineness.

SANGSTER'S No. 1 (W. Clark), sown May 2, gathered July 8, *period* 68 days. An excellent pea, more fruitful than the majority of those that come in at the same time, and admirably adapted to sow at the same time as First Crop or Dickson's Best, to afford a succession and keep up the supply until *Advancer* and *Early Ringwood* come in to follow.

NUTTING'S No. 1 (Nutting and Sons), sown May 2, gathered July 8, *period* 68 days. Growth very dwarf, barely reaching 15 inches; leaves dark green, pods containing an average of six peas each; the flavour excellent. This variety is distinct, but scarcely useful. It may indeed prove to be good for pot and frame culture, being of such excellent quality and so dwarf in growth, but as a pea for the open ground it is quite surpassed by others that come in at the same time.

EARLY EMPEROR (W. Clark), sown May 2, gathered July 12, *period* 72 days. This good old pea behaved remarkably well in the present trial, being covered with large pods from top to bottom, and lasting in bearing 25 days. It is a question, however, whether it is worth a place in the select list, now that we have several finer sorts equally early and scarcely less prolific. In respect of fruitfulness, however, the *Early Emperor* stands almost alone among second early peas, and no doubt will continue in favour with many cultivators for some years to come.

PIERPOINT'S No. 1 (Pierpoint, Warrington), sown May 2, gathered July 3, *period* 63 days. Not distinguishable from *Dickson's Best*, except that it is not so good a cropper, and the growth is very irregular.

ADVANCEE (W. Clark), sown May 2, gathered July 12, *period* 72 days. This early, fruitful, elegant, and delicious pea has but one fault, that of a tender constitution. In growth and every quality, except relative hardness, it is unequalled.

NUTTING'S DWARF EARLY (Nutting and Sons), sown May 2, gathered July 6, *period* 66 days. This very closely resembles *Nutting's No. 1*, but is in many respects for ordinary purposes a better pea. It grows one foot high, is robust and leafy, a good cropper, producing a large pod, which contains on an average six large peas, which when cooked are tender, buttery, and sweet. An excellent dwarf variety, lasting about 15 days.

BISHOP'S LONG POD (W. Clark), sown May 2, gathered July 14, *period* 74 days. This hardy, dwarf, prolific pea is admirably adapted for market culture as a second early variety, and is a good sort for cottage gardens and allotment grounds. But it is not a gentleman's pea, and therefore is not desirable for ordinary garden purposes.

STUART AND MEIN'S IMPROVED EARLY (Stuart and Mein), sown May 2, gathered July 15, *period* 75 days. This is pronounced by the Royal Horticultural Society's Committee to be identical with *Dickson's Early Favourite*, which is an error. It is true it is in some respects like the variety in which the committee propose to merge it, but it differs in its pale green colour (like *Ringwood*) and more leafy habit, in its larger pods, which are long and narrow, and contain an average of six to nine peas each. The height is four feet. This is a first-rate second early pea, quite distinct and eminently desirable. There can be no doubt that its handsome pods and fruitfulness will render it a first-class market pea.

RINGWOOD EARLY (W. Clark), sown May 2, gathered July 10, *period* 70 days. This good old pea is the type of an interesting class, and well deserves the high place it has long had in the lists of the best varieties. It bears abundantly, and possesses the desirable qualities of good colour and good flavour when cooked. It is typical in its pale colour, hardy constitution, and distinct characters of bloom and pod.

DALE'S EARLY (Thompson), the same in every respect as *Ringwood Early*.

ELEY'S ESSEX RIVAL (Eley), sown May 2, gathered July 10, *period* 70 days. The best variety of the *Ringwood* section, and deserving of a place in the routine of every garden. That it is distinct from *Ringwood* cannot be doubted by those who have made critical observations on both varieties in all their stages of growth, and in all the points of difference this variety is the best of the two. There can be nothing better than a dish of this pea well cooked, and it is but nine days later than *First Crop*, and is two days in advance of *Advancer*.

TAYLOR'S UNKNOWN (Taylor), received from Mr. G. Taylor, of Stamford Hill. It proved to be *Eley's Essex Rival*.

LORD PALMERSTON (Pierpoint), sown May 2, gathered July 27, *period* 87 days. This is a new pea, raised by Mr. Knight, of Battle. It is a mistake of the *Chiswick* report for 1867 to pronounce this the same as *Veitch's Perfection*, for though it produces a large pod, and the peas are excellent in quality, it is a poor cropper, and, as compared with *Veitch's Perfection*, worthless.

DICKSON'S FAVOURITE (F. and A. Dickson and Son), sown May 2, gathered July 20, *period* 80 days. A very prolific pea, of second quality; height 4 feet.

AUVERGNE (Sutton and Sons), sown May 2, gathered July 14, *period* 74 days. This productive and handsome pea will doubtless keep a place in the select list for many years to come, though in point of quality there are better varieties equally early. The pods are long, narrow, and curved at the point, and well filled with whitish peas. The average height of the plant is 6 feet.

LAXTON'S PROLIFIC (Carter and Co.), sown May 2, gathered July 17, *period* 77 days. In our report last year we pointed to the close resemblance this variety bears to *Auvergne*, but directed attention to the distinctions observable in the seed, that of *Auvergne* being very pale olive or buff, while the seed of *Laxton's* is a more decided tint of olive, or a dull almost dirty buff. It appears to be not generally known that hitherto *Laxton's Prolific* consists of two varieties, equally distinguishable in the seed-bag and on the ground. The seeds may be sorted into two distinct classes, olive and brown, and the plants may be divided into those which produce long *Auvergne*-like pods, and those which produce shorter pods. If the variety could be so far purified as to remove from it the short-podded plants, *Laxton's Prolific* would become immediately one of the finest peas in cultivation; but its mixed condition is a serious objection to it at present.

MACLEAN'S LITTLE GEM (W. Clark), sown May 2, gathered July 6, *period*

66 days. This is quite a failure at *Stoke Newington*, though on lighter and warmer soils it is a good cropper, and produces large pods of excellent quality. The dwarfest kinds of peas never attain to such perfection here as in more favoured localities.

TOM THUMB (W. Clark), sown May 2, gathered July 6, *period* 66 days. Quite worthless here, except for pot culture.

BECK'S GEM (W. Clark), sown May 2, gathered July 12, *period* 72 days. This sample was quite distinct from *Tom Thumb*, and in every respect far superior to that variety. *Tom Thumb* grows only six inches high here, but *Beck's Gem* grows 18 inches, and bears plentifully. Nevertheless we have many better peas in use at the same time, and though this is a good member of the class to which it belongs, it is of little value for garden purposes.

PEABODY (Carter and Co.), sown May 2, gathered July 4, *period* 64 days. A compact-growing pea of the white Prussian class, height 18 inches, bearing a considerable number of pods for so dwarf a grower; the pods well filled. A good and distinct pea of its kind, but scarcely deserving a place in any garden.

DWARF WATERLOO (Carter and Co.), sown May 2, gathered July 17, *period* 67 days. This is one of the best dwarf-growing varieties, and quite supersedes *Bishop's Long-pod*. The plant grows 18 inches high, and is quite covered with large pods, which are well filled with large peas of excellent quality.

DUKE OF EDINBURGH (Pierpoint), sown May 2, gathered Aug. 1, *period* 92 days. A dwarf, robust-growing, wrinkled marrow; the plant 18 inches high, very leafy and highly promising in appearance, yet failing to realize its promise in a crop. In a row 66 feet in length we did not succeed in obtaining a pint of good pods, yet abundance of pods were half formed and perished ere attaining maturity. On a different soil this may prove first-class; and although useless here, and a mockery, we do not consider our trial of it at all decisive as to its merits.

SMYTHIES' PROLIFIC (Barr and Sugden), sown May 2, gathered July 29, *period* 89 days. This variety grew 2 feet high, and bore an abundance of large pods well filled with large peas of good flavour. It was carefully compared with all other varieties of similar habit on the ground, and was found to resemble nearest *Veitch's Perfection*, but is not identical with that variety, or with *Premier*, which is the next nearest to it. *Smythies' Prolific* is a good variety, but has no distinguishing qualities of sufficient importance to entitle it to a place in the most select list.

VEITCH'S PERFECTION (W. Clark), sown May 2, gathered July 28, *period* 90 days. This popular variety is one of the most constant in its characters, the growth being so even that a well-kept row has the appearance of a freshly-clipped hedge. It produces an abundance of large pods, which are well filled with peas of the finest character. Height 2 feet.

HAIR'S DWARF MAMMOTH (W. Clark), sown May 2, gathered July 28, *period* 90 days. This variety grew 3 feet high, and gave a less abundant crop than *Veitch's Perfection*. We may now consider it a second-class pea.

THE PRINCE (Stuart and Mein), sown May 2, gathered July 30, *period* 92 days. The growth of this pea is extremely uniform, the height rather over 3 feet, the crop considerable and of the finest quality. The foregoing four varieties stood side by side, and were frequently noted in respect of behaviour and appearance.

Veitch's Perfection is a lighter colour (leaf, stem, pod, &c.) than either *Hair's Dwarf*, or the *Prince*.

Smythies' Prolific does not generally fill so well as *Veitch's Perfection*, but it requires a careful comparison to determine the difference between them.

The *Prince* resembles *Hair's Dwarf* more than *Veitch's Perfection*, but grows a trifle taller than either, is two to four days later, and, all points considered, the best of this series of dwarf-growing green wrinkled marrows.

S. H.

(To be continued.)

THE BEST ROSES IN GROUPS.

Most people who set about planting that very essential element of a garden, a rose-bed, would like to secure for it the best roses of the prevailing tints of colour, and accordingly their first proceeding is to send for a catalogue from one of the leading nurserymen, and plunge into the intricacies of the descriptions of the four or five hundred roses specified. The result is not always satisfactory. Let us, therefore, the present time being very opportune for sending out orders, try and make a few selections of groups likely to suit inquirers.

GROUP No. 1.—*Anna Alexieff*, fresh rosy pink, very free flowering, elegant foliage. *General Jacqueminot*, rich scarlet crimson, also very free flowering; too well known to need recommendation. *Emotion* (a Bourbon perpetual), white with a pink centre, also free flowering. *Charles Lefebvre*, dark velvet scarlet, shaded with black towards the bottom of the petals; this is in all respects the best rose grown. *Princess Mary of Cambridge*, a most excellent globular pink blush, very different to *Anna Alexieff* in form and colour. *John Hopper*, intensely bright light crimson centre, graduating towards the outside petals to a lilac pink. This group will do anywhere with ordinary attention and cultivation.

GROUP No. 2.—*Alfred Colomb*, true crimson, with every good quality; form particularly lovely. *Souvenir de la Malmaison* (Bourbon, but always in bloom), externally white, flesh-coloured centre; this is the finest light rose known. *Madame Moreau*, a lustrous dark crimson, with petals curiously folded, velvety and effective. *Gloire de Dijon*, yellow buff and pink, everywhere cultivated, or at least it ought to be. *Madame Victor Verdier*, cerise crimson, with the faintest tint of violet; a noble rose. *Comtesse de Chabrilant*, light pink; one of the most perfect of roses, if highly manured and properly attended to. N.B. This group consists of magnificent large roses, which require only to be seen to be highly admired, and, like most other good things, they demand good cultivation, which means good *stiff* loam, strong manure, and careful planting, and that surely is not asking for much.

GROUP No. 3.—*Duchesse de Morny*, true rose colour, the finest and most stately of its colour. *Prince Canille de Rohan*, maroon and scarlet; very fine in all respects. *Marguerite de St. Amand*, light pink, centre a little more intense, probably the finest light rose after *Souvenir de la Malmaison*. *Maurice Bernardin*, scarlet, with a faint tinge of violet; lovely colour. *William Griffiths*, glossy pink; an old rose; but not likely to be excelled; but, N.B., order this specially on a dwarf briar. *Pierre Notting*, dark crimson, deeply shaded with violet, a noble globular flower. This group also requires high cultivation.

These three groups are sure to please most people, and arranged in three separate beds will afford a feast of flowers.

VIATOR.

DESIGNS FOR STRAWBERRY HOUSES.

Early-forced strawberries are in such great request in every well-ordered garden, that we can only wonder that we so seldom see properly-constructed houses in which to grow them; and, knowing the universal want of such suitable structures, I here give some sketches of various forms of houses specially adapted for such a purpose, the first essential being to secure the plants abundance of light. But, before I refer more particularly to them, it may be well, perhaps, to set forth some of the conditions which must be secured to ensure the well-doing of the plants, and then the reader will the better understand the principles which have guided me in designing the plans.

In the first place, to force strawberries satisfactorily in the early months of the year, they must have all the light it is possible to give them, and they must be near the glass, else they will be drawn and weakly; and they must have also a

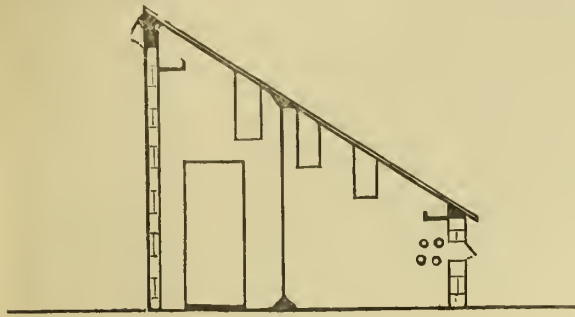


Fig. 1.

free circulation of air around them. Now these are conditions which every practical reader knows to be essential; and he also knows that, in the majority of cases, it is impossible to secure them to all the plants in old-fashioned houses, or in houses constructed differently from those shown.

In designing the sections here given, I have made the fullest possible exposure to light the leading feature, as the reader will see at a glance; and I am satisfied, from my experience in forcing strawberries, that more suitable forms than Figures 1 and 2 cannot possibly be made.

Figure 1 is a lean-to, with a shelf on the front and back wall, and three shelves suspended from the rafters. Ventilation is provided for by a ventilator in the front wall, and one at the junction of roof and wall below the plate. A service of four four-inch hot-water pipes is shown opposite the ventilator in the front wall. It is necessary so to place the pipes in front of the ventilator, because, when air is admitted, it comes im-

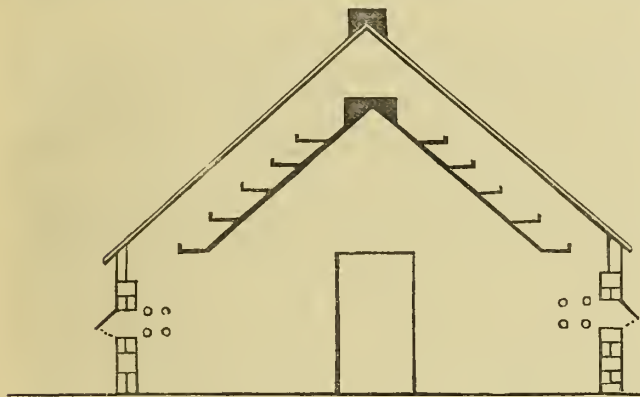


Fig. 3.

mediately in contact with the hot-water pipes, and so becomes heated before reaching the plants. The only objection that can be raised against this form of house is the weight of the suspended shelves. But by using deeper rafters, and if necessary a neat iron support from the floor to the rafter, as shown, nothing can be more easy than to make the roof capable of bearing any amount of weight with but little extra cost, if done at the outset.

Figure 2 is a hipped roof, and a very desirable form of house where strawberries are largely forced. A front sash should be provided above the ventilator in the front wall. This design does not greatly differ from the preceding, as the service of pipes and ventilation is the same in front, with means provided for giving air at the top.

Figure 3 is a span-roofed house, well adapted for the cultivator who does not begin to force until the middle of January,

and then it would be useful for many other purposes, and prove a serviceable house, too, when not required for strawberries. The shelves here are intended to be formed by a stage, and the ventilators and pipes are placed the same as in the above. A front sash over the ventilator would be desirable, the same as in Figure 2.

Figure 4 is an ordinary brick pit, fitted with a stage and a flow and return hot-water pipe in front beneath. Good strawberries may be grown in this structure during the latter part of March and through the month of April, and, as the lights are movable, the operation of watering is easily performed.

Figures 1, 2, and 3 are supposed to be furnished with fixed roofs, and the watering must be accomplished from inside, just as in any other case where top shelves are used.

J. C. CLARKE.

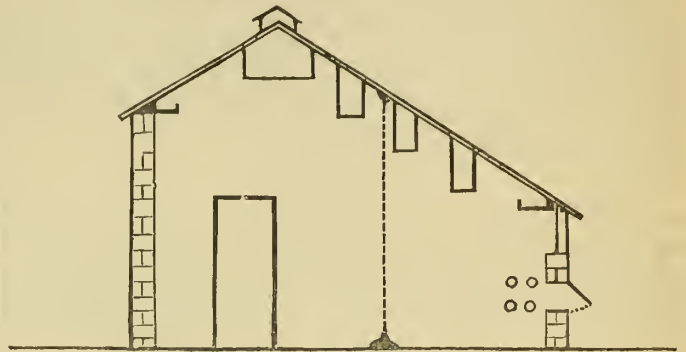


Fig. 2.

CULTURE OF CAMPYLOBOTRYS REFULGENS.

This plant thrives well in a compost of turfy loam and peat in equal parts, not sifting, but chopping the compost (which cannot be too turfy) fine with a spade, and adding to it one fourth of silver sand. Give a good drainage, and use a small pot. Water sparingly, place the plant in a moist atmosphere, at a temperature of from 65° to 70° at night, and from 80° to 90° by day, affording a slight shade from sun. Avoid wetting the foliage, and when the plant commences to grow and the pot is filled with roots, shift the plant into another pot, giving a large shift. The same compost and treatment as before are required, and afford a more plentiful supply of water. When the plant is growing freely, a moist atmosphere is beneficial. No moisture to be allowed over the foliage, plenty of heat and a position near the glass, with a slight shade from bright sun. These are the conditions for producing a fine specimen.

W. G.

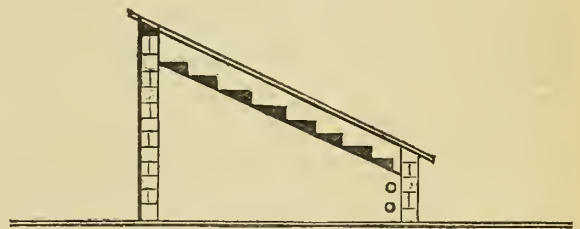


Fig. 4.

EXPERIMENTS WITH POTATOES.

Dr. Hexamer, of Newcastle, New York, furnishes us with an account of some experiments of his with potatoes. We should preface the specifications of these results by stating that Dr. Hexamer is an accurate and scientific experimenter and observer, and a good farmer.

1. Out of seventy hills of potatoes, peeled so that no eyes were visible, thirty-five grew. Some produced very large potatoes. The planted potatoes remained, mostly, hard and firm till digging time.
2. Out of eighty hills, pieces cut without eyes, thirteen hills grew. All these sprouted on the cut surface, none through the skin. (One large potato, cut in two lengthwise, sprouted on the cut side near, but below the skin, and there was no sprout proceeding from a visible eye.)
3. Out of one hundred whole potatoes, ninety-eight grew from the small end, and two at the side. With more than half the number of potatoes planted whole, only one eye grew, the rest remaining dormant.
4. A potato does not always expend all germinating power in one year.
5. Wet rot and dry rot are one and the same disease. Potatoes affected with the rot will rot dry when they are kept dry, and the same will rot wet when they are kept in a moist place.—*American Agriculturist*.

Calendar.

WORK FOR WEEK COMMENCING NOVEMBER 9.

Kitchen Garden and Frame Ground.

ASPARAGUS beds to be cleaned over, the weeds raked off, and a heavy coating of half-rotten dung laid on, over which throw a sprinkling of earth from the alleys.

SEAKALE may be planted now in well-prepared ground in well-drained positions; where the soil lies low or damp, however, it should not be planted till the spring. In any case, the ground must be deeply trenched and liberally manured, and the manure thoroughly incorporated with the soil. Begin forcing now by first covering the stools with conical mounds of sand or coal-ashes (not leaves, which spoil the flavour). Place the seakale pots over as many stools as are to be started now, and fill the spaces between and over the pots with a mixture of stable-dung that has been once turned, with leaves, straw, and other litter, beating it firm as you proceed, and leaving the whole smooth and tidy nine inches above the top of the pots.

SEAKALE IN POTS.—Where only small quantities of seakale are required, it may be forced very conveniently and cleanly in pots. Pot the roots singly in 24-sized pots, in a mixture of leaf-mould, rotten dung, and sandy loam, equal parts. Place the pots on the top of a brick flue or on a gentle hotbed, the bottom-heat not to exceed 60°. Invert over each pot another empty pot, stopping the hole of each with a piece of flat tile, or with a lump of clay. For those who have no convenience to force seakale in the open ground, Pascall's pots are invaluable.

Flower Garden.

AURICULAS, CARNATIONS, PICOTÉES, AND PANSIES in POTS to have air frequently, to prevent mildew; slight frosts will not hurt them so much as a confined and damp air: take off the lights in the morning, and keep them off till the sun is nearly quitting the frames, then shut up, and there will be enough warmth retained to counteract the frost without. In damp dull weather, tilt the lights only to admit a small current of air through, and at every opportunity when the weather is genial take the lights off, clear away dead leaves, gently stir the surface of the soil in the pots, and give a little water if needed.

PLANTING ON MOUNDS is beginning to be better understood, and more generally practised, and consequently we less frequently hear of losses among ornamental trees of delicate constitution. Not long since we had to advise on some trees of Wellingtonia in a suburban garden. They had been planted out on the lawn to form a group, and by sun and not slow degrees had lost all their freshness of colour, the lower branches and the tips of the new growth becoming browned during winter, so as to have a most unsightly appearance. Araucarias in the same style of planting were in a similar bad condition. We had them all lifted, the earth entirely shaken off the roots, and then replanted on mounds made up of yellow loam from Wanstead. The mounds were two feet high, the roots of the trees were carefully spread out, covered only just sufficient to hide them from the daylight, and then staked with three stakes, each placed at an angle, in the style in which soldiers stand their muskets in groups of three on parade. They are now pictures of health and beauty, and the mounds are hidden by their branches weeping to the ground. All choice conifers that require a dry soil, or that are in any way susceptible of the effects of damp, should be planted in this way, and with a little management their lower branches can be trained down so as to sweep the ground all round, and make pictures of them.

BEAUTIFUL DECIDUOUS TREES FOR SMALL GARDENS.—Alterations and improvements are now in progress in gardens, and it is the season for planting. The names and brief descriptions of a few beautiful deciduous trees may therefore be useful to some of our readers. The subject, indeed, has scarcely ever yet had proper attention during the annals of British horticulture. There are innumerable species and varieties of beautiful trees in the country, but their names and characters are scarcely known beyond the limits of a few botanic gardens and arboretums. It might be thought that nurserymen and landscape gardeners would bring some of these trees into note, but it happens that as a rule they propagate and plant certain classes of trees that make an effect quickly, and which can be sold at a cheap rate; and too often ignorance is in the way of improvement much more than hard trade calculations. The consequence is, that we see limes, spruces, and other commonplace trees planted abundantly without regard to the capabilities of the place. All these common trees are beautiful in their way, and we say nothing against them except that we do not wish them to stand always in the way of the diffusion of others that are distinct, interesting, various, and beautiful, and which merit attention if only to break up the monotony of our gardens and shrubberies. The Decodar cedar, most beautiful of trees, would never have become popular unless it had happened to be one of the quickest growing, easiest raised, and most adaptable of evergreens. The desire of proprietors to cover large extents of ground at the lowest possible figure discourages a landscape gardener who would introduce rare and beautiful subjects. However, let us leave the commercial matters to settle themselves while we devote ourselves to the pleasing task of calling attention to trees that are prominent for beauty, and that will be sure to meet with appreciation some day or other.—*Kaltruteria pinnatifida*. This pretty tree never attains to a great size. A pair now growing at Stoke Newington have been planted ten years, and their heads are now only six feet over, and they stand about seven feet high. The habit of the tree is very peculiar and elegant, the growth being diffused and light, the leaves are pinnated in the manner of the ash, but are a thousand times more graceful, the divisions being prettily notched, and the appearance of the tree feathery. In July or August long spikes of yellow flowers are produced, which for a short time add much to the beauty of the tree. It will grow in any soil, and is quite hardy.—*Liriodendron tulipifera*. The "Tulip tree" has a bold distinct habit, and a very peculiar leafage, the leaves appearing as if their points had been abruptly cut off. It is sometimes planted in avenues, and it may be put in the mixed borders, and by annual pruning be kept to the size of a bush.—*Pyrus spectabilis*. This is the grandest of all the "flowering trees;" it is as hardy as a wild crab, and improves with age, like good wine. The flowers completely smother the tree in spring; they are white, red, bluish, or a mixture of all three shades. The pure white variety is perhaps the best, though very scarce. But it matters not if the commonest variety is planted; there is nothing to beat it.—*Double-flowering peaches*. The double-flowering peach, called *Persica vulgaris flore sanguinea pleno*, is a grander tree than its elongated name would lead any one to suppose. The flowers are large crimson, and are produced in such abundance every spring as to make the tree look like a little

mountain of fire. This is the hardest of the series, of which there are several. The white-flowered variety is tender. They are all good trees to grow in pots for forcing.—*Liquidambar imberbe* is like a small maple, but gorgeously coloured in autumn, when the leaves die off a rich purplish red colour. Very often *L. styraciflua* is sent out for it, which is the substitution of a satyr for Hyperion, the last named having not much beauty.—*Catalpa syringæiflora* requires plenty of room, and is quite out of place in a small garden. But in a suitable spot there are few trees more grand in outline and characters. Its huge spreading head, its large handsome leaves, and its thousands of spikes of whitish lilac flowers, produced in July, are features that claim for the tree the characterization of "magnificent." It requires a deep loamy soil, and is quite hardy, though in hard winters much of the young wood is killed back.—*Small-leaved elms*. There are two exquisitely pretty elms suitable for the choicest gardens. They are called respectively *Ulmus viminalis* and *U. v. variegata*, the second being a variegated form of the first. They form dwarf pendulous bushes, very dense, and full of grace, with slender twiggy branches, and neat little birch-like leaves. Any lover of such things would be sure to find pleasure in them.—*Salix Americana pendula*. This, the so-called "American willow," is in reality a British species. When worked as a standard it forms one of the most elegant of all weeping trees. The head grows symmetrically, throwing out long whip-like arching shoots of a pale red, clothed with small bluish green leaves. For a *bijou* tree to plant beside a fountain, there is nothing better. It also makes a nice bush, but I have never seen it in nurseries in that form. However, those who want bushes, and can wait for them, may raise any quantity by putting in cuttings in winter; every cutting will root. I would undertake to raise enough from one tree to begin with, in the course of three years, to plant a hedge of it from London to York.—*Weeping poplar*. There is in the English nurseries a weeping tree which is scarcely known amongst collectors of such things, though it is the finest weeping-tree known. The name of it is *Populus canescens pendula*. The growth is so truly pendulous that a tall standard will produce branches that in a few years will touch the ground and form a sort of bell-tent of beautiful leafage. Another nearly, if not quite, as good is *Populus tremula pendula*, a variety of the aspen poplar. Any one wishing for a superb lawn tree, and having some aversion to the weeping ash (which is a true beauty, though London people get sick of it, because it is always planted in tavern gardens) may plant either of these with perfect safety. To regret the deed is possible only with a lover of pitchforks and corkscrews.—*Fern-leaved beech*. The variety of *Fagus sylvatica* called *heterophylla* has the leaves very finely and curiously divided. It is very pretty, and what beech is not?—*Silvery maple*. The well known *Acer pseudo-platanus foliis argentea* is the grandest of the variegated maples. It is well known, and is one of the few beautiful trees that happens to be thoroughly appreciated. For a fine big spreading tree to light up a plantation, nothing better.—*Snowy mespilus*. The small-growing round-headed *Amelanchier botryapium* is always neat and pretty. But see it in bloom, and say the snow falls when the sun shines, and trees wear white gloves, like judges who have nobody to hang. And that puts me in mind of the *Judas Tree*, which I grow as a bush six feet high, and six feet through. In the spring it is tasseled with rosy pink flowers all along the ripe wood, and for the rest of the summer it is like a gigantic specimen of *Adiantum reniforme*. Could anything be more splendid? Seeing is believing, at least with some people. "Veni, vidi, vici."—*Two choice thorns*. For a change plant *Crataegus Mexicana* and *C. orycantha pendula*. The first is a fine evergreen, glorious in leaf, flower, and fruit. The second is a "genuine" weeping thorn, full of grace and glory. The scarlet-flowered thorn, and the double scarlet-flowered thorns, and the pink and double white are essentials to any garden that can afford space for them.

Fruit Garden and Orchard House.

RASPBERRIES to have the old canes cut away, the new canes thinned to three or four of the strongest to each stool, and a good mulch of half-rotten dung laid down over their roots, and the ground between them not to be dug at all.

FRUIT-TREE SHRUBBERIES.—Fruit-trees of many kinds are admirably adapted to plant for the embellishment of the pleasure garden, and when so employed the formal orchard system of planting must be avoided. It would be necessary, in order to preserve the ornamental feature proper to a shrubbery, to select trees best adapted for beauty of effect. Old standard apple-trees in good condition are equal in beauty to oaks any day, and there are some varieties of pear, plum, and cherry that make remarkably handsome trees of large size. Thus, then, we shall have no trouble in selecting materials for breaking the sky-line, and affording some kind of majesty to the shrubbery. Nevertheless, pyramid and bush forms are those most needed to produce the thick and various plantation that affords so much delight during a walk through a shrubbery. A most important member, therefore, of this useful shrubbery is the filbert, which never becomes a great tree, which is usually picturesque, and, while in leaf, a very bold and handsome tree. It is not generally known that the purple-leaved nut, which is catalogued as one of the choicest garden trees, is also a really profitable variety to grow, for the nuts are produced in plenty, and are of excellent quality. The apple, plum, cherry, mulberry, quince, and pear may all be employed in the form of bushes and pyramids; and in respect of beauty the pear will undoubtedly take the lead, for leafage that almost equals the caucellia, for flowers that rival the may or the snowdrift, for fruit that is always elegant, and sometimes rich in colour. Moreover, a few peaches, apricots, and nectarines may be added, and in good seasons their fruits will ripen well, and in bad seasons they will be splendid when in flower, and their leafage equal in beauty to that of most shrubbery trees all the summer long. To vary the front lines we have the berberis, useful for preserving; the currant, a grand thing for ornament when grown in the standard form, four or five feet high; the gooseberry; the raspberry; and there might be an edging of strawberries to finish off with. You will be saying that this, after all, is a fruit garden. Well, so it is; but I am considering how this fruit-garden can be made to do its duty as shrubbery in gardens where fruit is valued, and where the owners are not wealthy enough to have orchard and shrubbery too. You see it compels us to consider the case, not alone as to the usefulness of certain fruits, but as to their ornamental qualities, those said ornamental qualities being but little or not at all thought of in the arrangement of an ordinary fruit garden. Let us begin, then, to plant a belt, and not a square. There may be, say, a walk in front of the belt, and on the other side of the walk a grass-plot or lawn. The belt is to be shrubbery, and there are available for it, in the way of trees, limes, poplars, willows, alders, &c., &c. Now I propose that we plant, instead, standard apples, pears, plums, cherries, one or two walnuts and mulberries; and, in the event of this border being in a very warm and highly-favoured part of Britain, a few standard sweet

almonds. Should larger trees be wanted for the background, the Devonshire Prolific chestnut would occasionally afford a crop of eatable nuts, and in time to come most valuable timber. For the bulk of the furniture, we must rely on bush and pyramid fruit-trees. If well managed, these are most beautiful and interesting, the pears especially, and they produce enormous crops, considering the comparatively small extent of ground required for even a large collection. I would mix a few evergreens, dwarf shrubs, and clumps of hollyhocks with them, to preserve the shrubby character, and I would afford ample room to all to allow of a free circulation of air, and admit abundance of light. The finishing of the front line would require more taste than the general arrangement of the mid-distance and background. A few Weigelias, scarlet-flowering Ribes, the golden-flowering Forsythia viridissima, Cotoneaster Simonsii, and any or all the hardy Berberis obtainable, would be suitable to obtain a pleasing variety; and with a few clumps of herbaceous Pæonies, Frits, Phloxes, and Achilleas would secure both interest and beauty. The useful part of the front line would, of course, consist of standard currants, trained gooseberries of the goblet and umbrella forms; Berberis vulgaris, miniature apple, pear, cherry, and plum trees; and a few of the hardier varieties of grapes, trained to stakes. Of course they will persist in growing large, but that only fits them for removal a stage further back. The last remark serves to introduce all I think it needful to say as to the cultivation of these trees. To buy and plant them is easy work enough, but to do full justice to them is another matter. Unless the soil is extra rich, the surface should be mulched every winter with half-decayed manure, two or three inches deep, and every tree not required to become a giant should be carefully lifted and replanted every second or third year. The labour required for this process will be more than paid for by the increased and increasing productiveness of the trees. And to reduce the treatment to system, the best rule to follow would be to lift and replant a portion every year; so that, in the course of every three years, all except the standards should be subjected to the process. During the summer the periodical pinching back of the shoots, until the latter part of June, would have to be attended to. Such a shrubbery, therefore, would afford recreative employment, as well as recreative sights, odours, and flavours; it would tend to promote perfect harmony between the heart, the head, and the hands. And the consideration of the subject is earnestly commended to all our amateur readers who cannot command both fruit gardens and shrubberies on so ample a scale as the scope of their desires.

A SHORT LIST OF HANDSOME VARIETIES OF USEFUL FRUITS.—APPLES.—
Dessert kinds, suitable to grow as Bushes and Pyramids.—Astrachan, White Calville, Cornish Gilliflower, Court Pendu-plat, Court of Wick, Cox's Orange Pippin, Dutch Mignonne, Early Julien, Golden Drop, Golden Pippin, Red Juneating, Kerry Pippin, Melon, Old Nonpareil, Irish Peach, Grange's Pearmain, Pearson's Plate, Quarrendon, Reinetto du Canada, Ribston Pippin, Northern Spy.—*Kitchen Apples for Bushes and Pyramids.*—Beauty of Kent, Bedfordshire Foundling, Cellini, Cox's Pomona, Duchess of Oldenburgh, Fearn's Pippin, Flander's Pippin, Gooseberry, London Pippin, Mère de Ménage, St. Sauveur, Waltham Abbey Seedling.—*Varieties that make fine Standards.*—Shepherd's Fame, K, D; Stamford Pippin, D; Franklin's Golden Pippin, D; Early Nonpareil, D; Isle of Wight Pippin, D; King of the Pippins, D; Cockle Pippin, D; Blenheim Orange, K (this makes a gigantic and noble tree in a free, deep, heavy loam); Keswick Codlin, K; Manx Codlin, K; Dumelow's Seedling, K; Hawthornden, K; London Pippin, K; Norfolk Beefing, K; Northern Greening, K; Warner's King, K.—**PEARS.**—*Varieties suitable to grow as Bushes and Pyramids.*—Alex. Bivort, Alex. Lambre, Baronne de Mello, Bergamotte d'Esperen, Beurré d'Aremberg, Beurré d'Amanlis, Beurré Diel, Easter Beurré, Beurré Hardy, Beurré Léon le Clerc, Colmar d'Ete, Comte de Lamy, Comte de Paris, Délices de Jodoigne, Conseiller de la Cour, Doyenné d'Ete, Forelle, Havshe's Victoria, Josephine de Malines, Louise Bonne of Jersey, Madame Miller, Winter Nelis, Yat.—*Varieties suitable to grow as Standards.*—Jargonelle, Zephirin Grégoire, Thompson's, Suffolk Thorn, Swan's Egg, Seckle, Knight's Monarch, Bon Chrétien, Comte de Flandres, Duchesse d'Orléans, Eyewood, Gansel's Seckle.—**PLUMS.**—*Varieties adapted to grow as Bushes and Pyramids.*—Coc's Golden Drop, Dennison's Superb Early Mirabelle, Golden Esperen, Green Gage, Guthrie's Aunt Ann, Jefferson, Reine Claude de Bavay, Belle de Septembre, K; Mirabelle, K; Mirabelle Tardive, K; Cluster Damson, K.—*Varieties adapted to form large Trees.*—Brahm's Green Gage, Huling's Superb, Kirke's, Mamelonne, Prune Pêche, Perdrigon, Violet Hatif, Transparent Gage, American Damson, K; Autumn Compote, K; Diamond, K; Gisborne's, K; Early Orléans, K; Pershore, K; Pond's Seedling, K; Victoria, K; Washington, K.—**CHERRIES.**—*For Bush Culture.*—Archduke, Belle de Choisy, Coc's Late Carnation, Belle Magnifique, Late Duke, Florence, May Duke, Morello, Reine Hortense.—*Suitable to form handsome Trees.*—Belle d'Orléans, Bigarreau Napoleon, Black Tartarian, Cleveland Bigarreau, Downton, Elton, Governor Wood, Archduke, Empress Eugénie, Kentish, Nouvelle Royale. Lists of other kinds are of less importance than the classes already considered. We have no handsomer shrubby trees than the American and Siberian crabs, but the pity is that very few people can turn their fruits to any good purpose. Yet they are well worth preserving. One method, practised in the writer's household, is to place them in jars quite dry, and pour boiling honey over them. In due time they are taken out, and used for open tarts, and are in this way delicious. Another good use for them is to make apple jelly. The little apples are stewed till quite soft, but are not allowed to break, in as much water as will just cover them. They are then strained off, and squeezed, and thrown away. The liquor is then boiled with sugar, at the rate of three-quarters of a pound of sugar to every pint of the juice. Flavouring may be added, if desirable, but a little lemon-peel and lemon-juice are all the flavourings required. After simmering half an hour, the liquor is poured into moulds, where it becomes a transparent jelly, of most delicate flavour and elegant appearance.

Greenhouse and Conservatory.

CINERARIAS have now their seasonal ordeal to pass through, and must have every proper attention, or mildew will eat them up. Sulphur them if there is the least sign of the plague, and give plenty of air. Get specimen plants into shape, and put the early ones into their blooming pots; stop ten days after shifting.

CAMELLIAS dropping their buds are the subject of frequent complaint at this time of year. We have frequently advised the use of liberal waterings after the buds are set and the wood as hard as necessary, and we can only repeat that in the majority of cases the buds drop because the roots are dry. But watering on the ordinary plan is not always a remedy, for while the plants were out of doors in the summer the soil about the roots may have got hard and impervious to water, and now when water is given it all runs away next the side of the pot without moistening the roots at all. The remedy is

easy enough. Fill a tub with soft water, to which add a quart or so of boiling water, to make the whole nearly tepid. Then lower the plants into it a few at a time, and let them soak for an hour. The rush of air bubbles from the pots will prove what a dry state the roots had come to. After this soaking they will take water kindly until they get their next baking, which we shall suppose will not take place till next summer again. We serve all hard-wooded plants this way that have been some time in the same pots, as it is next to impossible to prevent the occasional hardening of the earth about their roots, and this sometimes happens in winter when, owing to long-continued frost, water is withheld for a week or two.

FROZEN PLANTS.—The amateur must always bear in mind that plants kept dry and well aired can endure two or three degrees more frost than plants of the same kinds in a more damp condition. As with the best precautions valuable plants will sometimes get wholly or partially frozen, a word of advice now may be useful all the winter through. To recover frozen plants, the safest proceduro is to keep them in the dark till they thaw, and to let the thawing take place slowly. A dry still air is also essential; a frozen plant placed in a draught, in the sunshine, or in undue warmth, even if in darkness, will probably go to a pulp as soon as it is completely thawed; but if thawed slowly in dark and stillness, will recover, if the freezing has been only to a moderate degree. These remarks refer chiefly to half-hardy and greenhouse plants, such as geraniums, &c., &c., but they apply also to hardy plants when the frost catches them out of the ground, as, for instance, trees on their way from nurseries, if the roots get frozen they suffer much unless thawed in the dark, as advised for plants of more tender constitution.

Stove and Orchid House.

ORCHIDS of deciduous habit to have little or no water, and no more heat than will suffice to keep them in health. Plants in a growing state must have enough water to prevent exhaustion. Young specimens may be kept growing freely in the warmest part of the house.

Forcing Pit.

FORCING.—See former notes under this head, and any matters hitherto neglected proceed with as previously advised. Make it a rule never to push any plant too hastily, or to use more heat than will suffice for the object in view. None but a trade propagator ought to have a higher temperature than 65° in any house at this time of year.

Literature.

The Intellectual Observer for November contains an account of that beautiful tribe of oriental birds, the Barb-ts, by Dr. Sclater; an elaborate paper on the growth of the scales of fishes, by Jonathan Couch; a profusely illustrated essay on the grave-mounds of Derbyshire, by Mr. Jewitt; a paper by the renowned Quatrefages on annelids; and a number of original articles on microscopy, astronomy, and physics, by Mr. Slack, Niepce de St. Victor, Rev. T. W. Webb, and other scientific explorers.

The Floral World for November contains an article on the picturesque in garden scenes, with suggestions on laying out a pleasure ground; also papers on fruit prospects, new bedding plants, the growth of peaches and nectarines without the aid of walls or glass, the management of the kitchen garden, on bardy flowers of the year, weeping trees, &c., &c.

The Gardener for November contains a continuation of the able series on the flower garden, also papers on restricted vines, calceolarias, the chrysanthemum, greenhouse plants, the clematis, &c., &c.

The Journal of Botany for November contains papers on abnormal forms of Ophrys, polliniferous ovules in a rose, British mosses, plants collected in Norway and Lapland, and on the obstacles to the utilization of New-Zealand flax; the authors of the principal papers are Dr. Masters, J. T. Moggridge, Esq., Dr. A. Dickson, and Dr. Lauder Lindsay.

A Handbook of Vine and Fruit-tree Cultivation under Glass. By SAMUEL HEREMAN, of Chatsworth. 7, Pall Mall East.—This admirable work, by the patentee and manufacturer of Sir Joseph Paxton's patent hot-houses, has reached a third edition. We have on former occasions explained its purport and testified of its value, and have only to repeat now our hearty recommendation of it to the careful attention of all who are interested in the cultivation of fruits under glass. Mr. Hereman has added many useful matters to this acceptable brochure, not the least useful being lists of produce which may be obtained from gardens under glass, and varieties of vegetables and fruits best adapted for this kind of cultivation. One of these lists we transcribe in full, believing it may prove acceptable to many of our readers:—

PRODUCE WHICH MAY BE EXPECTED FROM A LARGE WINTER GARDEN.

JANUARY.—In addition to the ordinary supply of fruit and vegetables from the open air, we may have the following produce from the winter garden:—Of *Fruit*, apples and pears, grown either in pots or the orchard house borders; late grapes, still hanging on the vines; and cucumbers, pine-apples, and bananas, where portions of the house are extra heated and appropriated to these purposes. Of *Vegetables*, cauliflowers and broccoli laid in the border of the house, spinach sown in the border, mushrooms in the shed, rhubarb in the lower bed of the mushroom house, asparagus in the frame on a hotbed, lettuce and endive planted in the borders, sea-kale grown under pots with hot manure, and small salad sown in the borders of the house.

FEBRUARY.—The same fruit and vegetables will be supplied as in the last month, with the addition of early radishes and early cabbage.

MARCH.—*Fruit*: Apples, pears, late grapes, strawberries, pine-apples, and cucumbers. *Vegetables*: The same as last month, and kidney beans and early potatoes grown in pots, and early cabbage.

APRIL.—*Fruit*: Old apples and pears, early grapes, strawberries, peaches, nectarines, figs, cucumbers, pine-apples, and green gooseberries. *Vegetables*: Rhubarb, asparagus, mushrooms, potatoes, kidney beans, radishes, small salad, lettuce, and early cabbage.

MAY.—*Fruit*: Early grapes, strawberries, peaches, nectarines, apricots, plums, cherries, figs, cucumbers, melons, pines, gooseberries, currants, and raspberries. *Vegetables* will now begin to come in plentifully out of doors, so the ground will for the most part be cleared inside; however, mushrooms, kidney beans, and new potatoes will still be supplied from glass, and peas and beans.

JUNE.—*Fruit*: Grapes, peaches, nectarines, apricots, plums, cherries, figs, cucumbers, pine-apples, gooseberries, currants, raspberries, apples, pears, melons, and most other kinds of fruit. *Vegetables*: Mushrooms are now about the only crop requiring indoor culture.

JULY.—Fruit : Apples, pears, apricots, peaches, nectarines, late cherries, figs, melons, cucumbers, and grapes are the principal fruits inside ; the crops in the open air will now be generally fit for use. Vegetables : Except mushrooms, all kinds of vegetables are now abundant outside.

AUGUST.—Fruit : Every kind of fruit of the sea-on is now in perfection. Vegetables : All kinds are now in perfection in the open air.

SEPTEMBER.—Fruit and Vegetables of all kinds can now be supplied for table.

OCTOBER.—Fruit : In addition to the usual kinds of fruit ripe at this season of the year, strawberries are supplied in the winter garden from roots forced for early crops in spring, currants and gooseberries protected by mats, and Cape gooseberries.

NOVEMBER.—Fruit : Apples, pears, figs, melons, cucumbers, late strawberries, raspberries from double bearing canes, grapes, pines, bananas, Cape gooseberries, currants, and gooseberries, which have been kept back by matting and Eugenia Ugni. Vegetables : Mushrooms, cauliflowers brought into the winter garden borders, broccoli, late crop of kidney beans, late peas and beans, lettuce, endive, small salad, and radishes.

DECEMBER.—Fruit : Apples, pears, cucumbers, strawberries, grapes, pines, and bananas. Vegetables : Mushrooms, cauliflowers, broccoli, lettuce, endive, and small salad.

RECEIVED.—The Botanical Magazine, L'Illustration Horticole, The Ladies Treasury, Our Own Fireside, Country Life, The Watchmen of Ephraim, The Gospel Magazine and Protestant Beacon, Old Jonathan, River of Life Pilgrims.

Correspondence.

YAFFOL OR YAFFLE.—The bird referred to in page 473 is the Green Woodpecker, *Picus viridis*, Linnæus ; *Le Pic Verd*, Buffon. From tip of bill to end of tail, thirteen inches ; bill two inches long ; tongue barbed at point, and supplied with a glutinous matter, to which ants and their eggs adhere. It is capable of thrusting out the tongue three or four inches. The top of the head is crimson, the back and wing coverts olive green ; rump yellow ; quill-feathers dusky and barred on the outer web with white ; under part of the body white tinged with green ; tail marked with bars like the wings. It frequents ant-hills, from whence it obtains its principal food ; therefore it was wise of Mr. Clarke to spare its useful life. THOMAS BARNES, Taxidermist.

Petersfield. The common green Woodpecker, *Picus viridis*, is so called in the counties of Kent and Sussex from its curious alarm note. Underneath it is of a yellowish green, brownish wings, crimson feathers at the back of head and neck.

I don't know what sort of bird a "Yaffol" may be, but I should suppose it to be some ravenous sort of creature, for when I was a hungry boy, and a big pudding was placed before me, I used to be told to "yaffle it up." So I conclude a Yaffol or Yaffle is a bird that eats. Isn't that logic ? No mention of Yaffol in "White's Selborne." BOB.

I don't know what a "Yaffol" may be, but I fancy the bird which your correspondent, J. C. Clarke, describes to be the Green Woodpecker, *Picus viridis*. It is very common in this neighbourhood, and is called by the Welsh "Caseg-y-ddryghin," literally translated into English, "The bad weather Mare," the weather-wise supposing that rain is not far distant when the woodpecker is particularly noisy. CYMRA.

Peat Charcoal.—In "replies to queries" respecting Hays's Stoves, you say that the Company will not sell less than one ton of peat charcoal to any customer. We think that this is calculated to mislead your correspondents, as it is our intention to supply the Peat Charcoal by the bushel, but only the best quality, and we have already ordered a quantity to be delivered in London, and as soon as we can form an idea of the time when we shall be in a position to supply it, we shall give notice thereof by advertisement in your magazine. ELSAM AND CO.

38, Upper Thames Street.

Replies to Queries.

Plants to Grow under the Drip of Trees.—J. B.—The following bear the drip of trees well, and are excellent for ornamental planting in positions where most other things would fail for want of more free exposure: *Berberis aquifolium*, *Berberis Asiatica*, *Berberis Japonica* ; *Buxus sempervirens*, and all its varieties except *suffruticosa*, *Buxus Clinchensis* ; *Ligustrum Japonicum*, *Ligustrum lucidum*, *Ligustrum sempervirens*, and all the varieties of the common privet ; *Rubus discolor*, *Rubus radula*, *Rubus cæsius fol. var.*, *Rubus fruticosus floro pleno*, and all the varieties of the common bramble ; *Taxus Canadensis*, *Taxus bacata fol. var.*, and all the varieties of the common yew ; *Hypericum elatior*, *Hypericum calycinum*, *Hypericum kalmianum* ; *Cornus sanguinea*, *Cornus mascula variegata*, *Cornus sempervirens* ; *Juniperus communis* ; *Hollies* ; all the varieties of the common Ivy, *Periwinkle*, and *Tussack grass*.

Climbers for a West Wall.—J. B.—Japan Honeysuckle, *Cotonæster microphylla*, *Magnolia grandiflora*, in sheltered localities. *Roses* : *Félicité Perpétuelle*, *Renoneule*, and any *Noisettes*, *Ecere-mocarpus scabra* (should be renewed when seven years old). *Jasminum nudiflorum* ; *Passiflora azurea* (in warm places). *Solanum jasminoides* (in warm positions ; must be close pruned till it blooms freely) ; *Ceanothus azureus* ; *Fuchsia Riccartoni* (in sheltered positions, but will not stand a severe winter) ; *Periploca greca*.

Liliums for pot culture.—A. Macfarlane will find the following well worth cultivation in pots: *Auratum*, *colchicum*, *exelsum*, *oximium*, *lanefolium* (all the varieties), *longiflorum*, *Philadelphicum*, *tennifolium*, *Thomsonianum*.

24 Pinks.—A. Macfarlane.—The following are a fine lot ; grow them well and you may show them anywhere : *Attraction*, * *Beautiful*, *Brilliant*, *Charles Waterton*, * *Delicata*, *Dr. Maclean*, *Ellenor*, *Ernest*, *Eugene*, *Invincible*, *John Ball*, *Lord Herbert*, * *Lizzie*, *Mrs. Maclean*, *Picturata*, * *Rev. G. Jeans*, *Scarlet Gem*, * *Titians*. * For the benefit of readers who want six good pinks, we have marked the six we should prefer with asterisks.

Tyros.—We can only suppose that the roots of the vines are too wet in winter and too cold in summer.

D. A. G. B.—You have no legal right to remove your rose-trees ; they belong to the freehold. 2. Rose-stocks budded this season may be removed now without killing them, but it will be safer to wait another fortnight. 3. Sow rose-seeds as soon as thoroughly ripe in any good loamy soil.

A. B.—You send too many, and we will not name any.

Sewage Farming at Edinburgh.—C. P. P.—The following are the figures which Mr. King's paper, read last year before the Society of Engineers, gives as a summary of the extent of meadows thus irrigated near Edinburgh, with the returns from each in 1860 :—

	Quantities.			Price per acre.			Total amounts.		
	A.	R.	P.	£	s.	d.	£	s.	d.
Craigintinny Meadows.									
Old Meadows	190	2	26½	29	2	10	5,556	6	8½
Engine do.	35	0	30½	16	0	0	563	0	0
Lochend Meadows.									
North Burn	8	0	0	40	0	0	320	0	0
Remainder of ditto	22	0	0	27	10	3	605	5	6
Italian Rye-grass	3	0	0	31	16	3	95	8	0
Grange Meadows.									
Lots 1 to 11	3	2	11½	35	10	0	127	1	4½
Lots 12 to 34	10	0	17½	17	11	1	177	0	8½
Lots 35 to 39	2	3	30	29	5	0	85	10	11½
Dalry Meadows.									
Part of Dalry	4	0	0	30	0	0	120	0	0
39 lots in other parts	21	0	0	22	11	7½	474	4	1½
Part East of Granton Branch	22	0	0	25	0	0	550	0	0
Reserved Lots, Dalry	5	0	0	40	0	0	200	0	0
Do. in Rose Bank	8	0	0	40	0	0	320	0	0
Quarry Holes Meadows.									
All in one lot	8	0	0	30	0	0	240	0	0
Bonnington Road Meadows.									
In different lots	4	0	0	24	0	0	96	0	0
Total	347	1	36½	27	8	6½	9,529	17	4½

Mr. King remarks that "In carrying out the foregoing summary it must not be understood as representing the exact amount of money made in each individual case ; it is merely the averages, carefully taken, and probably approximating very near to the fact. In order to ascertain how near the averages approximate, the exact amount of money made by the roupings of three different parts of the Craigintinny Meadows was taken—namely, the Sea Meadows, the Fillieside east of burn, and the Burniwads Meadows—which amounted together to £1940 6s. 4½d. ; and the average amounts of those three portions, as will be seen by the table, is £1941 19s. 1½d. According to this result it may fairly be presumed that the averages will not be far from the facts. It appears, from the aforesaid summary, that the total quantity of land at present under irrigation with the town sewage, is 347a. 1r. 36½p."

Rosery Basket Plants.—R. K., Paignton.—The heavy loam will suit roses admirably, for such as do not thrive on their own roots in it will do well on briers. The admixture of coal-ashes will not injure the soil, but are not calculated to do any particular good. The proper way to prepare the soil for the rose is to trench it thoroughly, breaking it up to a depth of two feet, and laying it up in ridges for a month ; then to dig it over again, and at the same time put on a heavy dressing of good manure. Plenty of time for all this to be done well, and the roses may be planted in February. If you want a design, probably the frontispiece to the "Rose Book" may afford a suggestion. Basket plants to flower in winter are not numerous. First in rank of importance we must name the *Tropæolums*.

G. B. P., Cottingham.—The primulas raised from Messrs. F. and A. Smith's strain are peculiar and novel. They measure rather more than an inch and a half across, are elegantly fringed, and notched on the edge, the centre is green ; this changes to greenish brown, and then passes into rich rose-pink all round. As a rule, green in a flower is objectionable ; but it is likely, we think, that this particular form of primula may be highly ornamental.

Stoves for Small Plant-houses.—Subscriber.—The break-down in the supply of Hays's stove is a calamity. When that appeared, we supposed a great difficulty, that of effectually and safely keeping the frost out of small houses, was completely solved. But here we are again in the thick of it. In the GARDENER'S MAGAZINE of August 12, 1861, we published an account of Musgrave's Slow Combustion Stove, which is an admirable contrivance for this purpose, and one we can again recommend. It is, however, too powerful for the smallest plant-house ; but a house 20 to 30 feet by 7 to 9 feet (say) would be well kept through the winter by means of one of these placed in the centre. Musgrave's stove is fed with small coke, and if properly managed will burn 12 to 16 hours without attention, diffusing while it burns a kindly and quite wholesome warmth. Those who wish for further information are referred to Messrs. Musgrave Brothers, High Street, Belfast.

Empty Garden.—S. A. K.—An empty garden in the South of Devonshire may be quickly altered in its appearance by planting trees and shrubs, which may be done now, and the sooner the better. In the kitchen garden you may sow early peas and beans, such as First Crop and Ringwood peas, and Mazagan and Long-pod beans. In the fruit garden you may plant currant and gooseberry trees, raspberry canes, strawberries, and hardy fruit-trees of all kinds. In the flower garden you may plant hardy herbaceous plants in any quantity, as you can obtain them and find room for them. As you take the Magazine, we will suggest that a careful perusal of the Calendar of Operations every week will keep you full of work, and if you order the "Garden Oracle" for 1868, you will secure a series of carefully prepared lists of the most beautiful hardy plants, such as will convert any empty garden into a paradise for a trifle, for even a paradise (here) must be paid for. In the "Oracle" too you will have a calendar quite different to that in the Magazine, and so perhaps your work will be double, and in gardening matters the more work the more joy.

Pruning Acacias, Heath, &c.—W. Green.—Plants of this kind are usually pruned after flowering ; in some cases, the growth that follows pruning is pinched back once or twice to increase the bushiness of the plants, care being taken to promote a thorough ripening of the wood to ensure a good bloom again. The bloom never need be lost except in the case of cutting down old plants to stumps, in which case one season's bloom must at least be lost, and the cultivator who cuts them down to stumps may consider himself lucky if he does not lose the plants entirely, especially if they are Cape heaths that he treats this way. Whatever your plants are let them flower first, then prune, and wait till they begin to grow before you replot them.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. Imp. avg. of 43 yrs.	Orchids that may be in bloom, i, Indian House; m, Mexican House; g, Greenhouse.	M D		
			rises.	sets.	rises.	sets.	rises.	sets.	rises.	sets.	Barometer.		Thermometer.					Rain	Growth
1867			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	m. x.	min.	m. x.	mn.	me.	°0	40.8	Dendrobium moniliforme, 1	Japan	1867
17	S	22nd Sunday after Trinity	7 23	4 9	10 10	p. m.	p. m.			30.23	30.07	49	22	35.5	°0	40.9	" majus, 1	"	17
18	M	Royal Victor Chrysanth. Ex., Old Ford Road	7 25	4 8	11 24	"	0 52	p. m.		29.83	29.79	52	30	41.0	°14	40.9	"	"	18
19	T	South Essex Chrysanthemum Show, Artillery	7 27	4 7	n. m.		1 23	"		29.96	29.83	54	23	38.5	°0	41.1	Calanthe Veitchii, 1	" Hybrid	19
20	W	[Hall, Stratford, 19th and 20th,	7 28	4 6	0 37	a. m.	1 52	"		30.14	29.96	45	19	32.0	°0	40.7	Oncidium Forbesii, 1	" Brazil	20
21	Th	East London Chrysanthemum Exhibition,	7 30	4 4	1 48	"	2 18	"		30.11	30.04	48	24	36.0	°0	41.0	Laelia albida superba, m	" Oahuca	21
22	F	[Vestry Hall, Bow, 21st and 22nd.	7 31	4 3	2 59	"	2 43	"		30.16	30.09	46	37	41.5	°04	41.6	Grammatophyllum speciosum, 1	" Java	22
23	S	Planet Saturn and the sun set together.	7 33	4 2	4 7	"	3 9	"		29.89	29.64	50	30	40.0	°01	41.7	" Ellisii, 1	" Madagas.	23

The Gardener's Magazine.

SATURDAY, NOVEMBER 16, 1867.

THE CHRYSANTHEMUM AS A CONSERVATORY FLOWER is not fully appreciated, though its grandeur is unquestioned, and in its season it has no competitor. With the exception of this noble autumnal flower, there is scarcely anything to be seen in the way of floral beauty at this time of year, for such things as we find in bloom are either past their best or not yet arrived at it. Take the Poinsettia for example, and it may safely be said that we do not need it for another month at least, though it may be supposed to be in perfection from the 1st of November onwards. One good reason, perhaps the sole reason, why the Chrysanthemum is regarded with less favour than it deserves, is that it flowers at a season when the wealthy are least in need of flowers. Certainly in great cities, where it is better cared for than in country places, there are few proprietors of large places at home to enjoy the splendour of the display which many an enthusiastic gardener produces year after year, as if devotion to a forlorn hope had some sort of charm about it. Nevertheless, though in great cities, where the Chrysanthemum is best understood, it finds less favour from the great, and is especially the flower of the humbler classes,—for in one case it is the gardener's especial pet, and in another the only flower the mechanic can hope to grow creditably,—yet at many country seats, where hunting and shooting keep a good company together until late in the year, this splendid subject ought to have much more attention than it obtains; for it is not only capable of affording a substitute for other flowers during six or eight weeks of the gloomiest period of the year, but it offers more variety than any other subject that can be obtained in flower at the same season. Let us just consider what flowers are available for November and December. Out of doors we may say there are none at all except these, and they last as long as weather allows them. Within doors the Poinsettia, the Camellia, the Thyracanthus, and a few heaths, make up the November garland; and if the Chinese primula be added, the catalogue is complete of subjects that contribute in any eminent degree to the production of a display. The Chrysanthemum literally supersedes all these things while it lasts, and we may consider it good for six weeks. As to variety, it is true we want brighter shades of red and crimson, and no one would object to a dash of heavenly blue amongst the colours; but we have superb shades of white, blush, yellow, and rose colour, and the grand outlines of the best specimen blooms afford a pleasure to appreciative eyes altogether distinct from that resulting from a rich display of colours. No one who has seen Chrysanthemums well done can remain indifferent to their beauties and their uses. We have lately seen at Mr. Salter's nursery, Mr. Forsyth's nursery, in the great conservatory at Buckingham Palace, where Mr. Wyness continues to cultivate his favourite flower with a skill and arduous scarcely matched elsewhere; in the garden of Mr. Crute, at Holloway; and in many other places,—collections of these flowers so well grown and so tastefully grouped, that we are compelled to marvel that in so many places where a display at this season would be appropriate the Chrysanthemum meets with but small attention. There is, indeed, in many minds a prejudice against it—perhaps because it has always been a middle-class subject, not costing thousands of pounds to obtain a few plants, or requiring elaborate treatment in its cultivation. That there are defects in the flower itself cannot be denied; perhaps we may find defects in the customary modes of displaying them; perhaps also there may be something wanting to render exhibitions of Chrysanthemums largely attractive and satisfactory; and if these several defects are removed, we may hope to see the Chrysanthemum rise rapidly in the estimation of persons possessed of means and taste.

Let us look to the flower itself. We find in its varieties pure white, delicate shades of blush and pink, and the purest tones of yellow. There is no pure red, no pure crimson, no true purple; a certain dullness of tone and impurity of colour characterizes every flower that is not white or yellow. Nevertheless many of these impure colours are agreeable, and when skilfully harmonized effective; for example, if we see a good

specimen plant of Alfred Salter contrasted by association with one of the good dark kinds, we forget the defect of colour in our admiration of a beautiful object. There is no pink chrysanthemum of so bright a tint as Christine geranium; no red chrysanthemum so brilliant as Bob Ridley dahlia; no crimson chrysanthemum equal in colour to General Jacqueminot rose. If ever comparisons were odious, we suspect these are, and therefore we desist. But we may search far and wide and not find a yellow flower to surpass in purity and depth of colour a fine Jardin des Plantes or Chevalier Damage; and if we are to make comparisons in a large manner, we shall have to take into account the time at which our favourite arrives at perfection, when there are no other flowers with which to compare it, and this consideration compels us to crown it Queen of the Autumn, and to recognize it as reigning alone in fullest splendour when the last rose of summer is faded and gone. Nevertheless, as critics we are bound to lament the absence of certain shades of colour commonly met with amongst flowers in this useful subject; and as we have seen immense improvement effected in the varieties, we will hope that cross-breeding and careful selecting may result at last in the production of the pure tints of red, crimson, and purple, with their intermediates, which are as yet so conspicuous by their absence.

In the grouping of Chrysanthemums for display, the greatest difficulty is to hide their legs. When grown as round-headed dwarf bushes, as Mr. Forsyth manages them so admirably, we should prefer not to hide any portion of the plant; even the pot ceases to be inelegant, the symmetry of the whole from head to foot is so complete. This is the form best adapted certainly for the embellishment of the conservatory, and the one that gentlemen's gardeners should mostly give their minds to. But the tall plants, grown for the supply of a few of the very finest flowers, are scarcely so elegant that they may be obtruded upon the view in their entirety without inspiring unkind criticism. We have enjoyed the magnificent flowers which Mr. Wyness has grown this season at Buckingham Palace much more because the gaunt plants are majestically with masses of foliage, out of which the flowers rise majestically on stems varying from six to twelve feet high. Mr. Salter manages to make them hide each other's legs by packing them close on the back stage; but the beauty of his display is very much enhanced by the free association with the Chrysanthemums of plants that attract attention by the distinctive character of their foliage. We are the more anxious to impress upon our friends the necessity of tasteful display after they have given the flower all their skill, because there is a notion prevalent amongst Chrysanthemum growers, that as good wine needs no bush, so good examples of their favourite need no assistance from other subjects when grouped for the purposes of decoration, which is a mistake.

The prejudice against deriving assistance from other plants has prevented the exhibitions of this flower from attaining the popularity they deserve. On this point we have spoken frequently, and not altogether in vain. The Brixton Hill Chrysanthemum Society first set the example of associating fruits and fine foliage plants with the *pièce de résistance*, and the exhibitions at Brixton Hill have always been the most tasteful, and in general management and effect models for all the other London societies. The first Guildhall exhibition afforded a more comprehensive and satisfactory example of the appropriateness of fruit and foliage as accompaniments to Chrysanthemums, and we have much pleasure in recording that the cultivators of Stoke Newington joined in the broad march of improvement, and admitted foliage plants, so that there was a goodly breadth of green to bring out the colours of the flowers. We would urge upon all who wish to see the Chrysanthemum take the high place it is entitled to in the floral world, to pay attention to its defects as well as to its virtues. If it is worth growing well, it is worth showing well; and if the general public are invited to the shows, they should be made as beautiful and complete as is possible, by the association with the flowers of other subjects adapted to give variety and dignity to the *tout ensemble*.

A YOUTH, appropriately named Franklin, and aged thirteen years, is said by the *Mechanic's Magazine* to have discovered a mode of causing a vacuum without condensation, which will save half the fuel hitherto used in working steam-engines.

THE TRADE ARE CAUTIONED not to part with goods to strangers without first obtaining payment, or some satisfactory proof that the purchasers are not intending purloiners. Several cases have been brought under our notice of late in which swindlers have obtained possession of goods in a manner so easy, that we are tempted to suppose that some members of the nursery trade rather enjoy the process of being fleeced. But as there may be a few of our trade-readers who prefer the safe side, we give the word of caution that an organized system is being industriously and cleverly carried out, and the victims are already numerous.

THERE WILL BE NO EXHIBITION OF FLOWERS IN THE GUILDHALL OF THE CITY OF LONDON THIS YEAR. The committee of the United Horticultural Society applied several weeks since to the Corporation for a grant of the hall, and did not succeed in obtaining it. It appears highly probable that the subscribers to the society will have nothing at all for their subscriptions in 1867. This perhaps will not trouble the committee, but it is scarcely likely that subscriptions will multiply, or that the society will recover in any degree from the almost total wreck it suffered when the president steered it into the midst of the tent-bedsteads and pink calico, and threw all its rights overboard to keep the thing afloat, when it need not have been in danger. If the secretary had been awake and mindful of his duty, intending exhibitors would have been informed of the failure of the appeal to the Corporation in sufficient time to render these remarks unnecessary. But we cannot hear of exhibitors having actually cut their flowers for the show *one full week after it was known the hall would not be granted*, without giving publicity to the fact that the Corporation has not granted the hall, and to our opinion that president and secretary are conspicuously incompetent persons.

It is said that a "vegetable gas" has been invented which gives a brilliant light, has no offensive smell, and can be generated in any ordinary kitchen range.

THE *Scotsman* of the 4th inst. reports, as an instance of the mildness of the weather, that a gentleman residing in the neighbourhood of Edinburgh brought to the office of that journal, on Saturday last, a bouquet of standard roses, the second crop of the season, and a specimen of ripe strawberries, all grown in the open air.

EXHIBITIONS OF CHRYSANTHEMUMS, in addition to those announced last week, will take place at the Royal Victor, Old Ford Road, Victoria Park, on Monday and Tuesday next, November 18th and 19th; and at the Marlborough Arms, South Street, Camberwell, on the 25th, 26th, and 27th.

M. GAY'S HERBARIUM.—A valuable collection of plants is now offered for sale. The collection of the Swiss botanist, the late M. Gay, is to be sold, and is said to be on view at the Jardin des Plantes, Paris. The price is fixed at 30,000 francs. The herbarium embraces the whole European flora. It contains 90,000 specimens, each specimen bearing a description and analysis. These statements are made on the authority of Dr. Henri de Saussure.

AUCTION SALES OF PLANTS have been sufficiently numerous of late to prove discouraging in respect of prices, yet useful goods have realized good prices; and if we are to judge of the state of trade by this particular test, we must own that it affords a cheering prospect. The mere sweepings of nurseries will, of course, never realize their actual values, and if sold under the hammer must go for next to naught. But there are no evidences at all discernible of a scarcity of money or a lack of speculative spirit in the prices obtained at auction sales for serviceable nursery stock of any kind. The sale at Mr. Hollamby's, Tunbridge Wells, by Messrs. Protheroe and Morris, afforded an example of the plentifulness of buyers, and their readiness to bid with spirit—the result in part, no doubt, of the extensive building operations in progress in the district. As Mr. M'Nab has been lately advocating the pruning of the Cedrus deodora, we were interested in the sale of a batch of these trees that had been systematically pruned, and which readily brought far larger prices than trees of the same size that had never had the benefit of such treatment. These pruned deodars were most elegant in outlines and proportions, richly furnished, and of a brighter tone of colour than the unpruned trees. At the sale, by the same firm, at Mr. Jackson's, Kingston, there was a large attendance, and the prices obtained were far higher than could be expected were trade in a depressed condition. Whatever, therefore, may be said in other departments of industry in respect of the badness of the times, recent nursery sales afford abundant reason for confidence and cheerfulness. While on this subject we direct attention to the sale announced for Monday next and following days, at the Goldworth Nurseries, Woking, in consequence of the death of Mr. Robert Donald. This will comprise some large lots of useful trees, and several extensive special collections of great value. For the particulars we refer to our advertising columns, but the importance of the event demands this brief preliminary notice of it.

MR. JAMES CUTHILL, so well known as a successful cultivator of strawberries, cucumbers, mushrooms, &c., for the London markets, died at his residence at Denmark Hill, Camberwell, on the 5th instant, in the 62nd year of his age. Mr. Cuthill contributed most valuable material to the literature of horticulture; he was the author of a celebrated series of papers on "Market-Gardening round London," and of some treatises on the cultivation of the cucumber, mushroom, &c. He occasionally communicated with the horticultural periodicals, and the pages of the *Gardener's Magazine* have been frequently enriched by the aid of his pen. To say that it is with regret we record his demise, is to use a familiar phrase with much more meaning than it is the wont to assign to it.

ESPARTO GRASS.—*Atocha*, or Spanish grass, better known in England as esparto, and to botanists as *Stipa spicata*, has been lately brought into notice by *The Stationer* as adapted for manufacturing purposes. This grass when gathered or plucked from the parent root, merely needs drying in the sun to become available, after certain preparations, for many useful purposes, for which it is particularly adaptable from its strong fibrous texture. It is a spontaneous, natural, and uncultivated product, but is confined to certain soils and localities, beyond which it is rarely found.

In its native localities it has hitherto been so abundant that after amply supplying the wants of the neighbouring population, as regards ropes, baskets, and matting, it has furnished a ready and highly combustible fuel for the cottage fire and the baker's oven, and has even been used in the smelting furnaces through the mineral districts of the south of Spain, the privileged region of its luxuriant growth.

Since the discovery of the important use of esparto, which is by no means confined to paper-making, but now extends to articles of apparel and other uses, the material is eagerly sought for in all the southern provinces of Spain and Algeria, especially those on the seaboard, as its carriage

is very expensive in a country so sadly deficient in roads. At first, indeed, the esparto growing near the coast was alone shipped, but as the price advanced, and the demand increased, districts thirty or forty miles in the interior were ransacked, though at a very heavy cost for carriage. The provinces from which the greatest quantity of this plant is shipped are those of Almeria and Murcia, both of which are congenial to its growth, and where it is found in abundance. It is, however, found in all the southern provinces of Spain, and is also plentiful in some parts of the opposite coasts of Africa, from whence it has been shipped to England from the port of Oran by Mr. Edward Lloyd, who has established depôts there, and also at Arzew, both French ports on the African coast. The esparto is trussed at these depôts, as we pack hay, by hydraulic pressure, and the bulk is thereby greatly reduced. It is calculated on good authority that about 200,000 tons of atocha have been imported into England within the last five years.

The general price of the material delivered on board may be taken at £3 per ton. But the business is far too profitable to be carried on legitimately, as much coarse or inferior grass is now being shipped, and of an undue weight, in consequence of the grass not being properly dried before being packed. The loss of weight caused by this is a serious drawback to the purchasers; but as esparto must be had, all these circumstances seem to be tolerated in the trade. As the grass grows on waste lands—sometimes the property of individuals, at others of the municipality of the neighbouring towns or villages—the crop of each year is bought by merchants or speculators, who employ the peasants to collect the crop and convey it, after being dried, to the nearest port for shipment. The commission of 5 per cent., allowed by purchasers in England, yields a large profit to all who embark with common prudence in the business, which is carried on with great eagerness and competition. Fortunes have been realised by individuals who were proprietors of these waste lands, consequent on the enormous rise in the value of their property, and much has also been made by speculators who at a proper time purchased the lands at very insignificant prices.

Considering the suddenness with which esparto came into use, the extraordinary demand which prevails for the article, and the other manufacturing purposes for which it is found capable, it is fair to suppose that it will in a few years take its place with cotton, hemp, and wool, as one of the staple and essential bases of manufacturing industry. This is the more extraordinary when it is considered that esparto is merely a weed of natural growth, which requires neither care nor cultivation, and grows on very poor soil.

BEDDING GERANIUMS.—No. XLV.

I read in Horatius (Lib. i. Ep. 18, l. 82)—

*Duleis inexpertis cultura potentis amici;
Expertus metuit. Tu, dum tua navis in alto est,
Hoc age, ne mutata retrorsum te ferat aura,—*

which in plain English means "Don't go to work haphazard in the breeding of geraniums." If the wind blow from the east and you are destined for the west, trim your sails and go on; if you wait till to-morrow, the wind may blow the other way. And if you don't know how to trim the sail, learn by any and every means, and be not ashamed to ask, if the knowledge can be got no other way. At line 92 he says—

*Inter cuncta leges, et per contabere doctos,
Quâ ratione queas traducere lenitor ævum:
Ne te semper inops agitet vœxque cupido,
Ne pavor, et verum medioeriter utillum spes;
Virtutem doctrina parat, Natura ne donet,
Quid minuat curas: quid te tibi reddat amicum,
Quid pure tranquillet; honos an dulce iucllum,
An secretum iter, et fallentis semita vite,—*

which may be literally translated, "If you know not how to proceed in the breeding of geraniums, consult the GARDENER'S MAGAZINE, and there you may find also the elixir of life, the secret of happiness, and the talisman of fortune." There are people who wonder I should read such a heathen as Horace; but how can I help it when he goes so directly into our subject, and with an inspiration worthy of the noble cause? But, with these advices and apothegms to guide us, let us look at a few of the questions that have agitated our minds this long time past; and first as to the treatment of the plant as an annual, which you will remember an uninformed and benighted scribe, supposed by some half-dozen deluded followers to know something, had the temerity to pronounce moonshine. I have told you how to flower them in 100 days certain from the seed; how to do it in 150 days without any difficulty or special care; and this year's work at Stoke Newington must make an end of the argument, and after this I shall say no more about it. On the 18th of March a few seeds were sown in a common seed-pan, and the pan was put on a shelf in the Paxtonian. It never had the help of artificial heat or any special care; it was treated, in fact, just as any one would treat a pan of asters or stocks, with the help only of a common frame. I shall not detain you to say how the plants were dealt with; I know that several weeks elapsed ere one appeared; but let it suffice that they are now a very stoecky stubby lot, housed away safely for the winter, and a considerable proportion of them are blooming freely. The first flowers appeared in the batch on the 15th of August, which affords a new datum towards the general history. In a cold season, with no aid from fire-heat, by means of glass alone (and of course sunshine), seedling geraniums may be flowered in a period of 151 days from the date of sowing the seed. Of course the way of doing it has some relation with the result. The 18th of March may be

called "the nick of time," because then the sun-heat is fast increasing, and there is a long season for growth after the seed has started; to sow later would shorten the growing season, to sow earlier (unless with the aid of heat) would be to lengthen the time, and perhaps ensure the loss of seed or plants by cold, damp, and the other ills that tender vegetation is heir to. Our vegetable pot might, under such treatment as the batch of 1867 were subjected to, become an illustration of the 10th ode of Horace's third book, and in the interests (purely) of vegetable physiology we are bound to quote the first dozen lines—

*Extremum Tanaim si biberes, Lyce,
Sicvo mepta vivo, me tamen aspera
Porrectum ante fores objicere incolis
Ploarces Aquilonibus.
Audis quo strepitu janua, quo nemus
Inter pulchra satum tecta remugiat
Ventis, et positas ut glaciæ nives
Puro minime Jupiter ?
Ingratum Veneri pone superbiam;
Ne currente retro fœuis eat rotâ
Non te Penelopen difficilem prociis
Tyrrhenus genuit parens.*

Now we have to deal with a long string of practical questions, such especially as the influence of pollen and the right way of selecting seed parents. The tricolors absorb so much attention, that one would suppose the great problem of enlarging the top petals, on which we have laboured so steadily at Stoke Newington, had but a slender hold upon the minds of cultivators. But the fancy for leaves will decline in time, and the flowers will again have the attention they deserve. I took particular notice, in a series of carefully-conducted experiments, and I found that, as a rule, no matter what were the parents chosen, the short stamens tended to narrow petals and dwarf plants, and the long stamens to broad petals and robust plants. It is to the influence of long stamens that we are indebted for all such as *Dr. Lindley, Andrew Marvel, Leonidas, Beauty of Suresne, M. Galland*, and other of the grandest of the exhibition varieties, all of which are more or less robust in character, and less inclined to branch about and behave as bedding plants, than those with narrow petals. It is easier to speculate on what may be done than it is to carry one's speculations into effect. As the French say, "*L'imagination galope, le jugement ne va que le pas.*" Nevertheless speculation is the first step towards success in cross-breeding, and the best speculation is that which is based on the largest knowledge of facts. One of the best guiding principles in selecting parents is derived from the fact that a vigorous blood, no matter of what sort, will influence several generations through one contact, as we may observe in the pervading characters of what is called "a strain," where perhaps the originator of the strain has started with only one distinct and powerful-habited plant, possessing suitable qualities, and the characters of that have pervaded more or less a large series of generations. A strain of broad-petalled varieties may thus be obtained by breeding in the first instance from one or two of the best of the broad-petalled kinds, and after the first start the original parents may be thrown away, and pollen may be taken from quite inferior kinds for the sake of colour, yet the seedlings will show the influence of the broad-petalled progenitor from which they have descended, and the characters of ancestry will reappear after several generations which have not displayed a single trace of them. Just as Mr. Tegetmeyer discourses eloquently and ably of "atavism" in the poultry yard, so we may talk with equal seriousness, if with weaker eloquence, upon the persistency of a taint of peculiar blood in the generations of plants, the peculiarities of colour and form appearing again and again in varieties that are many removes from the parents that are more or less reproduced in them. It is owing to this persistency of blood characteristics that particular breeders come to have peculiar strains. A certain style of flower or leaf has taken their fancy, they have bred from it, and, once in the possession of a race thereby, they find that many diverse styles may be introduced into the family, and yet certain of its original characteristics will remain, though varied by the various introductions. Colour is certainly more persistent as a transmitted quality than form. Hence it is that our correspondent W. (page 464, October 26th) finds that seedlings resulting from a determinate cross produce flowers which for the most part resemble one of the parents, rather than presenting a compound of their respective tints. I should expect always from seedlings derived from Christine in any way, whether as a father or a mother, about nine-tenths of pink flowers, no matter what the other parent, so powerful is this variety as a parent to transmit its colour to its progeny. Yet colours are blended by crossing; were it otherwise there would be but little interest in the proceeding. We

can prove the origin of several of our rich red and crimson varieties to be the actual admixture of the colours of the two parents; just as mulattos or sallow yellowish-complexioned individuals of the human race are commonly and correctly accounted the results of mingled white and black blood. The proportion of the respective progenital elements in crooles can be tolerably well predicated by experienced ethnologists, but there is always a liability to error in such attempted predications, by the occasional reappearance of the character of an ancestor after several generations free from any intermingling of such blood. Dr. Denny can point to several decided examples of the intermingling of the colours of the flowers, the registry of parentage being about as infallible as any genealogy can be. There is in Dr. Denny's lot at this moment a superb truss of flowers on a plant the parents of which are Mrs. Pollock and Rose Rondatler, the colour of the flowers being exactly intermediate between the two. It might almost be said, that unless the colours could be combined there would be no advantage and no pleasure in cross-breeding for flowers. But they can be combined with at least quite as much certainty as the colours of the leaves. I crossed a lot of whites with pollen from pink and scarlet varieties, and got a whole batch of painted flowers amounting to about half the group, the remainder being white, pink, or red selfs of various shades. In some of the purest whites of this lot, the effect of the cross could be sometimes seen in a tinge of colour at the edges of the petals or round the eye, forming a ring; and these indications were usually brought out by strong sunshine or cold, suggesting that the colours of both parents were there, but in ordinary circumstances one of the two colours was latent. Here is a sort of justification in the laws of the vegetable kingdom of that famous law maxim, on which our legalized system of inheritance is founded, *Jus sanguinis, quod in legitimis, successioneibus spectatur, ipso nativitate tempore quasitum est.* It follows that the breeder can shape his plans for the purpose he has in view, and is not a sport for the winds of chance, and ought therefore never to talk of a chance sport in connexion with the results of his operations. Indeed, it is quite a question if the term "sport," as we understand and use it, has any instructive use at all; for what seems to be the child of chance is always doubtless the expression of congenital causes, and the so-called sport is but the proof of some peculiarity of ancestors.

In the breeding for leaves, it appears to be a rule that green cotyledons are evidence of the incapacity of the plant to produce variegated leaves; and on the other hand, if the cotyledons are variegated, we may confidently expect variegated shoots some time or other, even though the plant may grow beyond the cotyledons without a particle of variegation for months, and even for years. If the cotyledons are whitish, the subsequent variegation will be more diffuse and profuse than if the variegation be yellow, and occasionally plants that began life with white or whitish cotyledons will, after producing abundance of healthy green leaves, become wholly white, and then perish. In emerging from the seed, the plant gives some indications of what complexion it will have hereafter, though we have not got so far in our knowledge as to be able to predicate whether the future variegation will be good or bad. For the present, we may learn as much, and doubtless as usefully from failures as from successes, and in breeding geraniums fulfil for ourselves the truth of the old French saw, *La bonne fortune et la mauvaise sont nécessaires à l'homme, pour le rendre habile*,—which means that if you give a cabman a sovereign instead of a shilling, you will learn to look at your money next time, and a small mistake may save you from making a large one.

The rules generally accepted by the old florists appear to be not in the least disturbed by recent experiments and inquiries; but, as they did not breed for leaves, our new experiences properly open another chapter in addition to all they knew and taught. It is abundantly evident, as of old, that *form* is most directly conveyed through the maternal parentage, and *colour* through the paternal. In breeding for leaves, the first necessity is a seed parent with leaves of a fine outline and texture, whether zoned or green is another matter, and must depend upon the kind of leaf required in the offspring. But a round, stout, flat, refined leaf is the first necessity, and if tricolors are desired, it is well to select a seed parent with a bold dark zone. For the pollen parent a brightly-coloured leaf of some sort is desirable: if good in form all the better, but colour is the grand requisite. As for the rest, it is all matter of observation. Many of our most esteemed varieties are bad parents; some that are of little value are good parents. Thus the breeder is encouraged to observe and reflect, and, acting on certain ascertained and definite data, he may vary his operations, and gain knowledge of minute details to superadd to the wisdom that is already written down. Let us ever bear in mind that the attribution of anything to chance is a virtual closing of the eyes to truth, and while our eyes are open we must search for

laws and principles, and consider accidents and chances as the expressions of laws unexplained. *Substantia prior et dignior est accidente.*

S. H.

NOTES ON BEDDERS.

It has occurred to me that a few words from an amateur who has seen nearly all, and grown a large number, of the "sensation" and other bedders which have been introduced or brought into notice during the last few years, and has consequently "bought" his experience, and that rather dearly, may be of service to other amateurs who are now arranging their plans for next year's display, and who may not have had opportunities of visiting the gardens and nurseries, and so judging for themselves. I will confine my remarks in this paper chiefly to those plants which I know to be good, and recommend your readers to give a trial.

Arabis alpina variegata, or "Golden Arabis."—An exceedingly pretty, free-growing, variegated, dwarf plant, suitable for edging, forming angles, stripes, or squares in mosaic work, or growing on a rockery. It is easily propagated by division either in the autumn or spring, and is quite hardy. It forms a compact and most beautiful edging, next to grass, and in the early part of the year its pretty white blooms render it extremely interesting. It has been very much admired during the past season by all who have seen it. I cannot too strongly recommend it.

Arabis lucida variegata.—This too is remarkably beautiful, and in habit very similar to the foregoing, and where it can be grown is not easily surpassed; but I have as yet failed to get it to do well in my garden: the only place I have seen it to perfection was at Kew, in the summer of '66. It is rather difficult to propagate, at least I have so found it, but it is worthy of a trial.

Amaranthus melancholicus ruber.—This, as usual, has been grand during the whole of the summer, and is, after all, far better and safer than *Achyranthus Verschaffeltii* or *Coleus Verschaffeltii*. It should be carefully grown in spring, and not planted out before the first week in June: with me it has grown in strength as robust as a cabbage, and the colouring of the foliage (dark shaded carmine) has up to the beginning of October been superb.

Achyranthus Verschaffeltii.—This is the third year it has been grown by me, and, so that it may have a fair trial, it has been planted in various situations. For those who require their parterre to look gay in August and September, it is certainly a very useful and pretty plant; but I have finally discarded it, for the simple reason that during June and July and the early part of August it has every year been wretchedly poor in every respect. At the end of the season it is unquestionably fine—even now (2nd Nov.) it is better than it has been the whole of the season, and has not suffered in the least from the slight frosts we have had.

Ageratum Prince Alfred.—A dwarf variety with rather pale blue flowers: it is exceedingly pretty, and suitable for small beds. It has bloomed very freely, and is an acquisition.

Calceolaria aurea floribunda.—I have introduced this to enable me to say a word in its favour, in contravention to what has been urged by so many correspondents. During this and previous years, with me, it has been a mass of bloom for many months, and even now is looking well—owing, I believe, to my having adopted the plan recommended by my friend the conductor of this Magazine, viz.—to deeply trench and well manure the bed before planting; this I did, and the plants, which were by no means in robust health, were pegged down two or three times during the early part of the season. This caused the side shoots to throw well up and bloom most abundantly. Last year my calceolarias grew very freely (Mr. Hibberd told me they were the best he had seen), but oddly enough they ceased blooming early in the season. I strike mine in a "cold frame," and early in the spring pot them off, so that by the time they are required for bedding out they turn out with good balls. I consider it most essential not to permit the soil to get dry in the early part of the year. Dryness at the root I believe to be the cause of the disease so much complained of.

Polemonium caruleum variegatum.—This is extremely pretty, and will doubtless be grand in a ribbon border. My stock is as yet small, but I am so much pleased with its appearance that I intend to huddle it out somewhat largely in '68, and hope to be able next autumn to give you the result of my experience.

Tagesia signata pumila.—When true, a most beautiful dwarf and free-flowering bedder. The bloom is bright yellow, and the foliage very neat and pretty. It has bloomed very freely with me the whole of the season, and is now full of flower. To those who fail in growing calceolarias I strongly recommend a trial of it, feeling sure they cannot fail to be pleased with the result. There are two distinct forms of this in cultivation: one grows two feet high, flowers sparingly, and looks weedy; the other grows one foot (or less) high, blooms profusely, and makes a brilliant effect.

Viola cornuta.—To those who have not yet grown this much lauded plant, and who contemplate purchasing it, I would simply give the advice offered by *Punch*, "to those about to marry," viz., "Don't." My stock was purchased from Messrs. E. G. Henderson and Co., and is, I believe, the same variety as grown by Mr. Wills. With me it grew freely and bloomed magnificently up to the end of July. The weather then became warm and dry, and, to my great disappointment and disgust (because it entirely spoiled the effect of my beds), "it went off." The blooms curled and the plants altogether looked as miserable as they well could do, dying in patches. When the wet weather set in, as it did for a week or two at the beginning of August, it somewhat recovered, but eventually resumed its wretched appearance and became a "total wreck." In another part of the garden, where it formed an edging to a bed of calceolaria, it failed in a precisely similar manner. I should add, the beds were deeply trenched and well dressed in the spring, and in one case the situation was most suitable, the bed being partially shaded. I have now purchased a stock of "Lutea," and you shall hear the result in "due course." "Cornuta" will no doubt do well in a damp and shaded situation, but even there the blooms are too "flimsy," and the colour not sufficiently strong to make an effective bed.

Dactylis glomerata variegata.—"The gem of the season,"—at least it is my first season of growing it. It is a most beautiful dwarf variegated grass, hardy, and easily propagated by division. I shall not readily forget the first night I had it at Messrs. Henderson's, Wellington Road Nurseries; it literally charmed me, and my first question was, "How much for the lot?" The reply, however, cooled my ardour, but it did not prevent my carrying off sufficient to plant several beds; and the result has fully borne out the description so frequently given of it by our able conductor. I know of nothing so really beautiful and graceful for bedding purposes; a line in a ribbon border would be magnificent, and could not fail to meet the approval even

of the most fastidious of amateurs. Thanks to a good friend, I have recently received about two dozen "clumps" of it, which has been torn asunder, and I now boast of a stock of nearly three thousand plants, in thumb pots, with which I mean to make lines of light next season. I cannot too strongly recommend my amateur readers to get a stock and give it a trial; but a word of caution is here necessary—there are two varieties of *Dactylis glomerata variegata*. I happened in the first place to purchase of a local nurseryman the spurious one, which is in every respect as bad and worthless as the true variety is good and valuable. I observe Messrs. Henderson advertise two varieties of this grass—one under the same title as the heading of this paragraph, and the other as "Elegantissima;" the latter is what I possess. Are there three varieties? The foliage of the plants recently sent to me is not so white as "Elegantissima" but this I attribute to its having been grown in heavier soil than mine, and probably in the shade. Neither of the two I have is like that which I first purchased in the neighbourhood.

Variegated Geranium Flower of Spring.—This is indeed a gem. The foliage is good in form, and the bloom of an exceedingly pleasing bright cerise colour. This and Daybreak I consider far superior to any other variety. Silver Chain is well spoken of, and is certainly good, but I have not yet given it a fair trial.

Geranium Variegated Nosegay.—When in bloom this is very pretty and distinct. A line of it here in a ribbon border has been very much admired this season. I do not like either Queen of Queens or Stella Variegata; in my opinion, the preceding are very far superior in every respect.

Geranium Cloth-of-Gold.—This has not done well with me. I have tried both old and young plants, but the result is by no means satisfactory. I think it will eventually have to be discarded for Golden Chain, which is certainly the better variety of the two, and grows much more freely.

Echeveria secunda glauca.—One of Mr. Gibson's (Battersea Park) pots, and truly beautiful it is, either as an edging for beds in summer or for decoration of the conservatory in the winter. I first saw it in the sub-tropical garden at Battersea, and have at length succeeded in getting a fine stock of it. It is a most charming plant, and for gardens where bedding out is "cherished" it will be found to be most valuable.

Chrysanthemum (variegated) Sensation.—This is one of the few really good bedders recently sent out. It has done remarkably well here as an edging, kept pegged down and pinched to regulate the height. I can only say to those to whom it is as yet unknown, Purchase at once, propagate it, and tell me next autumn what you think of my recommendation.

Pyrethrum Golden Feather.—This has retained its colour well with me during the summer, and has the advantage of being easily propagated and kept through the winter. My stock is, however, small, and I am unable to speak positively as to its value as a bedder; but if it does as well next summer as it has this, I shall certainly retain it as "one of the good things" not to be lost. It is useful as a substitute for Cloth-of-Gold or Golden Chain Geraniums where these do not flourish, and is moreover cheaper than geraniums, and easier kept and increased.

I would add, in closing these remarks, that my garden is "hot and dry," and soil light; notwithstanding my plants, with scarcely an exception, have done remarkably well, have grown and bloomed freely, equal in every respect to the best gardens I have seen this year in various parts of the country; and it may surprise your readers when I tell them that *not a plant has been watered the whole season*. I believe that many failures result from the use of the water-pot; it causes the plants to root on the surface instead of deep in the soil, so that they must either be constantly watered in dry weather almost daily, or they fail altogether. I have tried both systems, and my plan now is to depend on nature for moisture.

Should you consider my remarks of any service (it is my first attempt), I shall be happy occasionally to give the result of my experience both in the cultivation of bedders and other plants.

The Laurels, Taunton.

J. B. SAUNDERS.

P.S. On the night of Saturday, the 2nd inst., we had our first severe frost, which has entirely destroyed the scarlet-runners and dahlias, the latter of which were in fine bloom up to that time.

MR. A. FORSYTH'S EXHIBITION OF CHRYSANTHEMUMS.

The Brunswick Nursery, Stoke Newington, has been for some time past extremely gay with specimen chrysanthemums, in the cultivation of which Mr. A. Forsyth stands first of all the men of England, and has no doubt taken more prizes for these things than any other person living. Every man has a forte, said Artemus Ward, and it's not every man's forte to take the census. But it is Mr. Forsyth's forte to grow chrysanthemums, and any of our readers who are unfamiliar with the nature of the display which a large collection of well-grown plants is capable of producing, are advised to find their way to Mr. Forsyth's at once, and see the exhibition while it is still fresh and beautiful. The principal display is in the neat small show-house adjoining the high road, and it is better perhaps that the house is small, for the splendour of the effect may induce many private cultivators to do justice to this noble flower, who might consider it beyond their means and skill, were the demonstration made in a great and costly structure, and accompanied with elaborate accessories. This exhibition is in fact exactly what thousands of ladies and gentlemen of moderate means might have for their own private enjoyment. The requisites are not costly plants, or costly plant houses, but a little skill, care, and patience in the production of the specimens, and a bit of shelter for their flowering. A plant costing sixpence or a shilling may be grown to enormous dimensions and become a mountain of gorgeous flowers within a year, and then only requires to be kept a few weeks under glass to complete its flowering, and gratify its owner with a feast of beauty. The show-house has a large central stage, on which are placed a number of the rougher specimens, rather closely crowded, each showing some half-dozen splendid flowers. There are low stages all round filled with superbly-grown convex specimens, in perfect training and in gorgeous richness of bloom. In the other houses we find plenty of bush, pyramid, and standard poupones. As usual, the Codo Nulli series justify their collective designation; they are exceedingly rich in flowers, and extremely neat and beautifully finished. Bob is good, but late; La Vogue and White Trevemum are favourites for the abundance of their flowers, and their admirable adaptability to form neat dense bushes and compact-headed standards.

The large-flowering incurved varieties will always claim and obtain attention. Our first inquiry here is in respect of novelties, and we succeed in discovering a few. We must dispose of these at once, and gladly direct the attention of our readers to them.

Dr. Sharp (Forsyth), a fine relaxed flower of the largest size, rather

flat, but otherwise symmetrical, and nicely finished; colour pure crimson, the growth short-jointed and leafy. A valuable addition to the dark-coloured varieties, and rather early to flower.

Mrs. Sharp (Forsyth), a fine incurved show flower of large size and perfect finish, the petals (florets) broad, stout, and smooth, the colour rich pinkish rose, with bright silvery turnover; a highly-finished and attractive flower.

Mrs. George Rundell (Forsyth), a fine incurved flower of the most perfect form and stout lasting substance; colour pure white, changing with age to a beautiful rosy lilac on the outside petals, and hence up to a certain point improving with age; when young and fresh, this is quite an advance on *Vesta*, when aged it is equal to any of the shaded whites.

In the general collection there are fine examples of *Formosum*, *Prince of Wales*, a useful dark variety; *General Hardinge*, *Lucidum*, *Little Harry*, one of the very best in existence; *Julia Lagravere*, a grand dark flower, rather late; *Gloria Mundi*, a good incurved yellow; *Jardin des Plantes*, the best incurved yellow hitherto; *Yellow Beverley*, very fine in form and finish; *John Salter*, a grand show flower, worthy of its name; *Sir Stafford Carey*, a curious but useful flower; *Rev. Joshua Dix*, a splendid orange-red flower; *Lady Tulford*, rich rosy lilac with silvery turnover; *Duchess of Buckingham*, pure white, finely incurved; *Prince Alfred*, a grand variety of a rich rosy crimson colour, and unsurpassed, when well grown, for exhibition purposes; *Princess of Wales*, pearly white with a soft tinge of rosy lilac which deepens with age, most superb and unequalled in its colour.

The collection of pompones is extensive, and the plants are admirably grown. The visitor will be sure to be attracted by the superior beauties of such varieties as *Aigle d'Or*, a splendid yellow; *General Canrobert*, yellow; *Canary Bird*, bright yellow; *Durand*, rosy carmine; *Florence*, dark cherry red, fine; *La Vogue*, bright gold; *Justine Tessier*, sulphur white; *Madame E. Donage*, a fine white—one of the best for decorative purposes, as it opens all its buds well; *Miss Turner*, pure white, first-rate; *Mrs. Dix*, bluish shading to rose, first-rate; *White Trevenna*, very fine, but rarely making more than one good flower on a stem, therefore requiring careful management, and not well adapted for off-hand cultivation; *Rose Trevenna*, very lively and pretty; *Ingram's Little Gem*, a lovely peach-blush flower of perfect form and lasting long in flower. We might extend these enumerations, but we noted only the most distinct varieties, and here make an end. The plant houses at this nursery are economical, elegant, and admirably adapted for the several purposes for which they were constructed; we advise our practical readers to take note of them.

S. II.

PROTECTION OF BRITISH BIRDS.

The following Petition will be presented to Parliament by the Rev. F. O. Morris early in the approaching session:—

"The Petition of the undersigned Rector of Nunburnholme in the County of York, sheweth,

That birds perform a most useful part in the economy of nature.

That if they are unduly destroyed, insects increase in similar proportion, and do vast damage to the produce of both farms and gardens.

That birds are ornamental as well as useful, and give great pleasure and instruction to naturalists and others who observe their habits.

That owing to the indiscriminate and untaxed use of guns they are recklessly destroyed in great numbers every year.

That many important and useful species have in this way already become extinct in Britain, and that others have become more or less rare, and will in like manner be exterminated if some means for their protection and preservation is not adopted.

That in the year 1864 your petitioner published a suggestion that there should be a tax laid on guns for this object.

That such tax would bring in a very large revenue to the Exchequer.

That this recommendation has lately been again made in the *Times* newspaper by a high official of the Tax department.

That its enactment would at the same time do away with a vast amount of poaching.

That it would be the means of saving many lives, which at present are sacrificed every year by the incautious use of firearms in every one's hands *ad libitum*, as well as otherwise.

That the French Senate has already passed strict laws for the protection of their native birds, it having been found that their destruction had had its natural result in the most serious ravages of insects on crops of various kinds.

That most stringent laws of a similar kind are in force in America at the present moment, and have been for some years.

That the 'Report of the Commissioners for Agriculture for 1864,' printed at the General Printing Office, Washington, 1865, shows that not only pheasants, partridges, grouse, quail, snipe, woodcock, teal, plover, wood duck, gray duck, black duck, wild geese, and wild turkey, as well as also trout, hares, rabbits, also thrushes, larks, linnets, curlews, and many other birds down to robins and wrens, are protected by game licenses, and that heavy fines are incurred for 'killing, taking, or having in possession at any season of the year' any of the above-named. That owners of land can forbid any shooting over their grounds, even during the time of the year when game of any kind is in season.

That a fine is imposed of twenty dollars for killing grouse or heath hen at any time of the year, with ten dollars to the owner of the grounds, and a search warrant authorized against any one suspected of the offence, as is the case in Massachusetts, and a fine of a dollar imposed for each sparrow killed or each sparrow's nest robbed. That in Rhode Island there are fines for buying or selling, as well as for killing or destroying certain birds, with additional fines to the owner of the land, besides liberty to sue for damages for trespass.

That in Delaware the laws are strict, and the penalties in some cases amount to 200 dollars.

That in the State of New York snaring quail is forbidden at any time.

That in Pennsylvania and other States strict laws are enacted, and in Ohio the selling or having in possession incurs the same penalties as killing or taking certain specified birds or animals.

That in like manner in Australia severe laws have been enacted for the protection of birds.

That your petitioner hopes that in the wisdom of Parliament these examples will be followed, and a heavy tax imposed on the possession of a gun, pistols being amply sufficient for all purposes of protection, and that the law of trespass be made more stringent with the like object in view, the protection, within due bounds, of each and all of our native birds.

And your petitioner, &c."

EXPERIMENTAL CULTURE OF ZONAL PELARGONIUMS.

I can only find time to reply very briefly to your correspondent's query to the meaning of the expression "breaking into." Your remark, I believe, referred solely to plants having several leaves hitherto nearly or entirely green, but where the later leaves were showing splashes of colour, and not to plants in the seed-leaf stage. The result of my experiment bears out your correspondent's experience—viz., that where the cotyledons were entirely green the plants exhibit no signs of variegation. It seems also certain that where even the slightest mark or splash existed on either cotyledon, sooner or later the plant exhibits variegation; for if the plant grows up with foliage entirely green, when the eye which was at the foot-stalk of the cotyledon breaks it will be variegated on one side if one cotyledon only showed variegation. I notice that where one cotyledon was entirely green, and one considerably variegated, the plant grew up with variegated leaves and leaflets on one side of the plant, and green on the other. The plant afterwards divided—that is, branched into two main stems—on the one side (viz., the one of the variegated cotyledon) the branch became completely variegated, the other entirely green.

I observe, too, that the cotyledons of plants which assume the silver type show very considerably more variegation than the golden. The fact of the eye at the foot-stalk of the splashed cotyledon of an entirely green plant assuming the variegation when it pushes into a shoot, suggested the forcing into growth the eye from the foot-stalk of the leaf of a breaking plant which possessed more beauty or regularity of marking than its fellows; and I am of opinion, from the few trials I have made, that by this means you may obtain a shoot resembling the leaf in question.

Are the shoots thus obtained, as well as those which come from the foot-stalk of the cotyledon differing from the main foliage of the plant, to be considered in seedlings as sports? Because it seems that the strongest and most beautiful varieties of the tricolors are thus obtained, most of the plants whose entire foliage is variegated from the first being deficient in vigour of constitution.

My seedlings have not flowered sufficiently for me to express a decided opinion of the results of parentage, but, as far as I can judge up to the present, my experience does not bear out your correspondent's; for there seems to me to be a blending of the colours of the parents in the offspring: for instance, offspring of *Mrs. Pollock* and *Madame Vaucher*, a deep pink; *Rose Rendatler* and *Mrs. Pollock*, a bright cerise.

The watching for the result of various crosses, and the different phases a number of seedlings pass through, carries with it an interest amounting almost to excitement; and I believe, beyond the amusement it affords, much may be gleaned as a guidance in our attempts to obtain a given result. Much, doubtless, could be gained by comparing notes; and if professional florists, jealous of their superior knowledge, are not disposed to publish their experiments, it is in the power of amateurs to assist one another by so doing: for instance, if by a number of comparisons we could ascertain for certain that green cotyledons never produced any variegation. Where space is an object, one whose sole object was to obtain tricolors could at the onset put aside a large proportion of his seedlings, provided he knew that green cotyledons were destitute of promise.

JOHN DENNY, M.D.

SEEDLING GRAPES.

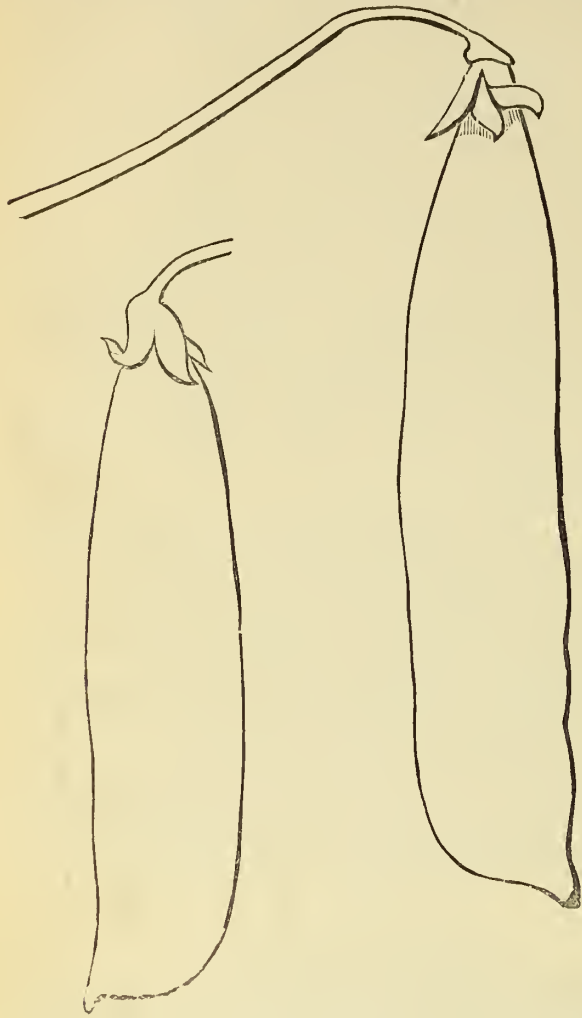
Having for the last ten years been trying experiments in the crossing and rearing grapes from seed, I have had some singular productions, many indifferently, some encouraging, and others highly successful; but some which I have fruited for the first time this season have exhibited what I consider a singular phenomenon in the colouring of their fruit. Thinking it might be interesting to your readers who may not have tried similar experiments, I have penned these few remarks. My chief object being to get some new and improved varieties, combining as many good properties as possible, I selected for breeding from—*Snow's Black Muscat* *Hamburgh*, as being one of our most esteemed grapes for flavour, &c.; *Lady Downes*, which is not surpassed for blackness of colour and long keeping; and the *Champion Muscat*, originally raised by me, the parents of which were the *Champion Hamburgh* and the *large Canon Hall Muscat*. This, which is now being sent out, is a very superior grape for flavour, size of berry, strength of foot-stalks, &c., &c.; and if any fault whatever can be assigned to it, it is want of colour, as it does not come a jet black, it being only red, or what is called foxy or grizzly coloured. This grape having so many first-rate qualities, but lacking a deep black, I crossed with the *Snow's Black Muscat Hamburgh*, with the view to perfect it in colour; but, singular to say, in the produce from this operation I have got an identical *Champion Muscat* in shape as well as size of berry, and every other property, only the colour is a deep yellow, and it ripens ten days or a fortnight earlier than the common *Black Hamburgh*, when grown in the same house. I fancy it will be a rival to the *Muscat of Alexandria*. A year or two ago, Mr. Thomson, of Dalkeith, raised a white or golden-coloured *Hamburgh* from seed of the common *Hamburgh*, and, if I remember, it was without crossing. I could scarcely credit this at first, but now I can thoroughly corroborate it from practical experience; for I have got from *Snow's Black Muscat Hamburgh* an identical white and a yellowish shaded one, exactly the same in flavour and shape; and again, from the *Black Lady Downes*, crossed with a *White Muscat*, I have got a yellowish green grape, in appearance the same as the *Muscat of Alexandria*, only a little more like a rifle-ball in shape of berries; the flesh firm, like the *Muscat*, and flavour about the same. That is three light-coloured grapes originated from dark parents. A fourth, a seedling from *Lady Downes* crossed with *Snow's Black Muscat Hamburgh*: the result from this last is a largish or rather oval berry, similar in size to the seed-bearing parent, *Lady Downes*, only a white, or, more strictly speaking, a greenish-yellow shaded grape, with a great portion of the flavour of the male parent. Singular to say, I never before had so many come so decidedly different in colour. No doubt some of these dark kinds have originated from light-coloured varieties, or such a quantity of light-coloured seedlings would not have been produced.—WILLIAM MELVILLE, *Dalmeny Park Gardens*, in "The Farmer."

A QUIET REBUKE.—A little feminine precocity committed an act of disobedience; and her mother, in correcting her, spoke in no gentle tone of voice. The child threw her arms around her mother's neck, and exclaimed, "Dear mamma, pray forgive me! If I had known how peevish it would have made you, I wouldn't have done so."

REPORT ON TRIAL CULTURE OF PEAS AT STOKE NEWINGTON, 1867.

(Continued from page 479).

FAIRBEARD'S NONPAREIL (W. Clark), sown May 2, gathered July 16, period 76 days. A good second-rate wrinkled marrow, with long narrow pods, in which the peas are closely compressed. The usual height of this pea is 4½ feet; it is highly prolific, and is rarely affected with mildew.



Thompson's Green Marrow.

FAIRBEARD'S SURPRISE (W. Clark), sown May 2, gathered July 18, period 78 days. A good prolific second-rate blue pea.

ALLIANCE (W. Clark), sown May 2, gathered July 12, period 72 days. A second-rate wrinkled marrow. Last year the height of this variety was 3½ feet. This year it grew only 2 feet high, and bore abundantly.

CLIMAX (W. Clark), sown May 2, gathered July 12, period 72 days. An inferior blue wrinkled marrow, growing 2½ to 3 feet high. It blooms early, and makes a promise of early pods, but is no earlier in the end than some that flower a week later.

FORTY FOLD (Nutting and Sons), sown May 2, gathered July 20, period 80 days. This is a wrinkled marrow, growing 5 feet high, a middling



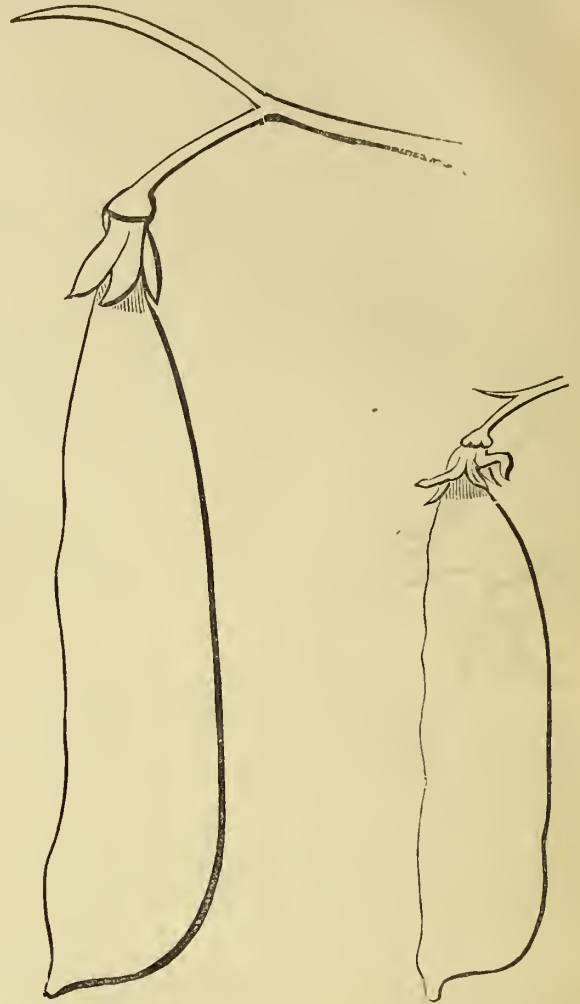
Blue Excelsior.

Knight's Dwarf Sugar.

cropper of good quality. It is closely related to Champion of England, but in this trial was not so good as that variety.

CHAMPION OF ENGLAND (Sutton and Sons), sown May 2, gathered July 20, period 80 days. The growth of this variety averages here 6 feet; in some districts it is a foot or so less, but wherever it grows at all it bears abundantly, and is one of the finest varieties in cultivation.

RISEING SUN, sown May 2, gathered July 16, period 76 days. This grew freely, and bore abundantly, and was in many respects far better than it ha



American Wonder.

Excelsior Marrow.

been in any previous trial on the same ground. The seed sown was some left over from last year, when it behaved so badly that we marked it as useless. Second-rate.

WOODFORD'S GREEN MARROW (Carter and Co.), sown May 2, gathered July 20, period 80 days. An inferior blue pea, bearing well, but the peas



Albert Edward.

Burbridge's Eclipse.

are small and flavourless. Its fine dark colour renders it a useful market pea in summer, and it is the best to grow for use as split peas for making green-pea soup, as the ripe peas are of a fine deep bluish green colour.

BATT'S WONDER (Carter and Co.). This is so much like Woodford's Marrow that frequent inspection is necessary to distinguish between them. It differs in producing somewhat larger peas, and is about four days later. It is a scarce variety, and Woodford's Marrow is usually supplied in place of it by seedsmen who do not possess the true variety. The only use for this pea is to make green pea soup in winter, its intense green colour rendering it eminently suitable for that purpose.

LORD RAGLAN (W. Clark), sown May 2, gathered July 29, *period* 89 days. A robust dwarf-growing pea, producing an abundance of large sweet peas of the finest quality.

GENERAL HAVELOCK (Wheeler and Sons), sown May 2, gathered July 18, *period* 78 days. A good dwarf pea, the growth averaging 2½ feet. The peas are large and of excellent flavour; the ripe seed is a pale buff colour and wrinkled.

KNIGHT'S DWARF GREEN, sown May 2, gathered July 28, *period* 88 days. This popular variety is the type of an excellent class, in which may be grouped such as Veitel's Perfection, The Prince, Hair's Mammoth, Lord Raglan, &c. It differs but little in appearance from these, but usually lasts longer, and may in some seasons be gathered fresh and good two or three weeks after most other varieties are quite ripened off.

LYNN'S WRINKLED MARROW (Carter and Co.), sown May 2, gathered August 6, *period* 93 days. This is a valuable pea, deserving of more attention than it obtains. The seed is comparatively small, very uniform in colour, which is a dull drab-buff, in form quite angular and slightly wrinkled,

short hooked nose, of a bluish colour, and very tightly packed with bluish green peas. The spurious sort usually admixed with it produces short grass-green pods.

COMPETITOR (Wheeler and Son), sown May 2, gathered August 8, *period* 100 days. This is a distinct and very fine pea, which always grows taller than any other variety that has been tried here. No doubt it is closely related to Tall Green Mammoth, but it appears to be more robust and productive, and is unquestionably one of the most valuable varieties in cultivation. Messrs. Wheeler state the height to be 5 feet: here it always makes a height of 7 feet at least. The peas are large, a fine colour, and most delicious flavour; one of the best in cultivation.

STRATHMORE HERO (W. Clark), sown May 2, gathered July 26, *period* 86 days. This variety grows 5½ feet high, produces large pods, which contain an average of 6 large peas each. It is a good cropper, and in every respect a first-class pea.

KNIGHT'S TALL GREEN MARROW (W. Clark), sown May 2, gathered July 19, *period* 79 days. This variety grows here 5 feet high, is a good cropper, and produces large, buttery, delicious peas. It is in every respect first-rate.

KING OF THE MARROWS (Sutton and Sons), sown May 2, gathered July 28, *period* 88 days. The plant averages 6 feet high, is highly productive, and long-lasting; the pods are a beautiful green colour, and the peas are good even when old. One of the best tall peas in cultivation.

WATERLOO MARROW (Carter and Co.), sown May 2, gathered July 28, *period* 88 days. This grows about 5 feet here, but in some places it rises to 6 or 7 feet. The pods are produced mostly at the top. A first-class pea.

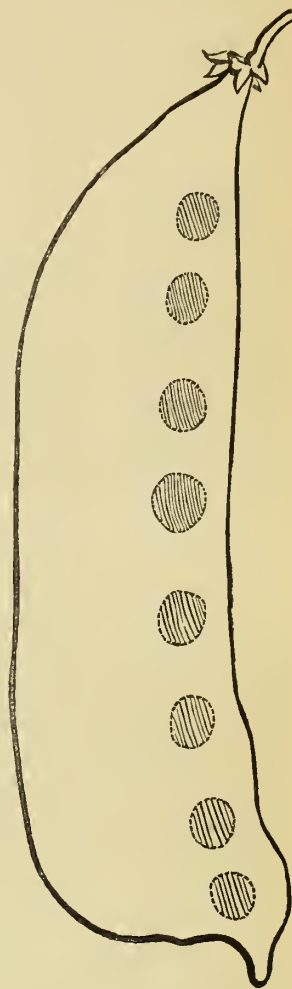
VICTORIA (Carter and Co.), sown May 2, gathered July 28, *period* 88 days. This sample produced smaller pods than Waterloo Marrow, and grew rather



Thompson's Macdonald.



Branch or Cluster Pea.



Sugar Pea.

and with a distinct black spot (hilum) as in the Egg pea, which is a worthless variety, and the one properly known as "Black-Eyed Susan," whereas Lynn's Wrinkled is a good pea, and should never be described as Black-Eyed Susan, as it is in the Chiswick report of 1867 (*v. Gard. Chron.*, 1867, p. 925). Lynn's Wrinkled is a hardy useful variety, not first-class for the table, but so good in constitution that, all points considered, we are prepared to place it in the first class. The Garden Book contains this entry respecting it: "3½ feet high, peas 4 to 6 in a pod, excellent cropper; a fine dish gathered August 20, when the pods were hanging in beautiful clusters." There can be no doubt that those who supply the London market with peas would do well to give place to this pea, and perhaps the market growers located in the vicinity of fashionable watering places might find greater advantage in its cultivation than those in the neighbourhood of the metropolis.

BRITISH QUEEN (W. Clark), sown May 2, gathered August 8, *period* 100 days. This grandest of peas invariably grows 7 feet high here; in some places it rises to 9 feet, and in others never exceeds 6 feet. But it is everywhere and always one of the best peas known, leafy, robust, bearing an abundance of pale green pods containing 7 to 9 large peas each, which when cooked are elegant, buttery, and delicious. This is a long-bearing pea, but requires a deep moist soil and abundance of manure to be useful late in the season. Sowing late is scarcely advisable, for the plant makes a poor shallow root, and bears too early to be of any use if the seed is sown when the summer is setting in.

CHAMPION OF SCOTLAND, sown May 2, gathered August 8, *period* 100 days. A good tall pea, which usually produces pods of two distinct forms; in fact, a true sample is difficult to obtain. The pods should be long, with a

taller. Yet, all points considered, there is very little difference between them.

NE PLUS ULTRA (W. Clark), sown May 2, gathered July 24, *period* 84 days. The growth averages 6 feet, the pods are of a peculiar dark green colour, and contain 6 to 8 fine peas in each. It is one of the finest peas in cultivation, early as compared with the taller kinds, yet late as compared with any, for in favourable localities it will continue in bearing until stopped by frost. It is one of the most distinct and valuable varieties known.

GENERAL WYNDHAM (W. Clark), sown May 2, gathered July 30, *period* 90 days. This is closely allied to Ne Plus Ultra, but does not grow so tall, and is usually a week later.

ALBERT EDWARD (Barr and Sugden), sown May 2, gathered July 27. A good cropper, and fine quality. Scarcely to be distinguished from Ne Plus Ultra.

MACLEAN'S PROLIFIC (W. Clark), sown May 2, gathered July 20, *period* 80 days. One of the best dwarf peas in cultivation, average height 2½ feet, a good cropper, the peas large and of excellent quality.

MACLEAN'S WONDERFUL (W. Clark), sown May 2, gathered July 20, *period* 80 days. This was reported on from here in 1866 as one of the best peas known. In 1867 it was inferior to Princess Royal, which happened to be near it, and made a very decided contrast in the greater abundance and superior quality of the produce.

MACLEAN'S PREMIER (W. Clark), sown May 2, gathered July 23, *period* 83 days. The growth averages 3 feet, is highly productive, and the peas are of the very best quality. One of the best peas in cultivation.

PRINCESS ROYAL (W. Clark), sown May 2, gathered July 23, *period* 83

days. A first-rate white marrow, growing to a uniform height of 2½ feet, a remarkably good cropper, producing fine large peas, which when cooked are tender, buttery, and delicious. One of the very best.

HARRISON'S PERFECTION (W. Clark), sown May 2, gathered July 12, *period* 72 days. This pea grew vigorously and bore abundantly in 1867, so that if it had been judged as a new variety it would have earned a good character. It is, however, far from first-rate, as, taking a series of years, it is, as a rule, superseded by several other varieties that come in at the same time.

NEWINGTON MATCHLESS (Argent). In the way of No Plus Ultra, but taller and scarcely so prolific. Quite second-rate.

PARADISE MARROW (W. Clark), sown May 2, gathered July 20, *period* 80 days. One of the very best varieties known, average height 5 feet, the pods large, broad, and whitish, well filled; the quality of the peas when cooked first-rate. A most prolific pea, and deserving a first place in every garden.

MAMMOTH TALL MARROW (W. Clark), sown May 2, gathered July 22, *period* 82 days. Average height 6 feet, pods grass-green, large, well filled with large, tender, buttery peas; a very fine variety both in respect of quality and productiveness.

BECK'S PRIZETAKER (Carter and Co.), sown May 2, gathered July 19, *period* 79 days. A handsome pod of a full deep green colour, large, curved, well filled, and making a handsome dish on the table. In appearance and productiveness first-class; in flavour second-class.

WONDER OF THE WORLD (Carter and Co.), sown May 2, gathered August 5, *period* 87 days. This is a fine wrinkled marrow pea, growing 5 to 6 feet high, branching freely, the leaves light green, the pods mostly in pairs, short and broad, and containing an average of 6 fine peas in a pod. Valuable for the lateness of the first gathering and its long continuance in a productive state.

NOBLE'S GREEN MARROW (Carter and Co.), sown May 2, gathered July 17, *period* 78 days. This variety grows 4 to 5 feet high; it is a good cropper, producing handsome pods and peas of a fine green colour.

FLACK'S VICTORY (Carter and Co.), sown May 2, gathered July 26, *period* 87 days. Height 4 feet.

CARTER'S BLUE SURPRISE (Carter and Co.), sown May 2, gathered July 26, *period* 87 days. Height 4 feet.

BLUE SCIMITAR (W. Clark), sown May 2, gathered July 26, *period* 87 days. Height 4 feet.

These three varieties are very closely related. Between Flack's Victory and Carter's Blue Surprise there is so little difference that we may consider them the same. The good old Blue Scimitar differs in the form of the pod, which has a sharper beak than the other two, and in its greater productiveness. Of the three, Blue Scimitar is certainly the best, and a first-class pea for hardness, fruitfulness, good quality, and long lasting. The last dish of this variety was gathered August 14, a *period* of 20 days inclusive.

HARRISON'S GLORY (W. Clark) is an inferior blue pea of the same class as Flack's Victory; it should not now have a place in any garden.

BLUE EXCELSIOR (Nutting and Sons), sown May 2, gathered July 18, *period* 79 days. This variety grows to a height of 5 feet, and produces abundance of handsome pods containing 9 to 10 peas each. This is an excellent second early pea, making a good appearance on the table, and giving a large return to the cultivator.

EXCELSIOR MARROW (Carter and Co.), sown May 2, gathered July 18, *period* 79 days. This variety grows 4 feet high.

As the foregoing two varieties resemble each other in name, and have been substituted one for the other in the making-up of seed orders by the seedsmen, it is proper to point out that the seed of Blue Excelsior is blue and smooth; the seed of Excelsior Marrow is of a uniform pale buff colour, and very slightly wrinkled and pitted. Blue Excelsior was quite green on the 30th of July, but at the same Excelsior Marrow was yellow, and quite past bearing. The exterior skin of the pods of Blue Excelsior is rough and warty; that of Excelsior Marrow is smooth; and to sum up the matter, Excelsior Marrow is as good as Ringwood and much like it; Blue Excelsior lasts longer, and is upon the whole a better variety.

BEDMAN'S IMPERIAL (W. Clark), sown May 2, gathered July 28, *period* 89 days. Height 2½ feet, a good cropper and in every respect a serviceable pea, particularly for market growers.

BURIDGE'S ECLIPSE (W. Clark), sown May 2, gathered July 22, *period* 82 days. This is the dwarfest of the imperial blue peas, the growth averaging 1½ to 2 feet; it is a good cropper, and the peas are fine and handsome; it is therefore admirably adapted for the market grower.

YORKSHIRE HERO (Carter and Co.), sown May 2, gathered July 22, *period* 82 days. Height 2 feet, a middling cropper; not so good this year as last, but useful where dwarf-growing varieties are valued.

THOMPSON'S MACDONALD (Thompson), sown May 2, gathered July 23, *period* 84 days. Average height 5 feet; a robust leafy plant, producing very large, thick, leathery-textured fronds, which are a long time filling, and in the end do not justify the promise they make in the first instance of a good return. Very distinct in every character, and to be tried again.

THOMPSON'S LARGE WRINKLED (Thompson), sown May 2, gathered July 23, *period* 84 days. This variety grew 6 feet high, and produced an abundance of large handsome pods, containing 6 to 7 large peas in each; these when cooked are handsome, tender, buttery, and delicious. This comes nearest to British Queen in appearance and quality, but in this trial was 16 days earlier, and actually promises to be better, and is certainly quite as good, a most important consideration with a variety so early in maturing its pods.

THOMPSON'S GREEN (Thompson), sown May 2, gathered July 26, *period* 87 days. Height 6 feet. A good cropper, pods containing an average of 7 large peas each. This closely resembles Waterloo Marrow, but is forwarder, taller, and a better cropper.

AMERICAN WONDER (Thompson), sown May 2, gathered July 26, *period* 87 days. A robust-growing plant, attaining a height of 6 feet. It is of the first quality, and most closely resembles King of the Marrows, but is sweeter in flavour than that variety.

BRANCH OR CLUSTER (Thompson), sown May 2, gathered July 27, *period* 88 days. This is a mere curiosity of no value at all. It grows 4 feet high, and presents an interesting example of fasciation, several stems being fused together so as to form one flattish fluted stem, which sometimes attains a length of an inch or more. The flowers are produced from the summit of this compound stem, on peduncles which radiate from the centre in a manner which reminds the observer of the ribs of an umbrella. When the pods succeed, the distinctive outlines of the plant are less observable, for it then begins to decay, so that to obtain a dish of peas is not an easy matter, and to save a fair crop of seed next to impossible. This is the "Pois Paquet" of the French gardens.

SUGAR OR EDIBLE-PODDED PEAS, sown May 2, gathered July 22, *period*

83 days. There are in cultivation several varieties of edible-podded peas. They are all characterized by the absence from the pod of the parchment-like lining membrane or parenchyma; the peas are invariably small as compared with the size of the pods, and if they are used at all as food for human beings, they are prepared by cooking them as gathered, in the same way as young kidney beans, but without being cut. A great act of economy is thus accomplished, for pods and peas are eaten together. The common Sugar or Edible-podded pea is here figured; the plant grows 6 feet high, and produces an abundance of large, broad, flat, crooked, semi-transparent pods of extreme thinness, peculiarly marked where the peas within "bulge" out the sides of the pod. This variety is white-flowered.

IMPERIAL SUGAR, POIS SANS PARCHEMIN, MANGE TOUT. This grows 7 to 8 feet high, the flowers are purple, the pods are of immense size, averaging 7 to 9 inches long, broad, flat, much twisted, and "hulged" where the seeds are. It is esteemed amongst the French peasantry, but rarely seen on a good table in France.

VILMORIN'S EDIBLE-PODDED (Barr and Sugden), sown May 2, gathered July 30, *period* 91 days. This grows 4 feet high, and produces an immense abundance of small rather curly pods. If of any use at all, this would be one of the best varieties of peas in cultivation, as it grows luxuriantly on a poor soil, and exceeds almost all other kinds in its extravagant fruitfulness.

KNIGHT'S DWARF SUGAR (Barr and Sugden), sown May 2, gathered July 30, *period* 90 days. Grows 3½ feet high, pods small, but abundantly produced, and not greatly differing in character from the old Dwarf Sugar and Vilmorin's Edible-pod.

These edible-podded peas are held in good repute amongst a certain few cultivators and cooks, and we suppose there is some quality of excellence discoverable in them by those who possess a subtlety of taste and a refinement of discrimination above and beyond the average capacity of mankind. The writer of the last Chiswick report boldly avers (*Gardeners' Chronicle*, 1867, p. 925, last line of report) that "they make a very good and excellent dish." We have given them what we consider a fair trial; they have had all the attention that an experienced cook could bestow, and have been eaten without prejudice, and the verdict in every case has been the same, that they are simply filthy, and unfit for human food. Their appearance is nearly enough to condemn them, but it was never allowed to do so; when the eyes were closed to their repulsive sliminess of appearance, the palate persisted in proclaiming them a compromise between soap and stewed parchment. Why they should be grown or known is to the writer of this report a mystery. But tastes differ, and "every one to his taste" must be the motto in the selection of peas. S. H.

Calendar.

WORK FOR WEEK COMMENCING NOVEMBER 16.

Kitchen Garden and Frame Ground.

ASPARAGUS AND SEAKALE may be forced by the roughest of methods when there are plenty of leaves and large deep pits. Any one can make up a forcing bed, on a plot of spare ground, by means of a few boards to form the boundary of the pit, or turf walls where turf is plentiful. Five or six feet of leaves, without dung, will do very well, and when the roots are planted, rough boards put slope to carry off rain and snow may be used to cover in lieu of glass-frames. During hard weather any amount of dry litter may be heaped over, and a supply of either of these delicious vegetables he had for the mere cost of the roots in the first instance. As ample instructions have been given in this work for forcing these roots, we need not here go into detail; but we mention this rough-and-ready method as a hint to amateurs who want a little work for the winter, and who have no conveniences for forcing by hot water and other expensive methods. Seakale will pay the poor man best to force by impromptu methods, and this should be completely blanched; but asparagus should have air and light when the shoots appear, as it is valueless unless the tops have two or three inches of green growth.

Flower Garden.

ROSES are frequently left in "by the heels" for weeks together at this time of year. It is very bad practice; the frost is sure to get to their roots, and in the event of mild and moist weather they are sure to throw out fresh roots, and those fresh roots are sure to be destroyed when they are removed to be properly planted. Therefore plant at once, tread them up firm, and stake securely.

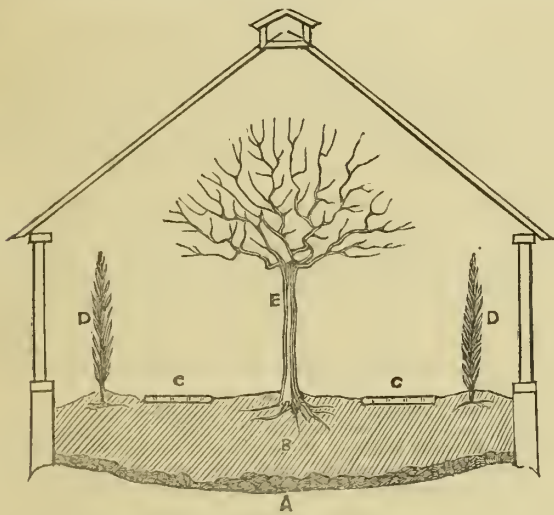
TULIP BEDS now to have their hoops placed over, to be ready for mats or other covering in case of heavy rains. But the bed should be freely exposed for the present; there is nothing gained by covering too soon.

Fruit Garden and Orchard House.

PLANTING HARDY FRUITS.—The sooner all bushes and trees to be planted are got into their places the better. In forming new fruit gardens, select first the most noted of the established varieties before seeking after novelties. Perfect drainage of the soil is a matter of the utmost importance in districts where heavy loams and clays prevail; but on hot, chalky, and sandy soils drainage is seldom needed. All kinds of fruits require a substantial nourishing soil; apples, currants, and gooseberries will grow well almost anywhere, but better on a good loam in a warm climate than on a bleak sand. All stone-fruits require a good loam, and on well-worked clay generally prosper. Soils containing calcareous matter are, if of good texture and substance, well adapted for the production of fruit; and in preparing old worn-out soils for fruit-trees it would be well to add a liberal dressing of chalk or old mortar.

A FEW REMARKS ON ORCHARD HOUSES.—At this season, when many of our readers will be thinking of adding to their establishments some form of orchard house, it may not be amiss to consider as to whether trees in pots or trees planted out should have the preference. It is possible to deduce facts from failures, which, if properly considered, show us wherein we are in error. We will endeavour to describe a house of trees in what a critic would consider an unsatisfactory state, and one as occasionally seen under the care of a thorough good gardener. If on entering an orchard house, a pale or yellowish hue seems to pervade the foliage, it is a sign of the presence of red-spider, and red-spider is a sure attendant upon starved or suffocated trees, rendering their leanness still worse by sucking from the foliage the juices that should be there elaborated to recruit the stamina of the trees, and enable them to carry their crops to perfection. If badly affected with this

post, the trees often shed their fruit, or if it ripen, it is small and flavourless, the wood of the tree becomes weak and attenuated, and unfit to carry a crop the following year. In such a house a practical gardener would perceive an undue amount of heat, or a dry uncomfortable atmosphere. If he touched the soil in the pots, he would probably find it approaching dryness; besides which he might perceive that the pots were much too small for the size of the trees. If he inquired further, he would find that the trees had not been syringed until the spider had actually made its appearance, and then perhaps not in a business-like manner (a dewing over with the syringe is not enough; they must be battered on all sides, and especially the under sides of the leaves); that they received water at the root by rule, say once a-day, and then, perhaps, in homœopathic doses. On the other side, to go into a house where the trees are well cared for, the foliage is luxuriant, of the colour of a Portugal laurel, the air soft and moist, the trees in pots proportioned to the size of the tree. The soil, whether in the pots or the borders on which they stand, rich and mellow, and perhaps mulched with short stable litter to protect the pots from the direct rays of the sun. If he investigated further he would find that the soil consisted of half-decayed turfs, old cow-dung, and a sprinkling of soot and bone-dust; that water was filtered through soot and cow-dung, to mix at discretion with the soft water which was applied, not by rule, but according to circumstances, once a-week, once a-day, or three times a-day, if they demanded it; that as much old soil as could be removed from the top of the pot, without injury to the roots, was every winter removed and fresh supplied. That the trees at the same time were dressed with a mixture of soft soap and sulphur, and the walls washed with lime and sulphur; further, that green-fly had been carefully looked for in spring, and, the moment it was perceived, syringed with tobacco-wash, or fumigated with tobacco paper. That the blossoms had been brushed over with a soft brush to distribute the pollen, and thus secure the setting of a regular crop of fruit, and that the fruit when thus set had been early thinned, so as not to waste the energies of the trees. That cold winds and severe frosts had been denied free ingress, by closing the ventilators on the windward side; yet that perfect ventilation had never been omitted when it could be safely permitted; that the syringe, or what is better, a small engine, had been constantly used every morning (since the setting of the fruit), when there was a prospect of a clear day; and again every bright and warm afternoon, just before the sunbeams ceased to play upon the house. Our readers will be enabled now to judge how far their practice has fallen short of the above, and perhaps feel appalled at the amount of attention apparently necessary to perfect success in the pot-culture of fruits, yet the attention is necessary, and it is attention to the minutiae that makes the successful gardener. This many amateurs cannot find time for, hence there is something wanted to enable persons so situated to reap a crop with greater certainty than by the pot-system. The plan we propose is to plant out the trees in prepared borders, so as to render them less susceptible of injury from slight neglects; the plan is by no means new; it has been advocated by several writers, and is practised by many of the best gardeners of the day, but usually in houses of greater pretensions than such as are commonly known as orchard houses. The difference, however, is not so much in the make or size of the house as in the preparation of the border, the form of the house mattering but little, so long as no fundamental principles are violated, and these are—a situation open to the south or thereabout; glass to the ground, or nearly so, that all the light possible may be admitted, and plenty of opening ventilators, that there may be no



ack of air when required. These points are fully kept in view in the accompanying sketch, and such a house could be erected at as little cost as it is possible to produce an efficient structure. It is set upon nine-inch brick foundations, which rise nine inches above the ground level. Upon these a plate of oak timber is laid; into this deal studs, three feet apart, are morticed, and on them again, at the height of five feet, a plate of deal is laid to receive the rafters and astragals, or bars into which the glass is glazed. The superstructure at the top is for the purpose of giving air, and is composed of thin boards, the two side ones hung on joints, and having a lever screwed on the inside, to which a string is tied, and carried down behind a pulley to the side of the house, for the purpose of pulling them open. Every alternate light between the side studs is made to turn upon pivots for the purpose of giving air. The width of the house inside is sixteen feet, and the height eleven feet. A represents a drain laid along the centre, in case water in excess should find its way in, and on each side of the drain is a layer of brickbats, rammed down to prevent the roots of the trees reaching the subsoil. B, the border, from two to two and a half feet deep, of good fresh soil, composed of half-rotted turfs from a field. C, spine racks to walk upon. These should be made in convenient lengths, that they may be removed in case a tree requires lifting, &c. D, espalier peaches and nectarines on the south side, and figs and plums on the north side. E, standard peaches and nectarines. By such an arrangement as this, all other things being equal, a great quantity of fruit would be produced in a small house. The amount of care and attention necessary would be far less than

it would be to carry out in good style a house of pot-trees, and the risk of spoiling the crop from occasional neglect much less, as the trees are in a more natural position, and therefore I am induced to recommend its adoption. It must not be forgotten, however, that the border, being under cover, receives no moisture from the atmosphere, therefore abundant watering will be necessary, especially when the trees are swelling a crop of fruit. But then one good watering will suffice for several days, whereas a man that has a house of pot-trees must always be watching them. The same attention to airing, syringing, and setting the fruit blossom, pinching back shoots that are not required to form the tree, &c., will, however, be necessary as well in the house where trees are planted out as in that in which the whole are in pots.

Greenhouse and Conservatory.

KEEPING OUT FROST—TEMPERATURE OF THE SOIL.—A few words on the principles which the gardener should keep in mind in his endeavours to keep out frost may be seasonable just now, for it may be questioned if gardeners have invariably a clear view of the object to be gained, and the best means of securing it; and those among our readers who are familiar with the theory of the subject will not mind seeing a few commonplace facts set forth for the benefit of those who have yet something to learn on the subject. The leading principle of all protective measures may be stated to be not so much keeping out frost as keeping in heat. If any one will take the trouble to examine a bed of snow when it has lain upon the earth a day or two, it will be found that, however hard frozen on the surface, it is actually thawing where it rests upon the earth. If the snow be very thin, this may not happen to be the case, because the cold air may penetrate through it, and cause it to freeze to the soil; but when deep snow has lain some time, it invariably begins to thaw next the soil, however hard it may freeze at the surface exposed to the atmosphere. Another lesson of value may be gained just now by dipping some water from a well; it will come up comparatively warm, and its temperature probably 40° to 50°, according to the depth and the soil. The inference from these two observations is obvious enough: the earth is a reservoir of heat, and this heat it is the gardener's business to make the most of, and all protective measures should have for their object to prevent its escape. This earth-heat is a matter of some importance to the life of plants when its amount is considered. This heat is constantly rising to the surface; hence, if we pile up a mass of material of any kind, and leave it for some days, however hard it may get frozen, it will be found that when removed the earth is quite warm on the spot it has covered, a simple consequence of the heat having been confined. The heat of the earth varies very much near the surface as the seasons revolve, but the deeper we descend the less is the variation. It is especially worthy of notice that the soil is such a bad conductor of heat that even at very trifling depths the variations do not keep pace with the changes of atmospheric temperature, and this leads to very interesting results. By the elaborate experiments of Professor Forbes it was shown that at three feet the greatest cold does not occur till February; at six feet, not till March; at twelve feet, in April; and at twenty-four feet, in July. These facts explain why water from deep wells is (as people say) cold in summer and warm in winter. At a depth of two feet the temperature usually rises considerably from the middle of April to the middle of July, and is in some seasons subject to many fluctuations; but during autumn and the early part of winter much of the heat absorbed during summer is retained by the crust, and plants exposed to severe frosts are still warm at their roots, and the atmosphere is so far affected by the radiation of heat from the earth that early frosts are considerably modified in their effects. Now the grand object should be to get as much of this heat as possible, and to keep it. For this purpose we use frames, the glass coverings of which obstruct the radiation of the earth's heat, and preserve the plants from the severities of the atmospheric temperature. When frost comes, we lay on the frames such things as mats, straw, &c., and these still further obstruct the radiation, and prevent the cold winds gaining access to the frames. Everything that can be used to counteract radiation may be turned to account, but there is a good and a bad way of doing it. It so happens—and every gardener should keep the fact in mind—that the atmosphere is a tolerably good non-conductor, and a body of air shut up close cools very slowly. It is also to be borne in mind that water is a good conductor of heat, and hence cools quickly, especially at the surface. Suppose we really want (which we never do) to cool down the atmosphere of a frame without taking off the light, the best way to do it would be to throw water on the glass; the evaporation from this during wind or sunshine would probably soon render the air inside the frame colder than the air without, and at night the frost would act upon the wet glass and carry on the cooling process, and if mischief were intended it would be effectual. The rationale of this process is that the heat from the soil and atmosphere of the frame is conducted outwards and dissipated. We learn another lesson from this, namely, to keep the glass, the mats, the straw, and whatever else is used for covering, as dry as possible, and at any time when they are unavoidably wetted they should be taken off and dried at the first opportunity. But we have not yet done. The air is a good non-conductor; hence, if a mat or tarpaulin can be stretched over a frame and fixed down close at the sides, and the superficies kept at a few inches from the glass—as by laths for instance—there will be a stratum of air between the tarpaulin and the glass, and this will be as good as another thickness, or, to use a homely phrase, will make the frame a coat warmer. In very cold countries, travellers prefer cloaks to coats; loose garments are found to be warmer than tight ones. The reason is that they enclose a considerable body of air, and this being a non-conductor adds to the comfort of the garment. Now, in covering up, loose litter is found very effectual, and, *ceteris paribus*, the looser it is the better. A great heap of dry straw thrown on over a mat will do wonders to keep out frost, because the straw has entangled in it a vast amount of air, which renders it non-conducting. Any light dry material, such as waste wool, clippings of hedges, withered tops of chrysanthemums, &c., may be made use of in the frame-ground during hard frost. A few more hints may be of service, especially to young gardeners. During frost every plant in a pot—no matter if the hardiest plant known—should have its roots protected. If exposed so that the roots get frozen, death is likely to be the consequence. One of the best materials in which to plunge potted plants, whether indoors or out, is the now famous cocoa-nut fibre refuse. This is never very wet, and never quite dry, and is such a non-conductor that the frost rarely penetrates more than a few inches below the surface, and it may be heaped round the collar of a plant that needs extra protection without any fear of harm, provided it is removed on the return of mild weather. Lastly, plants exposed to very low temperatures need not of necessity be exposed to light. We have known pits full of geraniums to be buried under heaps of litter for three weeks in complete darkness without taking the least harm. Of course, on the return of mild weather, light

should be admitted as soon as possible. In case of plants getting badly frosted, let them thaw slowly, and in the dark. Gardeners sometimes make a rush at the fire when they find frost in the house, and by getting up too fierce a heat, do more harm than if they had left things alone. Beware of extremes, and aim at making fires burn steadily and continuously, rather than at a pace that is likely to roast the inmates of the house.

Stove and Orchid House.

ORCHIDS are so generally at rest now that this is the most convenient season for a general examination of the stock, and the renewal of blocks, baskets, &c., for improving the effect of the grouping and arrangement. Repot any that require it, and let every plant undergo an examination, during which the surface material should be wholly or partially removed.

Forcing Pit.

PEACHES to be forced need now a thorough dressing; clean the house, prune the trees, tie in and wash the stems and branches with a paint made of clay and Gishurst; mulch the border, and give it a thorough good soaking with tepid water. Give the trees air on fine days, but shut up at night. This treatment will bring the roots into action in advance of the branches, and when the trees are started they will make safe and healthy growth.

PINES require very careful management now, for we have warm sunshine one day, and perhaps fog and frost the next. There ought to be a command of more heat than is absolutely required, which is easy enough with hot water, but not so easy with fermenting material, so as to keep the temperature of bottom and top pretty uniform, in spite of changes of weather. As a comparative state of rest will be good for all classes of pine stock now, a bottom-heat of 65° for a minimum, and 70° maximum, top-heat 55° minimum, and 65° maximum, will be the safest for the plants. Supply water according to the state of the weather; take advantage of bright open weather to water pretty liberally, raising the heat and giving air at the same time; and when frost and darkness recur, withhold it as long as will be safe, but not to cause exhaustion.

CUCUMBERS to be kept safe as to bottom-heat, or they will begin now to drop their fruit, or to show canker at the collar. Be prompt, therefore, to renew the linings, if needful, where fermenting material is used. Recently-collected leaves will, with the help of dung once turned, yield a very steady heat, and the better in large masses.

FORCING.—Refer to notes of the past few weeks, give plenty of water to plants that have started away well, and syringe with tepid water on bright mornings, giving air afterwards when the leaves are dry. Beware of high night temperatures; beginners in forcing invariably make their first mistake in using too much heat at night, and the consequence is spindling growths and ill-developed flowers.

VINES grown in pots for forcing for early grapes may now be shifted into large pots, and the safest way to do it will be to shift pots and all, and without turning out the roots of the vines. Prepare the 12-inch pots with crocks and a few inches of compost; enlarge the drainage holes of the pots the vines are in, then place these pots inside the larger pots, and fill in with tough turfy compost; the outer pots will soon be full of roots, and the vines may be allowed to carry all the bunches they show, and when these are ripe the vines should be destroyed. Vines to rest from this time to be pruned at once; in fact, early pruning is the only safe method of preventing bleeding.

Correspondence.

LONG-CONTINUED EXHIBITIONS.—I have read with considerable interest the discussion which has been going on in the Magazine respecting the pelargoniums shown at Manchester by Mr. J. Wills and Mr. J. Watson. But, sir, as you have expressed a hope that there will be no more correspondence on the subject, I will not trouble you or your readers with any remarks of mine on that point. But it seems to me that the discussion gives rise to the question, whether exhibitions should be continued for such a length of time as that occupied by the late Manchester Show. We are apt to jump from one extreme to the other. We have been in the habit of holding shows of one day's duration; now we leap at one bound to *nine* days, which of course includes one Sunday. It is not reasonable to suppose that the owners of choice, rare, or new plants will consent to allow them to remain for eight or nine days in an exhibition house or tent. Cold draughts from doors or openings, a dry atmosphere, and sometimes lots of dust, will injure, if not spoil, tender plants that have been nursed with every care in proper structures. But these choice things are just what the public want to see, and also what proprietors wish to show. Hence special arrangements are made with committees and managers of shows, to the effect that, provided they will allow such and such things to be removed after the first or second day, then they will exhibit them. Now, I know that this is done, and that it was done at the late Manchester Show. Mr. Wills admits that he removed his best geraniums; but Mr. Toll also removed the collection of twenty orchids which had received the first prize of £20. And this made a much more serious gap than the exchange or substitution of a few pelargoniums. Now I do not blame Mr. Toll for removing his splendid plants, for those not so removed cut a sorry figure by the end of the ninth day. But then we must not be too hard upon Mr. Wills for doing the same thing with his plants, because what is right and fair for one exhibitor is equally so for another. Now Mr. Editor, I always think it best to steer midway between two extremes. One day's show is not enough for societies—it does not pay. Eight or nine days is too long for exhibitors—it spoils their plants. Then say *three* days, and not allow any plant to be removed till the end of the show, and treat all exhibitors alike. A MANCHESTER GARDENER.

THE PARADISE AND QUINCE STOCKS IN ENGLISH GARDENS.—On the subject of the discussion on the cultivation of fruits, the following letter has been sent by a well-known cultivator to one of the disputants: I had not read two lines of the critique by "Fruit Cultivator and Traveller" before I settled in my mind who the man was. *This is his system of advertising* whenever any one dares to touch upon "fruit-growing," especially upon some pet points, guarded over by what we might aptly call the Cerberus of fruit-growing on quince or paradise stocks, orchard houses, or cordon training, things he has taken under his special protection, and we be to the adventurous cultivator that dares to differ with him! Down he comes, like a great spider upon an unlucky fly. The gardeners in our parts call him "The Fruit-tree Spider," and say, "Oh! another of his long advertisements, based upon the fact that he has something wonderful in the way of fruit-trees, fruit-tree stock, or his 5,000 Louise Bonne pears, which he has held up to the public

twenty times as being the *ne plus ultra* of fruit-growing." Although a little while ago, in his controversy with me about quince stocks, he said that the 5,000 had taken the yellows, and had been put into quarantine, they are now let loose upon you, and to charm the public ear as something that is worth everybody's attention in the way of making a fortune; in fact, it is like the folks who offer a large fortune for a small sum. Send one penny stamp, and I will tell you how to clear £1000 per annum, *i. e.*, "Plant Louise Bonne pears, and buy them from me, and quince stocks. *I have the largest stock of these trees in Europe.*" This was the exulting climax to one of his broadsides against somebody not long ago, who dared to say something against quince stocks. Holding the largest stock in Europe (??), no wonder "Mr. Spider" slid with electric rapidity down his line on the head of such an intruder. I dared to differ from him, or at least his ally, Mr. —, about the paradise stock. They both declared it to be too tender for England (!!), and were tacitly supported by the editors of —. (I send you the numbers, that you may see what the parties said.) Now, the Pommier de Paradis stock will live where no other apple-tree except the Siberian Crab will live, but it will *not thrive in dry warm soils*. Like the quince, it soon perishes in such; they are both admirably calculated for wet or heavy soils, but in such a winter as our last, 1866-7, the quince, unless where its junction with the pear was covered two or three inches with soil, suffered in damp places very much. I lost hundreds of trees that were not covered as above; *but not a twig of the paradise was hurt*, although only a few yards separated the quince from them. It is just perfect willing blindness, brought on by having another kind of stock to sell, that could cause any man to say that the Pommier de Paradis is tender. I enclose a letter from M. Decaisne to me, in which you will see that the learned Professor said, "Il ne gèle pas." I said the worthies who had combined to destroy it might roast it, but they could not freeze it to death. I send you some stocks and a few apples worked on it, to show you how well they grow upon damp soil, not saturated. I have an old tree planted under the end of a spout which conveys the water from the roof of a vinery. It *thrives and luxuriates*; it is in imitation of the natural habitat of the plant in the Caucasus. The tree bore two dozen of fine, deliciously-flavoured, aromatic fruit this season; but they must be eaten from the tree, otherwise they lose their flavour in two days. I find that all the large apples grow freely and bear abundantly when grafted upon this stock, and that the fruit partakes of its fine aromatic flavour, generally speaking. Many are much larger than from crab stocks, and all the small-growing kinds bear so that the trees are exhausted in 12 to 16 years. This might be remedied by timely thinning. I have sent you a paradise stock in which the bud was killed by the cold, to show you how well the stock grew after. We had hundreds of crab stocks injured, and I have enclosed a piece of an apple-tree, to show what havoc the severe frost makes with some kinds of apples. Many pear trees were split right through. To look at the apple branch, you would think it was canker produced by the soil. I do not think that trees canker much from the soil being uncongenial, but that the greatest portion of cankered trees have become so from having been frozen. I have hundreds of trees so destroyed, all of which were in perfect health before the frost. I never saw a paradise stock hurt; but it must be borne in mind that, like the quince, it is useless upon dry and warm soils.

Replies to Queries.

Z. Z.—You are quite mistaken. If we replied privately to all who ask for replies that way, one month's work would complete our labours. We do not engage to write privately to anybody.

J. R.—The bulbs of *Lilium auratum* may be left in the ground all winter, but it would be advisable to heap a small cone of coal-ashes or sand over them. We cannot encourage you to attempt keeping fuchsias and geraniums all winter in a trench out of doors with boards over them. We would rather advise you to throw them away, and thus save yourself trouble and disappointment.

Constant Reader.—In the absence of information on the construction of the furnace and flue, we cannot point out a specific remedy, but we can offer a hint that may prove valuable. Devise some means of warming the flue quickly prior to properly lighting the fire. Burn shavings, crumpled paper, straw, and other light stuff, to force a body of flame into the flue, and, probably, if the fire is properly lighted while the flue is warm the evil complained of may be remedied.

Subscriber will find practical papers on the treatment of pot roses in the numbers for July 22, 1865; October 21, 1865; December 8, 1866; and March 30, 1867.

T. C.—We know nothing of the stove you inquire about.

Young Beginner.—Caladiums must be kept rather dry, and in a temperature of about 40° while resting. *Pilea muscosa*, the "artillery plant," must be kept in the stove during winter, but will do very well in the greenhouse in summer. The *Aristolochia* sp. is probably a stove plant; but we cannot say for certain, unless you can give the specific name or the native country of the plant. *Chamærops humilis* will do better in the greenhouse than the stove. We are not acquainted with all the geraniums you name, but we can advise you to do justice to Dr. Lindley, Eleanor, Beauty of Oulton, Provost, Editor, and Le Grad. Beauty of Brixton is not good enough for exhibition, but is valuable for early flowers.

Westmoreland.—An amateur is one who cultivates plants for his amusement solely, as distinguished from one who grows them for sale, or who is employed in the capacity of a gardener. The interpretation of the term varies in different places; as, for example, at the great London exhibitions gentlemen's gardeners are considered amateurs; in the country another rule prevails. Your vines want the help of heat during April and May.

Friend.—It is the rule, and not the exception, for recently-purchased male aueubas to flower in November or earlier. It is owing to the artificial treatment they have been subjected to, and which the trade are compelled to adopt in order to multiply them rapidly. After you have had it one full season in the open air it will flower at the same time as the females, but you must keep it in the greenhouse the first winter. The pollen should be brushed off daily into a sheet of tinfoil, or a dry box of some kind, and it would be well to spread tinfoil over the soil in the pot to catch all that falls. If kept dry its vitality will be preserved, and it may be applied to the female flowers when they are ready to receive it in the spring. It is advisable to place the female plants under glass, for better convenience of fertilizing—that is, if they happen to be in pots.

T. Peachey.—The large-leaved plant is *Begonia semperflorens alba*; the small-leaved plant is *Begonia grossulefolia*.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				WEATHER NEAR LONDON, 1866.			M. Imp. avrg of 43 yrs. Grwh	Orchids that may be in bloom, 1, Indian House; 2, Me...an House; 3, Greenhou...e.	M D					
			rises.	Sun sets.	Moon rises.	Moon sets.	Barometer.	Thermometer.	Rain								
1867			h. m.	h. m.	h. m.	h. m.	MX.	MIN.	MX.	MIN.	MM.						
24	S	23rd Sunday after Trinity	7 34	4 0	5 15	n. m.	29 88	29 71	49	39	44.0	·01	41·8	Dendrobium Lowii, 1.	Horneo	24	
25	M	South London Chrysanthemum Exhibition.	7 36	3 58	6 21	..	29 51	29 42	53,	30	41.5	·00	41·7	Goodyera discolor, 1.	Hybrid	25	
26	T	[South St., Camberwell, 25th, 26th & 27th.	7 37	3 57	7 24	..	29 93	29 80	49	36	42.5	·01	41·5	..	Domini, m.	Hybrid	26
27	W	Princess Teck born, 1833.	7 39	3 56	8 24	..	30 63	29 84	50	23	36.5	·00	41·4	..	pubescens, G.	N. Ameri.	27
28	Th	Washington Irving died, 1859.	7 40	3 55	9 16	..	30 23	30 16	47	24	35.5	·00	41·1	Miltonia Karwinski, m.	Hybrid.	28	
29	F	Sir Philip Sidney born, 1554.	7 42	3 55	10 4	..	30 21	30 15	51	26	38.5	·00	40·7	Sophonites cernua, 1	..	29	
30	S	St. Andrew.	7 44	3 54	10 46	..	30 09	29 88	45	30	37.5	·00	40·6	..	violacea, 1.	..	30

The Gardener's Magazine.

SATURDAY, NOVEMBER 23, 1867.

CLEMATIS JACKMANI is undoubtedly a true hybrid, and the type of a new race of ornamental plants. It was originated by Messrs. Jackman and Son, of the Nurseries, Woking, by crossing *Clematis lanuginosa* with *C. Vitiella* in the first instance, but possibly subsequent crosses of the progeny were made with the aid of the pollen of *C. carulea*, and we have sometimes thought we could detect the parentage of *C. campanuliflora* in the race. Messrs. Jackman have not published any account of their operations; and while great commercial interests are bound up with their work, it would perhaps be unreasonable to expect them to relate in detail the several stages of the process by which at last they have originated a distinct and most valuable race of flowering plants. It will suffice for the present that the forms and colours of the flowers of this race are new to our gardens, and surpassing in splendour by many degrees the handsomest of the hardy clematises hitherto known to cultivators. This race offers elements for decorative purposes which are certain to be appreciated; for the majority present us with shades of blue, which are scarce, and the flowers are, generally speaking, so large and so abundantly produced, that in respect of their colours they have no parallel amongst garden flowers at the season when they are at their best, in the later part of the summer and throughout the autumn. Nor is it a small consideration that this race is as hardy as its parents; we are inclined to believe some degrees more hardy, for the last severe winter did no harm to them in places fully exposed. And in respect of relative hardiness, it is worthy of observation, that so long as the roots of the plants are not destroyed, the destruction of the wood is but a small loss, in the event of a winter severe enough to be mischievous to that extent, for the roots will throw up new shoots in just the same way that own-root roses do, and, as almost any hardy plant will do, renew itself from the root, if not budded or grafted. These clematises, varieties of the hybrid Jackmani, merit attention not only as superb ornaments for walls, trellises, rockeries, and other places where climbing plants are required, but also for planting in large beds to make grand masses of blue, purple, and crimson, the plants being trained out and pegged down to produce an even sheet of leaves and flowers. Since bedding has become in great part a system of repeating *ad nauseam* a few generally approved formulæ, it is matter of thankfulness to be tempted by the offer of a new race of plants to go out of the beaten track, and attempt something new; and assuredly these varieties of clematis will give a new and fresh, and perhaps surprising, tone of beauty to the parterre wherever they are generously dealt with. Nor should we forget what may be done with them as pot-plants. Messrs. Jackman have demonstrated, by the specimens they have presented at several of the exhibitions held at Regent's Park, that these plants may be grown in pots to such perfection that shall find but few, even amongst the vast variety of stove and greenhouse plants, to equal them. Certainly some of their exhibition specimens have been glorious for contour, complete furnishing, and abundance of splendid flowers.

To develop the beauties of these new varieties to the utmost, a light rich soil is requisite. A warm position is better than a cold one, yet relative climate is not of such great importance as full exposure to sunshine and a tolerably dry subsoil. Every kind of clematis is at home on chalk, and probably in many gardens on the chalk, where some favourite bedders make but a poor figure, these plants would prove of great value, if assisted with good manure and leaf-mould to give them a fair start in the first instance. To turn them to the best account as bedding plants, they should be grouped in large beds, or in clumps on borders, the plants being put at a distance of from two to three feet apart, and to be pruned back rather close every year. Their brilliant shades of maroon, purple, and purplish crimson cannot be equalled by any other race of bedding plants; and wherever and whenever they are seen, they will be renowned and remembered. As this is a good time as any to plant these clematises, we subjoin a select list of a few of the varieties amongst the very many we

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have seen from time to time and reported on in these pages. All are Jackman's except those with names of raisers attached:—

- C. Jackmani*.—Flowers 6 or 7 inches across, velvety violet-purple; a magnificent hybrid.
- C. lanuginosa pallida*.—Flowers fully expanded, the colour lilac, with reddish bars down the centre of each petal, or, to speak with strict technicality, sepals.
- C. rubro-violacea*.—Flowers velvety reddish tinted violet; remarkably beautiful.
- C. Vitiella amethystina*.—The flowers have curled petals, and are of a pale violet-blue colour; very beautiful.
- C. Vitiella Moorvana*.—Very closely resembling *C. Vitiella* in the form of the flowers; colour deep violet.
- Prince of Wales*.—Flowers deep purple with red bars. The whole series should have been named as florists' flowers, as this is, instead of in dog Latin, which is bad enough for botanical curiosities, but for useful garden plants unendurable.
- Magnifica*.—Very large and finely-formed flowers of a soft purple colour, each petal having a sharp bar of red down the centre, producing in the flower the appearance of a four or five rayed star.
- Velutina purpurea*.—Large flowers of a beautiful maroon-purple colour.
- Rubella*.—A very fine variety, producing abundance of flowers, and which have generally five or six petals; the colour velvety claret shading to black; a grand, massive, and sometimes astonishing variety.
- Lady Caroline Neville* (Cripps).—Delicate lavender with dark stripe.
- Tunbridgense* (Cripps).—Reddish purple with blue stripe in the centre of each petal.
- C. lanuginosa candida* (Bull).—A pure white-flowered variety of the beautiful *lanuginosa*.
- C. azurea (carulea) reginae* (Henry).—Flowers deep mauve or pale violet colour, usually with six to eight petals; fine.

Any of our readers who can find amusement in searching through our reports, especially for the years 1864-65, may enrich their lists of choice varieties of *Clematis* with others besides those enumerated above. We have only directed special attention on the present occasion to such as we happen to be able to speak of with confidence, after some experience of their cultivation. It is quite possible, and we think highly probable, that the varieties we have no practical knowledge of may be quite equal in beauty to those above described.

THE HIBBERD TESTIMONIAL.—This has been wound up, and the presentation made to Mr. Hibberd in just such an elegant and considerate manner as the friends of the recipient expected and desired. Mr. Hibberd will, no doubt, embrace the earliest possible opportunity to return thanks.

THE FINDLAY TESTIMONIAL.—The subscriptions to this fund amounted to £246 17s. 6d. The expenses of printing, collecting, &c., were £30 11s. 6d. The remainder was bestowed in providing a presentation plate, which cost £6 6s., and filling a purse with the balance, £210. The presentation was made ten days ago, and Mr. Findlay acknowledged the compliment in the graceful way that is his wont; and an affair, creditable to all concerned in it is thus agreeably terminated. "Worth makes the mau," &c.; therefore, to set a price on Mr. Findlay's labours and talents is impossible.

HARDY HERBACEOUS PLANTS are fast rising in popularity, and it is no doubt quite reasonable that the "Garden Oracle" for 1868 contains lists of selected varieties comprising the best known in every class, and numbering in all about 500 species and varieties. The editor will challenge the wise in such matters to find in his selections a single bad or even second-rate (of its kind) species or variety in the whole of the list.

THE ROYAL BOTANIC SOCIETY intend to take the lead in the exhibitions next season, and will probably startle the public with a great exhibition in the very dawn of spring.

THE TRIALS OF VEGETABLES AND ROOTS at Stoke Newington, and in respect of which reports on peas, lettuces, onions, &c., &c., have been published, will be continued until every class of vegetables and roots of which there are many varieties have been thoroughly revised. The Stoke Newington collection of potatoes is probably the largest ever made, comprising in all about 200 varieties; this will form the subject of a report shortly. When these reports are completed, we shall endeavour to reduce and classify the varieties, with a view to abolish bad and establish good sorts, and settle all existing difficulties of nomenclature.

THE FRENCH RAT-TAMER.—The most popular of the shows of the season at St.-Cloud fair has been *l'homme aux rats*. The name of this Rarey of the rat race is Antoine Leonard. His sole theatre is a sort of perch, which he sticks into the ground, and then he takes his *corps de ballet* out of his pocket. At his word of command the rats run up and down the perch, hang on their legs, then on two, stand on their head, and, in fact, go through a series of gymnastic exercises that would put Blondin himself to the blush. His crack actor is a gray rat he has had in his troupe for eleven years; this old fellow not only obeys Leonard, but is personally attached to him. It is a curious sight to see Leonard put him on the ground, and then walk away. The creature runs after him, and invariably catches him, however many turns he may make to avoid him. An Englishman offered 50f. for him about two years ago, but Leonard would not separate from his "old and attached friend."

Exhibitions of Chrysanthemums.

MR. SALTER'S EXHIBITION OF CHRYSANTHEMUMS.

Mr. Salter's exhibition, like every other of the kind, is this season some degrees less brilliant than we are accustomed to, many of the new varieties being undeveloped at so late a period as the 16th, when we made a call for inspection. To be sure, there are plenty of flowers, and folks who go to be amused, or whose business it is to pick up notions practical, will not be disappointed. As regards the new varieties, however, it is scarcely likely they will be in a fair state for judging of their merits till quite the end of the month. The old lean-to is very gay with established varieties, and Mr. Salter takes care to sprinkle amongst the finished show flowers of the incurved section a few of the dashing reflexed and tassled kinds, to vary and enrich the display; for as conservatory flowers these are of great value, as they are not only, generally speaking, rich in colour, but they break up the monotony of the very formal exhibition of flowers. Particularly noticeable for their fine colours are, Bixio, Chevalier Domage, Prince Albert, Compactum, Rose Leech, Alma, Annie Salter, Christine, Invincible, Julia Grisi, Jewess, Pelagia, Pagne, Julia Lagraverre, Lord Clyde, Madame Poggi, Madoua, Maréchal Niel, Mount Etna, Mr. Murray, Prince Consort, Quilled Beauty, Superbe, and White Christine.

In the incurved section, the most striking for beauty of form and colour are Venus, Prince Alfred, Prince of Wales, Queen of England, Jardin des Plantes, Gloria Mundi, Beverley, Golden Beverley, Mrs. George Rundell, Hereward, John Salter, Aurea multiflora, Dido, Dr. Brock, Dupont de l'Eure, Formosum, Garibaldi, General Harding, Golden Ball, Golden Queen, Lago, Lady Harding, Little Harry, Lord Palmerston, Mr. Brunles, Mrs. Haliburton, Rev. J. Dix, Robert James, Sir Stafford Carey, Trilby, Vesta, Yellow Perfection.

In the second house, or top of the T which constitutes the "winter garden," Mr. Salter has a great batch of seedling Japanese chrysanthemums. These are mostly of the "dragon" class, the florets being set round the central disk like wires, in some cases stiff and straight, in others curled and twisted in a most fantastic manner. A considerable number of these will be destroyed, but a selection has been made of a few that will be valued for conservatory decoration. Generally speaking, these Japanese varieties flower very profusely, and some of the plants here are literally smothered with flowers. One that had been condemned for a certain flimsiness of petal, and poverty of colour, was literally a heap of flowers of a cheerful tone of pale lilac, and if it had but some degree of substance would be a marvel amongst Chrysanthemums.

The collection of variegated-leaved plants at this nursery is admirably kept up, and has of late been largely reinforced. One of the most remarkable plants in the place, and, in its way, one of the most remarkable plants ever seen, is *Beta chiliensis*, a gigantic species, with ample, deeply-wrinkled, black-bronze leaf, and thick stem and mid-rib of the most intense carmine or of a yellowish scarlet colour. The growth of the plant is free, and it appears to be more hardy than the common beets of our gardens, as on the 16th a plant stood in the open ground unhurt: this, however, may be owing to the shelter afforded by the closely adjacent walls and buildings. Mr. Salter has but some half-dozen plants, and from these he hopes to raise a few seeds next year. This beet makes a mere spindle of a root, and is apparently only worth consideration for the splendour of its leaves; but it may just happen that the fleshy stem contains sugar enough to render the plant valuable for manufacturing purposes. Another meritorious novelty is a new variety of *Canna* called *Maréchal Vaillant*, which has peculiar narrow pointed leaves which are heavily striped and shaded with purplish bronze on a dull green ground. It is certainly one of the best for the beauty of its leaves. *Dahlia imperialis* is coming into bloom, or, at all events, a large plant in the show-house has half a dozen or more flower-buds of the size of marbles on it, but it is quite a question if the temperature is sufficient for their full development. If transferred to an intermediate house, the plant would probably flower perfectly.

The following are the new varieties seen in flower during our visit:—

Baron Beusi (Salter).—A large incurved flower of fine quality, the colour chesnut with gold points outside, but on the inner side the petals are reddish chocolate.

Lord Derby (Salter).—A superb large incurved flower, in the way of Prince Alfred, but quite distinct; the colour is rich dark claret turning over silvery purple; first-rate.

Captivation (Salter).—Not incurved, and like a dahlia, colour puce pink with tinge of orange in the centre; a lively pleasing variety, well adapted for the conservatory and to grow as a specimen plant.

Golden Orb (Salter).—Large incurved, clear canary-yellow.

Golden Thread (Salter).—A Japanese variety; a large, curiously quilled flower, looking as if formed of stiff golden wires set on a central disk, very early, and highly decorative.

Aurantia (Salter).—A Japanese variety, buff yellow, handsome.

Tarantula (Salter).—A Japanese variety of remarkable form, more nearly resembling a gigantic spider than a flower of any kind; the wiry or thread-like florets radiate from a button-like disk; they are at first yellow, but afterwards change to purple.

Meteora (Salter).—A Japanese variety, of a fine orange colour.

Tycoon (Salter).—A Japanese variety, the flower very large, colour fine cinnamon inside, the back golden.

STOKE NEWINGTON.

The twenty-first exhibition of this society took place in the school-room opposite Abney Park Cemetery—a roomy and well lighted apartment admirably adapted for the purpose. It was in every respect satisfactory, though here as elsewhere many of the best specimen plants were scarcely in full flower, the season being unfavourable. The plants were arranged so as to form a continuous bank all round the room, those on the platform at the head of the room being improved in appearance by the intermixture with them of some bright green ferns and other elegant plants.

PLANTS.—The best group of six plants on this platform came from Mr. Adam Forsyth, of the Brunswick Nursery, Stoke Newington, who took the first place in the class for six. Mr. Forsyth's plants were Alma, Lady Harding, Golden Christine, superb; Annie Salter, Vesta, Dr. Sharpe; this is one of the richest in colour of all known chrysanthemums, and deserves to be everywhere grown for the conservatory and exhibition. Second, Mr.

George, with noble plants, rather less forward in respect of bloom than those of his more successful rival. The varieties were St. George, Vesta, Christine, Prince of Wales, Golden Christine, Annie Salter. *Six pompones*: First, Mr. Butcher, gardener to C. Ballance, Esq., Lower Clapton, with White, Golden, and Lilac Cedo Nulli, Hélène, Andromeda, Bijou d'Horticulture, neatly trained and with plenty of flowers. Second, Mr. A. Forsyth, with White Trevenna, finely formed; three Cedos, a Carrobert, and a Duruflet. *Three plants, large*: First, Mr. Drain, nurseryman of Kingsland, with very fine examples of Vesta, Christine, and White Christine. Second, Mr. George, with Golden Hermine, Prince Albert, and Lady Harding, all admirably grown, but scarcely forward enough. Third, Mr. A. Forsyth, with a splendid plant of Dr. Sharp, glowing with colour; Golden Christine and Annie Salter. *Four plants, large*: First, Mr. Drain, with Christine, White Christine, Golden Christine, and Lord Ranelagh. Second, Mr. Shield, with Annie Salter, poor; Beauté du Nord, Vesta, faulty; Christine. *Three pompones*: First, Mr. Butcher, with Salomon, Golden Cedo, and Andromeda. *Six pyramid pompones*: First, Mr. Butcher, with Lilac, White and Golden Cedos, Salomon, Andromeda, St. Thais, all in good growth and training, but backward in respect of flowers. *Six standard pompones*: First, Mr. A. Forsyth, with pretty plants of Lilac and Golden Cedos, Calliope, Andromeda, Bob, and Mr. Astie. Second, Mr. Butcher, with Brown, White, Golden, and Lilac Cedos, Bob, and Salomon. *A miscellaneous collection*, put up by Mr. A. Forsyth, obtained, as it deserved, the very fancifully-painted and well-built wheelbarrow offered by Mr. Shepherd, coach-builder, of Stoke Newington, for the best group. In this collection we noticed as particularly good, Duruflet, Rose Trevenna, Cedo Nulli, Prince of Wales, and others.

CUT FLOWERS, best 24, Mr. Slade, of Kingsland, with Novelty, Prince of Wales, Golden Beverley, Madame Lebois, Cherub, King of Denmark, Golden Dr. Brock, Lady Harding, Aurea multiflora, Cassandra, Rev. J. Dix, Duchess of Wellington, Orange Perfection, White Formosum, Yellow Formosum, White Globe, Gloria Mundi, Lord Ranelagh, Prince Alfred, Beverley, General Bainbrigge, Jardin des Plantes, General Slade, Mrs. G. Rundle; a very fine lot, and the best twenty-four we have seen as yet this season. Second, Mr. James, of the Rochester Castle, with Rev. J. Dix, Yellow Formosum, Mrs. G. Rundle, Lady Harding, Pearl, Lady Talfourd, Golden Beverley, Cassandra, Dr. Brock, Prince of Wales, General Slade, White Formosum, White Globe, Jardin des Plantes, Lady Slade, Prince Alfred, Venus, Orange Perfection, Beverley, John Salter, Stellaris globosa, Nil Desperandum, Aurea multiflora, Sam Weller. Third, Mr. Berry, of Roehampton, the best of whose flowers were, Queen of England, White Globe, Prince Alfred, Jardin des Plantes, Her Majesty, Empress of India, Yellow Perfection. *Best 12*, Mr. Berry, with Empress of India, Prince of Wales, Golden Dr. Brock, Jardin des Plantes, Lady Harding, Antonelli, Prince Alfred, Beverley, Yellow Formosum, Queen of England, Nil Desperandum, Lady Slade. Second, Mr. James, with Prince Alfred, White Globe, Golden Beverley, Beverley, Venus, White Formosum, Prince of Wales, Nil Desperandum, Golden Dr. Brock, Lady Harding, Mrs. G. Rundle, Aurea multiflora. Third, Mr. Slade, with Orange Perfection, Prince Alfred, Jardin des Plantes, Golden Beverley, and others. *Best 12, separate competition from the last, and more especially adapted for small growers*: First, Mr. Heard, Nurseryman, of Culford Road, Kingsland, with White Globe, Golden Beverley, Dupont de l'Eure, John Salter, Lady Harding, Rev. J. Dix, Beverley, Sir Stafford Carey, Rifleman, Prince Alfred, Robert James, Jardin des Plantes. Second, Mr. Howe, the indefatigable and genial honorary secretary, and one of the mainstays of this old society; his flowers were, John Salter, Golden Beverley, Dr. Brock, Mrs. Rundle, Prince Alfred, Gloria Mundi, Prince of Wales, White Globe, Lady Harding, Jardin des Plantes. Mr. Drain and Mr. Moxham also competed, and put up good flowers. There were two classes for 6 large flowers, to enable large and small growers to compete separately; in one of these (class 10) Mr. Whetdale took first place with Beauty, Golden Beverley, Prince of Wales, Her Majesty, Pio Nono, and Mrs. George Rundle. Second, Mr. Moxham, with Jardin des Plantes, St. Patrick, Lady Harding, Beverley, Prince Alfred, Golden Beverley. Messrs. Heard, Merry, Hodson, Walker, Snare, and Caudrey, also competed. In the corresponding class, for six large flowers (class 11), Mr. Shield was first with Empress of India, very fine indeed; Prince of Wales, Queen of England, Venus, Formosa, Golden Eagle. Second, Mr. James Crute, of Holloway, with Prince Alfred, fine; Golden Beverley, Rev. J. Dix, Beverley, White Formosa, Lady Harding. Third, Mr. Smith, of Haggerstone, who had a fine Mr. Brunles. Fourth, Mr. Heard, of Upper Clapton. *12 Anemone flowers, large*: First, Mr. James, with Madame Goderau, Margaret d'Anjou, Fleur de Marie, St. Margaret, Prince of Anemones, Gluck, Queen of Anemones, George Sand. Second, Mr. Howe, with Lady Margaret, Gluck, George Sand, Queen Margaret, Prince of Anemones. Third, Mr. Snare. *36 Anemone Pompons, in twelve varieties*: First, Mr. James, with beautiful bunches of Antonius, Perle, Florence Nightingale, Madame Sentir, Regulus, Firefly, Mr. Astie, Queen of Anemones, Roso Margaret, Madamo Montels, Marie Stuart. Second, Mr. Howe, with Regulus, Mr. Astie, Toinette, Margaret de Wildeman, Perle, Madame Chalonge, Antonius, Sidonie, Madame Montels, President Morel, Mrs. Wyness, Firefly.

NEW VARIETIES.—Mr. Wyness, gardener to Her Majesty at Buckingham Palace, had a first-class certificate for a beautiful flower called *Princess Beatrice*. Mr. A. Forsyth, of Brunswick Nursery, Stoke Newington, obtained a first-class certificate for a fine flower called *Mrs. Sharpe*. Mr. Slade took first place for the best six new varieties of 1866-67, with Lady Talfourd, Mrs. G. Rundle, Gloria Mundi, Hereward, Golden Beverley, John Salter, all fine flowers. Messrs. E. G. Henderson and Son, Wellington Nursery, St. John's Wood, presented a beautiful collection of cut flowers, for which a special certificate of merit was awarded; amongst them were two new Japanese varieties of splendid character. *Cresse de Beauregard* is of immense size,—say very nearly as large as the crown of a hat,—the petals (florets) spread out from the disk like finely-cut strips of soft silk, their colour being a beautiful shade of rosy-pink, the colour of the disk yellow. *Madame Godillot* is large, but not in that respect equal to the last; the rays are wiry or thread-like and much curled, a sort of mad-looking flower, of an intense orange-red colour; the centre yellow. All proper florists are horrified at the sight of such things as these, but they will please people who like a gay conservatory without regard to the technicalities of floriculture, and we strongly recommend them for their intrinsic beauty.

MISCELLANEOUS.—Mr. Ware, of the Hale-Farm Nurseries, Tottenham, enriched the exhibition with a set of three large neatly-made baskets filled with choice hardy plants, consisting chiefly of Sedums and Sempervivums grouped in masses as for bedding effects. Amongst them the most conspicuous for colour were Sedum dasyphyllum, Sedum glaucum, Sempervivum californicum, Sempervivum tectorum; this, though common, is very effec-

tive at this time of year, owing to the fine brownish purple colour it acquires. Mr. George had a certificate of honour for a beautifully furnished épergne for the dinner table. Mr. Shirley Hibberd contributed a mixture of plants for filling up, also a collection of specimens of Ivies, about fifty in number, and a collection of examples of variegated Kale, some of which were finely cut and richly coloured. These and the ivies were principally shown to indicate their suitability for the decoration of flower beds in winter.

NORTH-WESTERN AMATEURS'.

This Society restricts the competition for its prizes to amateur cultivators only, and its exhibitions have always been supported with spirit. On the present occasion, though the show was opened on the 13th, there were many beautiful collections of both plants and flowers, and the effect produced was highly gratifying.

PLANTS.—*First*, 12, Mr. Dolamore—the most attractive plants in this group were Prince of Wales and Hereward; second, Mr. Cox, who had fine examples of Prince of Wales, Gloria Mundi, and Beverley. *First*, 6, Mr. Morris, who had beautiful examples of Prince Alfred, Beverley, and White Globe—this being a very fine group; second, Mr. Bamlet, who had Prince of Wales and Beverley, fine; third, Mr. Cox, who lighted up a good group with a fine Antonelli; fourth, Mr. Spring. 18 *miscellaneous*: first, Mr. Bamlet, with a very pretty lot, just such as should be found at this time of year in every conservatory. The Cedo Nulli series were conspicuous in this group for their sparkle and freshness. *Second*, 18, Mr. Cox. *Three specimens*: first, Mr. Dolamore, Beverley and Gloria Mundi particularly fine; second, Mr. Norris, who had a fine Golden Dr. Brock; third, Mr. Cox, who had a fine Little Harry.

Plants, comprising incurved, reflexed, anemones, and pompons—12: first, Mr. Morris, with a splendid group, in which Golden Cedo Nulli made a conspicuous figure; second, Mr. Wilson, whose best plant was Lady Harding; third, Mr. Hartell. 6 *pompons*: first, Mr. Jennings, a beautiful group, rich in colour; second, Mr. Cox; third, Mr. Morris. 3 *pompons*: first, Mr. Wilson with Bob, Cedo Nulli, and Miss Julia; second, Mr. Cox, with white, yellow, and lilac Cedo; third, Mr. Paine. 1 *large flowering plant in any sized pot*: first, Mr. Pain, with Little Harry, one of the very best for the purpose, and admirably done; second, Mr. Isaacs, with Vesta, plenty of bloom, and well grown, but training rather defective; third, Mr. Dolamore; fourth, Mr. Parkinson. 1 *specimen pompon* in any sized pot: first, Mr. Cox, with Cedo Nulli, nicely finished; second, Mr. Isaacs, with Madame Marthe; third, Mr. Burnham.

CUT FLOWERS.—*Best* 12: Mr. Dolamore, who had Gloria Mundi and Lady Harding extra fine; second, Mr. Wilson, who had Rev. J. Dix and Prince Alfred good. 6 *large anemone flowers*: first, Mr. Dolamore. 12 *mixed large flowers*: first, Mr. Dolamore, with a fine lot, comprising Beverley, Princess of Wales, Nil Desperandum, and Golden Beverley; second, Mr. C. E. Do amore, who had fine examples of Empress of India and little Harry; third, Mr. Wilson. 6 *incurved*: first, Mr. Bamlet. 6 *large flowers*, grown in the open ground without glass: first, Mr. Bamlet; second, Mr. Isaacs. 18 *large flowers*, three in a bunch, with foliage, to be shown in 48-sized pots: first, Mr. Smith, who had Vesta and Beverley fine; second, Mr. D. Dolamore, who had Sylvia, a fine flower, White Globe, and Venus. 18 *pompons*, three in a bunch, with foliage, shown on a board: first, Mr. D. Dolamore, who had Firefly and Florence Nightingale fine; second, Mr. Bamlet, who had Madame Marthe and Duruffet fine. *Bouquet of Chrysanthemums*: first, Mr. Smith; second, Mr. Cox. An extra prize was awarded to Mr. Dolamore for a fine plant of Golden Beverley. The plants, generally speaking, were good; the cut flowers a shade less meritorious.

BRIXTON HILL.

The exhibition by this society, at the Christ Church School-rooms, rather disappointed us in the quality of the Chrysanthemums, but in its entirety this completely eclipses all other metropolitan exhibitions at this time of year, the show of fruit and fine-foliage plants being rich and profuse, and most tastefully managed. We remember when Mr. Cannell, now of the Fuchsia Nursery, Woolwich, laboured in establishing this society, making it a primary feature of its foundation that every available subject of the season should be admitted and encouraged, and the result abundantly justifies the labour expended, and the broad basis selected for the work. Having attended many of the exhibitions at Brixton Hill, we have great pleasure in recording that on the present occasion, though the principal subject of display, owing to an untoward season, was scarcely so good as in former years, the exhibition, nevertheless, was well worthy of the efforts that had been bestowed upon it, and afforded delight and satisfaction to all concerned.

PLANTS.—*Six Large*: 1st, Mr. Weston, gardener to D. Martineau, Esq., Clapham Park, with splendid plants of Vesta, Chevalier Domage, Christine, Golden Christine, White Christine, Abbé Passaglia. This group made a fine picture, and well sustained Mr. Weston's well-earned fame as a grower of specimen plants; he is as perfect a master of the chrysanthemum as of the fuchsia. 2nd, Mr. Howes, gardener to — Butler, Esq., Tulse Hill, with Attraction, Golden Hermine, Alma, Abbé Passaglia, Annie Salter, Florence Nightingale; a fine lot. 3rd, Mr. Smith, gardener to S. Oxley, Esq., with well-trained but rather backward plants, the best of which were Chevalier Domage and Vesta. *Six Pompons*: 1st, Mr. Weston, with well-trained plants of Golden, Lilac, and White Cedo Nulli, Andromeda, Lizzie Holmes, Hélène. *Six Pyramid Pompons*: 1st, Mr. Weston, with beautiful specimens of Canrobert, Andromeda, Miss Julia, Adonis, Golden and White Cedo Nulli. 2nd, Mr. Wells, gardener to J. F. Bennett, Esq., Tulse Hill, with Trophée, Andromeda, and others. 3rd, Mr. Crisp. *Three Chrysanthemums*: 1st, Mr. Alunn, gardener to — Treadwell, Esq., with fine examples of Jardin des Plantes, Golden Christine, and White Globe. 2nd, Mr. H. Battery, gardener to A. Houlder, Esq., Clapham Park, with Florence Nightingale, Christine, and Coronet. 3rd, Mr. Smith, who had a fine Cardinal Wiseman. *Three Pompons*: 1st, Mr. Glover, gardener to — Vickers, Esq., Streatham Common, with White, Lilac, and Golden Cedos, beautifully trained and flowered. 2nd, Mr. Howes, gardener to Mrs. Butler, Tulse Hill, with Golden and Lilac Cedo, and Andromeda; small plants, smothered with flowers. 3rd, Mr. Battery, who had good examples of Golden Cedo and Adonis. *Three Pyramid Pompons*: 1st, Mr. Alunn, who had in his group a fine Duruffet, showing the high qualities of this favourite variety when well done. *Best single specimens, large*: 1st, Mr. Weston, with Abbé Passaglia.

CUT FLOWERS.—24 *large incurved*: 1st, Mr. Salman, gardener to J. Raycus, Esq., with a splendid lot, comprising Prince Alfred, Golden Beverley, Lady Slade, Mrs. Cunningham, Nil Desperandum, Lucidum, Alarm, Goliath,

Iona, Lady St. Clair, Chernb, Princess Louise of Hesse, Princess of Wales, Robert James, Mrs. E. Miles, White Globe, Jardin des Plantes, Nonpareil, Prince of Wales, Beverley, St. Patrick, Queen of Englaad, John Salter, Lady Harding. 2nd, Mr. Whibley, gardener to Dr. Hood, of Croydon, with Little Harry, Admiration, Prince Alfred, Venus, Little Pet, Sam Slick, Beverley, Golden Ball. 3rd Mr. Webb, who had a nice lot, comprising Rifleman, Golden Beverley, Bella Donna, &c. 12 *large incurved*: 1st, Mr. Howes, with splendid examples of Jardin des Plantes, White Queen (Empress of India), Queen of England, Empress Eugenie, Virgin Queen, Mr. Brunles, Lady Harding, St. Patrick, Maréchal Duroc, Beverley, Prince of Wales, Dupont de l'Euro. 2nd, Mr. Salmon, with Priace of Wales, Lady Harding, Princess of Wales, and others. Equal 2nd, Mr. Webb, with Jardin des Plantes, Beverley, Boadicea, &c. *Six large incurved*: 1st, Mr. Howes, with White Globe, Mr. Brunles, Beverley, Venus, Jardin des Plantes, Abbé Passaglia. 2nd, Mr. Wells, with a fine Yellow Formosum, Themis, Cassandra, &c.

MISCELLANEOUS.—Mr. Wells and Mr. Spooner put up the best groups of stove and greenhouse plants in flower, comprising beautiful specimens of Erica hymalis, E. gracilis, Oncidium incurvum, Cypripedium insigne, Epacris Lowii, &c. In the class for fine-foliage plants, 1st, Mr. Tilce, gardener to J. Stutter, Esq., with a fine variegated pine, Alocasia Lowii, A. metallica, Cissus discolor, &c. 2nd, Mr. Salmon, with Maranta zebra, Alocasia zebraia, Maranta Portea, &c. The class for the best ornamental basket of plants was admirably filled—1st, Mr. Whibley; 2nd, Mr. Livermore; 3rd, Mr. Alunn. Various decorative plants and fruits were shown by Messrs. Livermore, Brasher, Glover, Carter, Faulkner, and others; amongst them we noticed good samples of Chinese yam, and well-ripened Sir Harry strawberries.

EAST TOWER HAMLETS.

The exhibition of this society, at the Edinburgh Castle, Rhodeswell Road, Stepney, was well worthy of the favour shown it by the public, for the attendance was highly satisfactory. The grouping of the plants was accomplished with taste and skill, and the general effect was improved by the contributions of Mr. Prestoe, of Victoria Park, who sent a fine lot of fine-foliaged plants.

PLANTS.—*Six pompons*: 1st, Mr. S. La Roche, with General Canrobert, Lilac, White and Golden Cedos, Miss Julia, Rose Trevenna; a fine lot, well trained, and with plenty of flowers. *Three plants, large flowers*: 1st, Mr. S. La Roche, with Annie Salter, Beauté du Nord, and Gloria Mundi, fine; 2nd, Mr. Baynton, with Golden Beverley, Princess Louise of Hesse, and Gloria Mundi. *Three untrained pompons*: 1st, Mr. Long, with Bcroll, Cedo Nulli, and Mr. Astie; 2nd, Mr. La Roche. *Four standard pompons*: 1st, Eickhoff, with the best standards in the show; the varieties were Antonius, Lilac Cedo, Aurora Borealis, Miss Nightingale. *Miscellaneous collection*: 1st, Mr. Eickhoff; 2nd, Mr. Pierce.

CUT FLOWERS.—24 *large*: 1st, Mr. W. Long, with a very fine lot, comprising Oliver Cromwell, Beverley, Nil Desperandum, Prince Alfred, White Globe, Anaxo, Vesta, Boadicea, Cassandra, Princess Marie, Novelty, General Bainbrigg, and others; 2nd, Mr. W. Eickhoff, with Little Harry, St. Patrick, General Slade, Nil Desperandum, Antonelli, and others, a rather poor lot. 12 *large*, a silver cup for the 1st, which was awarded to Mr. R. Askint, who showed a fine dozen of flowers comprising Cassandra, Prince Alfred, Beverley, Golden Beverley, White Globe, Rev. J. Dix, Cherub, Aregina, Nil Desperandum; 2nd, Mr. S. La Roche, with Gloria Mundi, Anaxo, Cassandra, Golden Beverley, Beverley, Prince of Wales, Abbé Passaglia, Princess Marie, a good lot; 3rd, Mr. W. Long, with Prince Alfred, Anaxo, Beverley, Gloria Mundi, White Globe, &c. 6 *large*: 1st, Mr. W. Long for a pretty lot, comprising Prince Alfred, Beverley, Princess Marie, Rifleman, Princess Louise of Hesse; 2nd, Mr. Eickhoff, with St. Patrick, Beverley, Nil Desperandum, Princess Louise of Hesse, Anaxo, Princess Marie; 3rd, Mr. Pilgrim, with Boadicea, Oliver Cromwell, Princess Louis of Hesse, Mrs. Haliburton, Princess Marie, Nil Desperandum. 18 *anemone pompons*: 1st, Mr. W. Eickhoff, with Antonius, Mrs. Wyness, Firefly, Madame Cha'onge, Miss Nightingale, Sidonie, Astrea, Margaradetta, a pretty lot; 2nd, Mr. S. La Roche, with Antonius, Perle, Calliope, Regulus, and others; 3rd, Mr. W. Long, with Perle, Regulus, Mr. Astie, Mrs. Wyness, Astrea, &c. 4th, Mr. Warren, with Mr. Astie, Perle, Calliope, Mrs. Wyness, Regulus, Astrea.

INSTRUCTIONS FOR THE CULTURE OF THE GLADIOLI.

The culture of this tribe, descended from *G. Gandavensis*, which itself has its origin from a hardy species, the *G. Psittacinus*, does not require any particular care. It will suffice to plant the bulbs in good ordinary garden soil, as much as possible well prepared previously to the planting season. They dislike a stiff compact soil, and succeed generally well in good friable sandy loam. They ought not to be planted in the same place for several consecutive years, and it must not be before the second or third year that they are brought back to the same spot.

Dry warm soil requires as a manure cow-dung, whilst in strong damp land horse-manure or road-scrappings are preferable. The proper season for planting is from the beginning of March till June, from fortnight to fortnight. In this manner a succession of bloom will be ensured from July till November. The late planted bulbs, however, will not ripen enough to be depended upon with safety for a following plantation. The largest bulbs generally flower first, but rarely produce the finest spikes. When planted simultaneously, large, medium, and small bulbs, there will be a good succession. If flowers are wanted as early as June, some bulbs can be planted in 6-inch pots in January, which are either placed in a cold frame or sunk in the soil under a south wall, and there covered with dry leaves or litter until the frost is over. Large bulbs must be planted 4 inches and small ones 2 inches deep. In case of drought, copious waterings are recommended.

As soon in the autumn as the leaves begin to dry or turn yellow, generally at the end of October, the bulbs may be considered sufficiently ripe to be taken up, and after having been dried, are to be stored in shallow boxes in a room where no frost is to be feared.

When the spikes begin to bloom, they may be cut and placed in flower vases, where they will continue to develop themselves, and thus make the finest bouquets imaginable, if associated with some verdure, such as Tamarix, Asparagus grass, or Arundo donax.—EUGENE VERDIER, *Fils aîné, Gare d'Ivry, Paris.*

BEDDERS.—No. II.

Unfortunately, when I prepared my former paper on this subject it was hurriedly written, and I had not sufficient time to refer to the contributions of your able correspondent, Mr. McElroy, which appeared in the Magazine of 21st and 28th September last, under the heading of "Ornamental-leaved Plants for Flower Garden." This is to be regretted, inasmuch as I should perhaps have merely referred to his remarks on several of the plants named, and not have troubled your readers with a repetition of what had been previously written by this experienced and able writer, although it may perhaps serve to do good, as my experience and opinion of the merits of the plants is with few exceptions much the same as that of Mr. McElroy. I will, however, briefly refer to a few of his remarks, more with a view to elicit the opinions of other amateur cultivators than for any other purpose. The *Iresine Herbstii* is so well spoken of by your correspondent, that I should be glad to hear from him the "secret" of his success. Is it that the soil of his garden is of a rich, loamy, moist nature, and so situated that the plants have been partially shaded? Its compact habit is certainly a great recommendation, and it is, moreover, easily kept and propagated; but the chief objection to its use is its wretched appearance at a time when everything else is at its best. And I believe that in nine cases out of ten amateurs by whom it has not yet been tried would be much disappointed with the result.

Centaurea gymnocarpa.—This and *candidissima* are both extremely useful and fine as bedding plants, and for the decoration of the conservatory; the former in particular is very striking during the winter months, mixed with other plants, and has the advantage of being more easily propagated, and is in my opinion much the prettier of the two, although both are undoubtedly very beautiful. I have used it as an edging to a large circular bed of *Coleus Verschaffeltii* this summer with the greatest possible success. The *Coleus* when well "done" is unsurpassed as a "foliage bedder." The plants should be struck early in the spring (in moist heat), potted off, and when the roots have taken hold of the soil the tops must be taken off. This will cause them to break and make nice bushy plants, which must be very carefully hardened off, and transferred to the flower garden the first or second week in June: not a plant here and there, but plenty of them, so that the ground may be well covered at once; this, and well trenching and manuring the soil prior to planting, I believe to be the secret of success. The *Centaurea* formed a most charming edging, and served as a protection to the roots of the plants; and by keeping the whole of the plants of the *Coleus* the same height, by occasionally pinching unruly shoots, it was truly beautiful and the colouring perfect. I consider it a mistake to recommend *Coleus marmorata* as a "bedder;" it is by no means so suitable for that purpose as *C. Verschaffeltii*; neither do I believe either *C. Gibsonii* or *C. Veitchii* will be nearly so effective. The latter of these is extremely good and pretty as a pot-plant for conservatory decoration, and is well worth cultivating.

Centaurea candidissima "*compacta*" (syn. *ragusina compacta*).—A great improvement on the former variety, but its price, consequent on its rarity, is much too high at present for it to be extensively used.

Poa trivialis argentea elegans.—I quite agree with Mr. McElroy as to the merits of this plant; it is without question remarkably effective in vases and suspended baskets in the winter and spring months, but quite useless as a bedder. I gave it a fair trial, and treated it well; but it had to be removed and replaced with my favourite *Dactylis glomerata*. I was much struck with its elegant appearance when visiting Messrs. Henderson's nursery, in the spring, and it is well worth growing in the manner described, or in pots, to be used as an edging for the front of a greenhouse stage; in this way it is grand.

Stachys lanata.—Not only is this quite hardy, but the difficulty is to kill it by almost any treatment. My stock was taken up just before the severe frost of last winter set in, and was by accident left exposed in a basket more than a fortnight; still it did not appear to have suffered much. It is a good poor man's bedder, looks well the whole year round, and if kept carefully and constantly pinched, is by no means a bad border or edging plant.

Balm, Golden Variegated.—In spring in a rockery it is exquisitely beautiful; but surely, Mr. McElroy, you do not recommend it as a bedder? Why, for nearly the whole of the summer it is in colour a miserable patchy green, with scarcely a mark of variegation showing. The "variegated mint," on the other hand, I have frequently seen do well, and retain its variegation perfectly; but even that at its best is not a desirable bedder; it is far too weedy, and never, in my

humble opinion, looks so well as many other of the numerous plants now so extensively used for edging.

Alternanthera, and their varieties.—I have tried *spatulata* out of doors on a small scale this year. It has done moderately well, sufficiently so to warrant a further trial; but I fear neither of them will make good bedders. Grown in pans for the greenhouse they are grand. I exhibited them at the last Taunton show, when they were very much admired. In this way they cannot fail to please.

Cerastium Biebersteinii.—Mr. McElroy has very much astonished me with his remarks on this plant. My experience differs entirely with his. I have tried it over and over again, always with the same result; and, strange enough, when visiting gardens where this class of plants is extensively used, I have heard but one opinion expressed, and that the same as my own,—"that *tomentosum* is by far the most effective." I consider *Biebersteinii* as only fit for the muck-heap; it is certainly not, for effectiveness, and general usefulness, to be named in the same day with its old successful rival, *tomentosum*. I find the latter should be replanted every third year, early in the spring; few plants look better as a broad edging to beds on a lawn. It must be frequently pressed by the hand into shape, and merely the straggling points kept cut. I have seen it in great perfection in the gardens at Kew and the Crystal Palace.

Fuchsia Golden Fleecy (E. G. H. & Son).—When I first met with this at the Exhibition of Tricolors at the R. H. S. Gardens in September last, I must confess I had my misgivings as to its being useful as a bedder, although in habit and colour it seemed all that could be desired. My doubts, however, on visiting the nursery in which the plants were growing, in a bed in the open ground, were quickly dispelled; for I at once saw that it was a real gem, and could not fail to bear out all that had been said of it. I hope to be able to give it a trial on a small scale next year, and strongly recommend others to do likewise.

The Laurels, Taunton.

J. B. SAUNDERS.

CULTURE OF THE TURBAN RANUNCULUS.

We may visit many gardens in the present day, in the spring of the year, without having the gratification of witnessing a bed of Turban Ranunculuses in bloom. But we can remember the period when scarcely a garden in which flowers were grown but would include amongst the early-flowering plants a bed of this then popular florist's flower, embracing all the varieties of Turbans, viz., the scarlet, yellow, and black. I do not think I exaggerate in saying that, among the many roots which are grown in masses, there are few when in bloom that surpass, for dazzling effect, the scarlet Turban Ranunculus. Their omission, then, from the list of roots which are planted for late spring decoration can, I think, be traced to no other cause than that they require extra attention in their treatment, in order to insure the certainty of their blooming in perfection. I introduce these remarks specially at this season, because most of us now are allotting to each bed the several kinds of roots and bulbs that we are about to plant for early and late spring flowering. Although the operation of planting the Ranunculus may be deferred to the latter part of January, or beginning of February, nevertheless it should not be later than the above dates. However, we had better at once prepare the beds for the reception of the roots, so as to be able to avail ourselves in the season of planting of the first favourable weather that may occur.

No root profits more by a change of soil than does the Ranunculus; so that in annually preparing your bed you should at least add about twelve inches in depth of fresh soil. But previous to contributing the same, let that which remains after the removal of the old soil be forked up to at least an additional depth of twelve inches, mixing with the same some good rotten manure. I prefer cow-manure free from any litter, if it is to be had. My reasons for giving preference to this is that its properties are moist and cooling, and also that it retains these qualities longer than most other manures, especially during hot and dry weather. Manure should also be mixed with the fresh soil. Some persons pour it in a soluble form on the surface, believing that the force of the rain will cause its nourishment to penetrate the soil. But it is far better to use solid manure, as this not only nourishes, but improves the texture of the soil. The kind of earth in which these roots thrive best is a good yellow loam; if that is not procurable, choose the top spit of a pasture. If the latter has been stored away for some time so much the better, as then its fibrous portions will readily separate with the aid of a fork. Although the Ranunculus is partial to plenty of moisture at its roots during hot weather, yet it is very impatient of anything like stagnant damp, which soon causes the foliage to turn yellow,

and thus checks their blooming and spoils their beauty. To avoid this, always provide sufficient drainage at the bottom of the bed.

Previous to planting, the surface of the bed should differ from the generality of flower-beds, by its being formed on a perfect level, rather below than above the surrounding surface, which will enable it to retain the water regularly over the whole that you may supply the roots with.

The distance in planting from root to root should be about four inches. I generally plant with a blunt-pointed dibber, making the holes about one or one and a half inches in depth. After I have dropped the root in, I fill it up with silver-sand: this assists to preserve the roots from worms and similar vermin. Those who are famous for the successful culture of choice varieties are very exact as to the depth of soil which should cover the crowns; as they assert, that should the earth which covers them exceed one inch and a half, the consequences would be that other roots would be produced above the crown of the original, and thus check their blooming, and in many instances the whole would dwindle to naught. It is a very rare occurrence for such newly-formed roots to survive their parents, so, by way of insuring the correct depth, many persons plant in drills, especially where the surface is a perfect level.

When the foliage is well above the ground, with your hand press the earth gently but firmly round the base of the plant. This operation will exclude the air from coming in contact with the root, and so check a too rapid evaporation of the moisture contained in the soil.

They should not be allowed, particularly during the growing or blooming season, to suffer in the least from drought. When watering them, do not dash it over the foliage, but pour it on the surface, so that it will gently distribute itself in streams over the whole of the bed. When they are in flower, endeavour to prolong their season, by affording them a slight shading for a few hours during the hottest part of the day; do not let it remain beyond the time it is actually required, or it will weaken the flower-stalks. Growers of choice varieties always provide themselves with permanent means for shading, but anything temporary will suffice, especially where there are a number of other kinds of beds surrounding them containing flowers: in such a case anything that would prove a disfigurement should be avoided. When they are past flowering, withhold the supply of water, and allow their foliage gradually to decay. After they are taken up from the ground, let them be placed in an airy room or loft to dry, then on some rainy day you can cleanse them of the earth, and store them away either in bags or drawers. They must not, after being dug up from the ground, be too long a time exposed to the influence of the atmosphere, or they will shrivel; but I should advise the purchase of a few imported roots annually, so as to fill up all blanks caused by the decline of the vigour of the stock.

JNO. F. McELROY.

THE FALL OF THE LEAF.—Plants, too, have their idiosyncrasies as well as other creatures. There are some which will develop their leaves a fortnight or so earlier than their brothers of the same species, others that will retain their foliage long after it has fallen from other plants of the same specific form. This did not escape the notice of the old Greek naturalists, for Theophrastus, in his work *De Plantis*, mentions a plane-tree in Crete which never shed its leaves, and he adds, that that was the identical tree beneath whose shade Jupiter carried on his flirtation with Europa. Be that as it may, it is quite certain that, apart from individual peculiarities, such as we have just mentioned, plants of the same species will shed their leaves sooner or later according to the locality in which they grow. In the Canary Islands the vine only sheds its foliage very gradually, so that new leaves often appear before all the old ones are thrown off. The cherry-tree in Ceylon, and the peach in Brazil, are said to become almost completely evergreen. On the other hand, in colder latitudes than ours the leaves fall earlier, in consonance with the earlier advent of winter. In the tropics, although there is in general not so well-marked a period of defoliation, yet the dry season seems to act in a similar way to the winter season here. Travellers tell us that there is scarcely a month in the year in which young shoots and leaves may not be seen on the trees, so that the formation of the young leaves, as well as the fall of the old ones, is spread over the whole year, as it were, and is not so much confined to particular periods as in temperate latitudes. On the whole, then, of all the assigned causes for the fall of the leaf, this last, dependent on an alteration, or rather on a new growth in the leaf itself, is the most important, and probably the only one of itself sufficient to produce the result. It remains now to be seen whether this separating layer is of universal formation in the case of deciduous leaves. For many reasons we are inclined to think that it is not formed when leaves fall off prematurely, as they do from drought or injury. But supposing it to be of general occurrence under what we may term ordinary circumstances, it still remains to be ascertained what are the precise conditions inducing the formation of this peculiar layer of tissue. It is easy enough to say that the layer in question is formed owing to the disproportionate growth of the tissues, those of the stem being active, while those of the leaf are obstructed and comparatively inert. This may be so, but there is no direct evidence on the point as yet. We admit the facts, but the precise relation of those facts one to another is not yet fully made out; till this is done, the explanation of the fall of the leaf cannot be considered as fully satisfactory.—DR. MASTERS, in *Popular Science Review*, October.

THE BAMBOOS, ETC., AT FOATY, COUNTY CORK.

Foaty, the fine residence of Mr. Smith Barry, M.P., is one of the most extensive and horticulturally interesting in the south of Ireland. It comprises nearly eight hundred statute acres; in fact, the entire area of Foaty island, which is somewhat over a mile and a half in length by three-quarters of a mile in breadth. Foaty is situated in one of the deep receding bays or reaches of that broadly spreading portion of the beautiful estuary of the Loo known as Lough Mahon. Where the inlets are narrowest the demesne is connected with the mainland on one side and the Great Island on the other by bridges, near to which are situated the unusually spacious and imposing gate entrances, by which access is had to the main approaches or carriage-ways leading to the mansion. The latter is a spacious and commodious building, without any ornate or architectural pretensions. Its worthiest ornaments, and in truth most imposing ones, are the truly magnificent evergreen oaks by which it is flanked on either side of the broad carriage-ring in front. The demesne presents but little variety of surface, and the situation of the house is rather low. The gardens, which are in close proximity to the house, are very extensive. By fine cross walls they are divided into four compartments. In one division are some small forcing houses, a melon yard, and flower ground; the others comprise nuttery, orchard, and kitchen gardens. The whole kept in excellent condition. The extent of glass is at present small, and quite out of proportion with the place, a defect which we understand is likely soon to be remedied. Besides the frames and pits, the only glazed structure in the division of the garden above alluded to, are two very small lean-to houses, one used as a vinery, the other a plant-stove.

Outside the gardens, and near the drawing-room front of the house, there is a short range, also a lean-to. It is in two compartments, one a plant-house or conservatory, the other a vinery. On occasion of our visit the condition of this last was more than ordinarily interesting, as affording an example of a skilful operation carefully and scientifically carried out. The gardener, Mr. Osborne, being desirous to overhaul the vine border and re-make it *de novo*, set to work, and notwithstanding that the vines were carrying a crop, and in full foliage, did the work well and effectually, without injury, or the latter even flagging. When we were at Foaty the roots, divested entirely of soil, were comfortably wrapped up in bass mats, the border meanwhile being drained, concreted, a good depth of rubble placed over the concrete, and on this a tough sod, upper surface downwards, and quite ready to receive the prepared fresh soil and replant the vines. Time was thus gained, and the vines are now making abundance of young roots, and will be well established in the fresh soil before winter fully sets in. We are digressing, however, as the object of this notice is not a detailed account of the demesne or gardens of Foaty, but rather of some features peculiar to it, and which are not without interest in connexion with acclimatization, Conifers, and what is called sub-tropical gardening. An islet of bamboos is something to admire and wonder at in these latitudes. At some distance to the left of the mansion, in a secluded spot, surrounded by lofty trees, there is a small sheet of water, containing two islets, and these are nearly altogether monopolized by tufts of graceful bamboo, growing in the greatest luxuriance. Some of these are of deepest green, others very much lighter in colour, and forming a pretty contrast.

The margin of the water is dotted with tufts of New Zealand flax plant (*Phormium tenax*), Pampas grass (*Gynerium*), and the royal fern (*Osmunda*), and these again, with the variegated *Arundo donax*, indicate the course of some streamlets formed for drainage, or to conduct the overflow from the water surrounding the islets. Around are some beautiful specimens of Coniferae, more especially of the gigantic red wood (*Sequoia sempervirens*), nearly sixty feet high; *Taxodium distichum*, *Cupressus funebris*, and *Cryptomeria Lobbi*. As seen at Foaty, this last is about one of the most beautiful of Conifers, the specimens averaging over fifty feet in height and nearly eighty in circumference below, perfectly symmetrical, feathered from the base to the apex, and forming masses of the richest verdure. *Cryptomerias* and *Sequoias* seem to be peculiarly at home here. We also noticed lovely specimens of *Pinus pinsapo*, about thirty feet high. *Abies Smithii* very fine. We only noticed one specimen of *A. nobilis*; it did not seem to be doing particularly well, and had, too, lost its leader. Near it a nice specimen of *A. Webbiana* was ornamented with its striking, upright, dark, richly-coloured cones. Specimens of *Thuopsis borealis* and others were over thirty feet high. Besides the Conifers, many other beautiful specimens dotted over the grounds attracted attention; for example, magnificent specimens of *Ligustrum lucidum*, laden with its thyrses of flowers, fine standard *Magnolias*, *Catalpas*, a grand old specimen of the Cork oak, *Quercus suber*, and the curious *Colletia horrida* could not fail to arrest the visitors' attention. *Eucalypti* were flourishing uninjured, though we have seen them cut off in other parts of the south. *Aster argophyllus* seemed to have suffered, though not killed; for when headed down it again grew vigorously this year. Very old *Yuccas* form a remarkable feature in the grounds, and a small oval bed, planted with American aloes, and bordered with the Chinese coltsfoot (*Farfugium grande*), formed a pleasing combination.

An interesting example of the employment of sub-tropical plants for outdoor decoration here, long before it was thought of at Battersea, presented itself, in the shape of the Fan Palm (*Chamareops lunulata*), planted out for years in the garden. It is now over ten feet high, and as much across. We could have wished this perhaps unique specimen of outdoor Palm culture were standing prominently among the other interesting trees in the grounds, instead of in the retired corner, where the effect is, in a great measure, lost. Alongside, and almost within shade of its fan-like leaves, a specimen of the Coral Tree (*Erythrina cristigalli*), with about ten flowering stems, was opening its brilliant blooms. If time permitted, and the afternoon, which was dropping, had been more favourable, doubtless many other interesting things in the plant way would have cropped up.

Before closing this hurried notice, we will for a moment return to the interesting spot where the Bamboos luxuriate in their little island homes, a spot which is characterized by a peculiar quiet, with a view of suggesting the trial in the same place of two or three plants, which would, probably, succeed equally well, and add a new feature of interest to Foaty. The New Zealand Tree Fern (*Cyathea dealbata*) in the centre of each little islet, and towards the edge the Paper Reed of the ancients (*Papyrus antiquorum*), alternating with the tufts of Bamboo and *Disa grandiflora*, with its rootlets drinking the water, and fringing its margin with its lovely blossoms, would form a rare picture, and be an episode of no ordinary interest in the history of sub-tropical gardening. Is this only a dream? or shall it fall one day to our lot to record the success of the experiment, and the spirit of the kind-hearted and generous young proprietor of Foaty?—*Irish Farmer's Gazette*.

THE PEAR, WITH SOME REMARKS ON ITS CULTIVATION AND MANAGEMENT.

We so seldom see a good collection of well-managed pears in private gardens, that we should be justified in saying that they are neither known nor appreciated as they deserve to be, did our experience, in part, not convince us of the contrary. As a gardener of some years' standing, I have had many opportunities of proving that a dish of fine, ripe, well-grown pears is appreciated by every owner of a garden, but it is so seldom the case in the majority of gardens that a dish of fine pears is to be had, that when I say they are not sufficiently known, the remark will apply with force to a great number of private gardens. Surely it is not as it should be, that a subject so easily cultivated, and so generally admired when well done, should remain almost a stranger in the hands of many cultivators. I may say without fear of contradiction, that no subject belonging to the fruit garden better repays for care and skill than a good collection of pears; but although I have travelled much, I have met with few places in which they can be said to be cultivated with skill and care, though I have seen very many instances where their cultivation has been a slow process of murdering the trees.

As a grower of hardy fruits of some years' experience, I am satisfied that to properly cultivate the pear, with any degree of success, there are a few important principles to be worked out with care and judgment. These principles I intend to explain to the reader in due course, for my object in now writing is to endeavour to assist those readers of the Magazine who may desire information; and I hope, by giving them the benefit of my experience, my efforts to diffuse what I have learnt from practice will be acceptable.

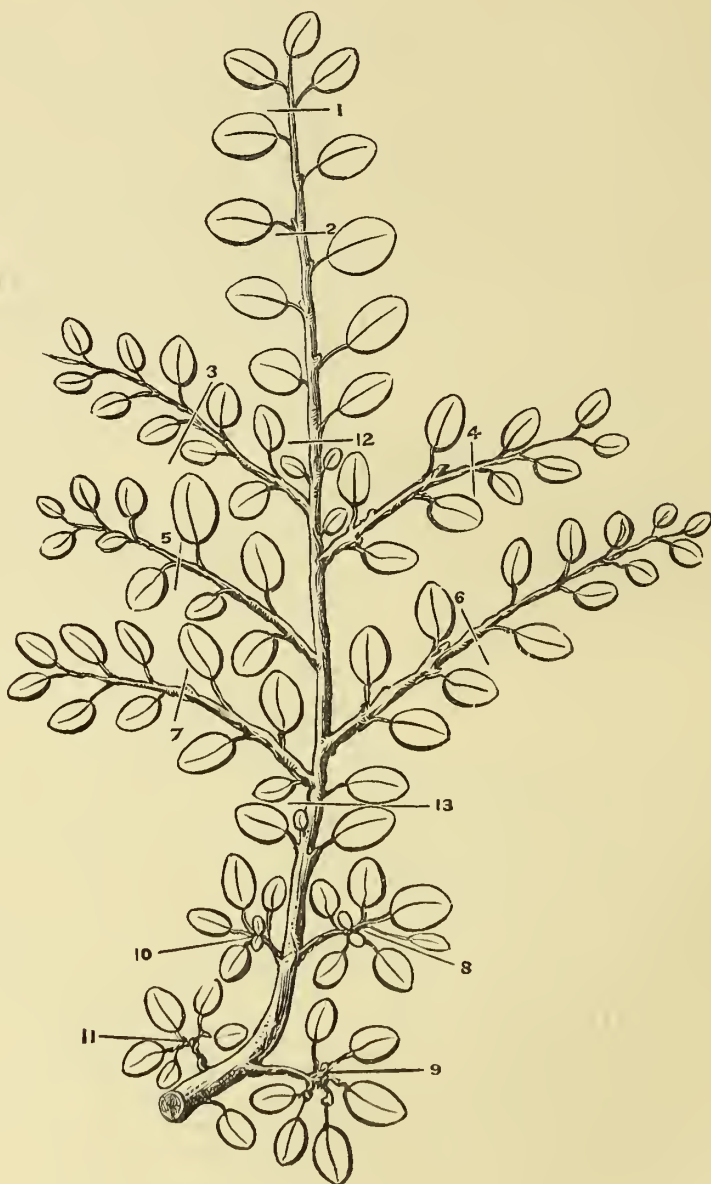
Very much has been said and written upon the subject of dwarfing stocks for pear-trees during the last few years, much that might have been left unsaid and unwritten. Dwarfing stocks for bush or pot trees may be all very well, but if you want to grow pears profitably, you must put them on better legs, or they will be half a lifetime before you see an equivalent return for land and labour employed in their service. Pear-trees in pots, and miniature pear-bushes in the open ground, are to me a sort of playing at gardening, because I have learnt from experience that we must cultivate the pear more liberally, if we desire a liberal return. To do this we must have our pear-trees on the pear-stock, and then with careful management and a suitable soil we may hope to succeed, so that when we go into the garden to gather the fruit, we may require something larger than a dessert basket in which to place our harvest. I advocate, both for trained and large pyramid trees, the pear-stock as being the best known to me, under a great variety of circumstances. But if pyramid trees are required to fruit in a young state, and are not wanted large, then the quince-stock will be the best, as it causes the tree to assume a dwarf bushy character. The consequence of this is that the root action is less vigorous than that of the pear-stock, consequently the tree much sooner arrives at a bearing condition. But then we must remember that the quince-stock requires a much more fertile soil than the other, so that it becomes a question, even for dwarf early-fruited

trees, if it is not best to use the pear-stock on poor, dry, sandy soil. We all know the conditions under which the quince in its natural state thrives best, and I hold that unless we can to a certain extent give it the same conditions we are best without it.

As to soil, there is no kind of fruit-tree which does so well in a strong well-drained loam as the pear. This fact often adapts the pear to some positions where other fruits would not do well, as if the soil is somewhat stiff and cold it will suit such sorts as *Williams's Bon Chrétien*, *Louise Bonne of Jersey*, and the *Crusane*, better than a warmer or drier position. There are few soils but will grow the pear to satisfaction, if the trees can have a first start in some well-rotted dung and fresh maiden loam. Another fact I have learnt from constant observation is, that it is highly necessary to plant early in the autumn, in fact, as soon after the first day in October as rain may occur. Never mind if some of the young shoots are tender and sappy, the move will do them good, by arresting the ascending sap, and the wood will get the riper for the check. Young trees moved thus early will generally start into a vigorous growth about Midsummer the following year, but spring-planted trees frequently make no start at all, and sometimes remain in that state for a couple of years.

Of the forms which the trees should take, there are only two which I can recommend as profitable, the fan shape for walls, and the pyramid form for the open ground. The latter is a very desirable form for every garden, whether large or small, and I cannot advocate its adoption too strongly, for it admits of the tree bearing a good quantity of fruit, and they are at all times highly ornamental. But the management of this form of tree is not generally understood, in fact, it is muddled through in a most unwarrantable manner. The pinching system, so proper to this form of tree when timely and skilfully done, is the rock upon which many have wrecked all their hopes, simply because it has been done in a thoughtless manner, and sometimes without skill or practice to guide the cultivator.

As I have seen so many failures arising from these sources, I have endeavoured in the annexed sketch to point out clearly, as far as it is possible to do so, the points at which the pinching should be done. The cut is intended to represent the side branch of a tree that was pinched back the previous year at figure 12; the shoots shown at figures 3, 4, 5, 6, 7, are the current year's growth, while the marks across them denote the point to which they should be pinched back, not earlier than the second week in July. Figures 8, 9, 10, and



11, represent the spurs from previous years' pinching, but not showing the young growth which they sometimes make, and which must be removed at the same time as the pinching just recommended. As I have just stated, this branch is supposed to be pinched at figure 12; from that point to 13 was the leading shoot of the branch the previous year; but having been headed back, the side shoots, as shown, are the result, with another leader to take its place, to receive precisely the same treatment as the one that preceded it. And now comes the secret of the pinching system. Many go and recklessly pinch every shoot, so that there is no energetic growth in any part of the tree to exhaust the rising sap, which at this season is very active, so that the buds below the point soon push out

into active growth, when under proper management they should be quietly forming themselves into fruit-buds. But when none of the leading shoots are left to use up the ascending sap, the force below is so strong that nearly every new-made bud breaks forth into new leaves and a weakly growth, and then all hope of fruit-buds at those points vanishes. But the case is very different when the leading shoot which starts from figure 12 is left untouched at the time the others are done, as then there is a portion of the branch ready to dispose of the force from below, which it does in a most satisfactory manner, as the buds on the growth headed back will remain dormant, while they have the late summer and autumn months in which to form and mature their fruit-buds. This leading shoot must remain untouched until the end of August, when just its points should be nipped out at figure 1, and in the winter cut down to figure 2, which, with the exception of removing useless spurs or ill-placed branches, is all the pruning they ought to require. None but sluggards and ignorant people will have more than this to do at the winter pruning of pyramid trees. Bear this in mind, brothers of the craft, and all you good readers who are your own gardeners, or else I shall feel compelled to place you in the category of sluggards and otherwise.

Another important feature in the cultivation of pyramid pear-trees is to annually root-prune them. The stronger the soil the more necessary will this be to check a too luxuriant growth. Remove a portion of the soil on two opposite sides of the tree, so as to get below the roots. If a large tree, say ten feet high, tunnel out a space eighteen inches wide beneath the bole of the tree, and sever any roots which you may come in contact with. Those which branch out above more on the surface should be left untouched; they seldom get too strong when the trees stand on cultivated ground. Besides, it is a great mistake of people when they attempt to starve the pear-tree into a fruitful condition; its very nature is to live sumptuously, and if you deprive it of its accustomed food, it will soon resent the injury by producing you no fruit at all.

I may remind the inexperienced reader, too, that the pear does not, and in fact will not thrive profitably if kept to very small dimensions, as it is a subject which to be fruitful requires both size and age. It will not, in fact, settle itself down to be used as a toy, it rather prefers to grow large and imposing; and in such a condition all of us know they are most fruitful and sure. A pyramid tree ten feet high should be considered only a moderate size, and there are not many gardens but would admit of pyramids sixteen feet high. Trees of such a size would be capable of producing upwards of a bushel of fruit.

Here I must close this paper. I thought to have included in this space all that I wished to say; but as only half of the subject has been dealt with, I must leave it for another number.

A COLLECTION OF TWELVE VARIETIES OF PEARS SUITABLE FOR PYRAMIDS.

- Louise Bonne of Jersey*, very productive—October.
- Knight's Monarch*, very fine—December, January.
- Beurré Bosc*, vigorous—October.
- Williams's Bon Chrétien*, sure bearer—September.
- Winter Nelis*—December to February.
- Bergamotte d'Esperen*, fine late pear for a warm spot.
- Beurré Diel*—November.
- Citron des Carmes*, delicious early pear—August.
- Easter Beurré*—March to April.
- Fondante De Charneux*—November.
- Comte de Lamy*—October.
- Ne Plus Meuris*—February, March.

A SOMERSET GARDENER.

THE ALLAMANDA.

The fact that the Allamanda is one of the best and most ornamental stove plants we have, is sufficiently proved by its figuring in nearly every collection of stove and greenhouse plants that we meet with staged for public competition at our leading horticultural shows. In fact, it is the only stove plant of its colour suited for exhibition purposes; for there is nothing else in the stove that can compete with its large handsome blossoms, either in colour or shape. Most of the species are natives of Brazil, and require a stove temperature to grow them properly; the chief requirements for their successful cultivation consists in growing them vigorously after they are started in the spring, and giving them a good rest through the winter. The best method of treating these plants, both in propagation and after culture, is as follows. Suppose we begin with propagating first. For cuttings choose the side shoots after they have grown four or five inches long and have got a little firm, and insert them in any light sandy stuff, with a

layer of sand on the top. The pots are plunged in a brisk bottom-heat, such as is afforded, for instance, by a cucumber or melon bed, and covered with bell-glasses. I find very little difficulty in rooting them with careful attention and watching to prevent their damping off; or, on the other hand, getting too dry. To more effectually guard against the former evil, it is advisable to wipe the glasses occasionally, otherwise the condensed moisture will trickle down the sides of them, and be very injurious to the young tender cuttings. Perhaps some people may imagine this caution unnecessary, but I consider it of quite as much importance as any other operation, and I have seen plenty of cuttings of other plants as well as of this destroyed through nothing else. As soon as the cuttings are nicely rooted, and the pots begin to get full of roots, they should be potted off at once into sixties, and returned to the bottom-heat, and kept rather close until they form new roots and get established in the fresh soil, which should consist of about three parts loam and one of thoroughly rotten leaf-mould, and plenty of sharp sand. For the next shift, which will be into thirty-twos, the soil must be of a rougher texture, and less sand will be required. This shift will, generally speaking, even with a vigorous growth, carry the plants through the first season, for by the time the soil in the thirty-two's is exhausted, it will be time for the plants to be gradually dried off to bring them into rest for the winter. To get a good bottom to the plants, they should be stopped once or twice during the first year's growth, but plenty of time must be allowed from the last stopping for the wood to get well ripened, otherwise they will not break so strong as it is desirable they should the following spring.

Whilst the plants are at rest it is not advisable to keep them as dry as a tuberous-rooted plant—such as a Caladium, for instance. If the atmosphere of the house in which they are wintered is very dry, the wood may shrivel, particularly if it is not matured so well as it ought to be, but they should have no more water than is absolutely necessary to keep the wood plump. But in a house kept to an average of 55°, with the usual amount of atmospheric moisture, it is not at all likely that any water will be required from October until the end of the following February, when the plants will require to be cut back, and be repotted. It is next to impossible for me to lay down any rules as to how the plant should be pruned, beyond saying that the shoots should be cut back to about two eyes each, and the plants kept evenly balanced as regards size and shape. At this potting young plants will require larger pots than those they were grown in the previous season; but plants which have attained to the maximum-sized pot should be carefully taken out, and a portion of the old ball removed to make room for fresh soil, and be repotted in the same size again. As soon as the plants are potted, they should have the trellis for training them upon securely fixed in the pot. It is a much better plan than leaving it until the young shoots are pushing, as there is then no risk of doing mischief in fixing it. If convenient, a nice mild bottom-heat will be of immense assistance in starting them into growth, and the plants should be syringed once or twice a day. Very little water will be required at the roots until they get established in the fresh soil, and the plants make a good growth above. As they progress, every shoot should be trained in its proper place; for if the shoots get hard it will be a difficult matter to bring them into a good shape without snapping them; and an occasional watering with weak manure-water will materially assist them to produce fine large flowers. *A. grandiflora* and *A. Schottii* are two of the best large-flowered kinds; *A. nerifolia* is a more compact-habited plant, with much smaller flowers.

GEORGE GORDON.

It is an undoubted truth that the less one has to do, the less one finds time to do it in.

VENTILATORS.—In most of the existing arrangements for the introduction of fresh air into rooms, the mistake is made of using a few small apertures. Hence, we often find in the houses of persons who pride themselves on the perfect ventilation of their rooms, that these latter have abominable draughts, whose course is defined with the greatest nicety, and which often appear to select one's ears as the most convenient medium of transit. This production of keen sharp draughts has been the opprobrium of nearly all the vaunted ventilators hitherto employed. The method suggested by M. Morin, a French savant, who has paid much attention to such questions as these, obviates in a great measure these defects. His plan is somewhat similar to that recommended by the Commissioners for improving the Sanitary condition of Barracks and Hospitals, so that a description of the latter will represent both. At the level of the ceiling a number of perforated bricks are introduced into the wall, the area of the aperture being in the proportion of 1 square inch to every 60 cubic feet of the capacity of the room. In order to prevent the discomfort which might arise from a down-draught from these openings, a cornice is so arranged as to cover them. The upper side of this cornice is composed of perforated zinc, which thus causes the air to be evenly distributed over the room. The holes are generally from 1/4 to 1/2 in. diameter, and the area of the zinc perforated is to that of the air-spaces as about 6 to 1.—Dr. LAWSON, in *Iopular Science Review*, October.

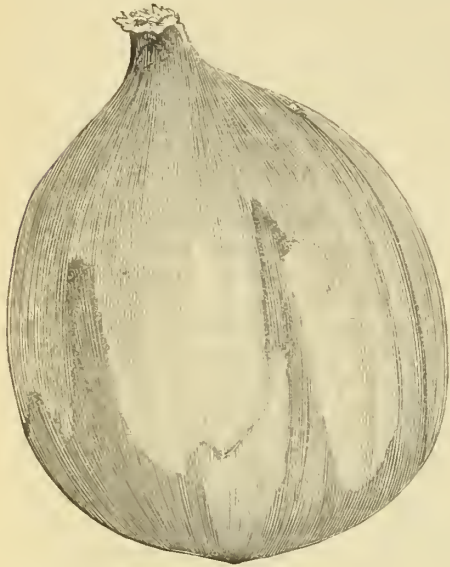
REPORT ON TRIAL CULTURE OF VARIETIES OF ONIONS AT STOKE NEWINGTON, 1867.

Several points of interest requiring special attention, in connexion with the cultivation of the onion, having lately attracted public attention, it was determined to subject to systematic culture at Stoke Newington the several known varieties, so far as true samples could readily be obtained. Application was made to Messrs. Cutbush and Son, of the Highgate Nurseries, who were the introducers of the now celebrated "Nuneham Park" onion, and they very readily complied, and furnished samples of about thirty varieties, under the several names by which they were known to the trade. When the trial was completed, it was found that the thirty sorts might be reduced in number, some few bearing different names proving to be identical. This is a common occurrence in all extensive and carefully made comparisons of varieties of vegetables and roots that are largely cultivated, and therefore we will not stay to make any remarks upon the fact. The seeds supplied by Messrs. Cutbush and Son were, without exception, good samples, and true to their several names. A few samples were obtained from Messrs. James Carter and Co., and Messrs. Barr and Sugden, after Messrs. Cutbush had supplied all that were desired of them. Owing to the unfavourable weather

naturally at the neck when the bulbs have attained this size, and very soon afterwards the crop is perfectly ripe. Well adapted for frame culture and forcing for salads.

NUNEHAM PARK.—A large, round, much-flattened bulb, of a silvery brownish straw-colour. It was compared with all the other varieties on the ground several times during the season, and in every stage it most nearly resembled the *White Spanish*. It is, however, an improvement on that fine variety, and is usually flatter in form, more completely shrivelled at the neck, and more distinctly marked with small black spots on the under side near the roots. Its value can be best judged, not by comparing picked samples of either variety, but by comparing the whole crop of either from equal extents of ground, when it (the Nuneham Park) will be found to afford nearly double the gross weight of *White Spanish*, and the bulbs will average a larger size, and a more perfect degree of ripeness. This onion is fully worthy of all the praise that has been bestowed upon it, and is undoubtedly the most profitable and handsome variety in cultivation.

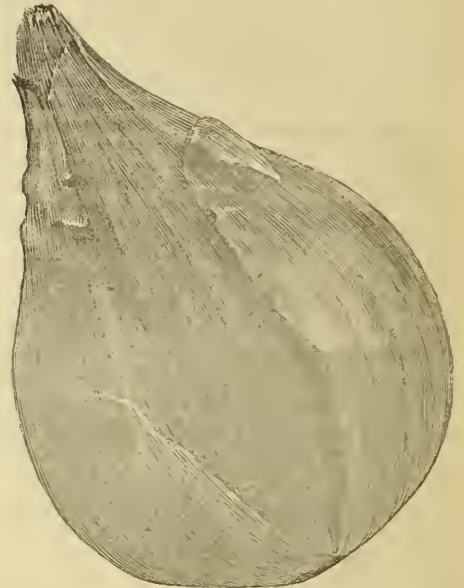
WHITE SPANISH.—This is one of the best old varieties known. The *Reading*, *White Portugal*, and the *Oignon d'Espagne*, are either the same, or vary only to the extent that may be looked for when distinct stocks are established in particular localities. In form this is a neat oblate spheroid,



White Globe.



Blood-Red.



James's Keeping.

and bad condition of the ground, it was not until the 16th of April that the seeds were sown. They were then sown in drills, and were afterwards thinned, as became necessary, to allow of the full development of the several sorts. The beds were prepared for them by deep digging, liberal manuring, and a final top-dressing consisting of the finer part of a heap of ashes, the result of a "smother" made of rubbish, tree-prunings, &c. The growth throughout was satisfactory, in some few cases rather too luxuriant; as, for example, in the case of the *Silver Skin* onion, the bulbs of which were far too large for the purpose to which this variety is usually applied, and which is usually and properly grown on poor soil. Nevertheless, a very fine lot of bulbs was harvested in the autumn, and from these a few samples typical in form, but neither the largest nor the smallest in size, were selected to furnish material towards the descriptions which follow, and the cuts with which this report is accompanied.

EARLY NOCERA (Carter and Co.).—A neat early ripening variety, forming a round slightly-flattened bulb, which when ripe is of a bright light brown colour. When the outer skin is removed, the inner coats are of a yellowish or greenish white. It is mild in flavour, moderately sweet, and undoubtedly one of the very best to grow for spring salads or for pickling in autumn. The sample was sown April 20; by the middle of July the bed was paved with bulbs, the largest being an inch in diameter. The grass breaks off

rather stout in the remains of the neck even when perfectly ripe, so as to be well adapted for tying on ropes for the winter, which varieties with less neck are not so well adapted for. The skin is of a silvery brownish straw-colour with sometimes a patch of green showing through. It is mild, sweet, keeps well, and is everywhere esteemed as one of the best.

TRIPOLI, *Oignon pyriforme*.—Large, irregular, more or less angular, base nearly flat, and summit considerably flattened. Skin dull grayish brown occasionally deepening to reddish brown. Flesh white, pungent, and sweet. A heavy bulb, ripening perfectly, but always with a highly tough neck; a good cropper, and keeping well. Our crop was ripe at the end of September.

DEPTFORD, *Brown Spanish* (Barr and Sugden).—Medium size, obtusely conical, flat base, skin reddish brown and glossy. This variety bears a close resemblance to *Danver's Yellow*, but it neither grows so large nor attains to so high a specific gravity. This is a good winter onion, highly pungent in flavour, and keeping well. It is a good cropper, and should be left thick on the ground. Our sample ripened perfectly about the middle of September.

STRASBURGH, *Essex, Flanders*.—Medium size, neat, obtusely conical, nearly flat at the base. Skin grayish brown with a shade of purple showing through from the inner scales. Flesh firm, flavour highly pungent. A good cropper, ripens perfectly, and keeps well.

BLOOD-RED, *Dutch Blood-Red, French Blood-Red, Oignon Rouge foncé*.—



Tripoli.



Silver Skin.

Medium size or smallish, compressed spheroidal, deep purplish red, glassy and handsome. Flesh red, highly pungent, and with a strong taint of the flavour of sulphur. A heavy bulb, a good cropper, first-rate for soups, but quite unfit for any purposes for which "mild" onions are preferred; first-rate for keeping.

JAMES'S LONG KEEPING.—Large, in form varying from almost oval to a quite globular or slightly compressed form; never flat at the base. Skin reddish brown with shades of purple; flesh yellowish, pungent, and emitting a powerful odour. In our soil this variety never finishes well, the largest bulbs being thick-necked, and in form approximating to that of Brown Globe; but the smaller bulbs are hard, neat, perfectly finished at the neck, and keep well, in fact, longer than any other onion. The only way to secure a good crop on our greasy soil is to leave them thick on the ground, like a pavement of pebbles. This is one of the most serviceable varieties known, and in character and appearance approaches nearest to Brown Globe and Blood-Red, of the characters of both of which it partakes.

COVENT GARDEN PICKLING.—A variety of the true Silver Skin, but distinct enough to have a separate place here. Comparing picked bulbs of either, the difference between them is scarcely appreciable; but a comparison of the whole of the crop proves the Covent Garden Pickling to be smaller and better ripened, a very large proportion of the true Silver Skin having been thrown out in the harvesting on account of their unripe condition. The Covent Garden onion may be regarded as an improved Silver Skin, less gross in habit, and ripening early and more completely than the original.

TREBONS.—Large, not flattened, almost oval, the skin light greenish straw-colour; flesh greenish white; mild and sweet. A fine heavy bulb, admirably adapted for late winter use, a good cropper, and ripening perfectly in the middle of September. This is by some regarded as identical with White Spanish, but it is quite distinct. It more nearly resembles White Globe, but differs from that in several particulars.

WHITE LISBON, *Oignon blanc de Florence.*—Large, variable in outline, and

silvery with very faint stripes. Flesh white, tender, mild, and sweet. A rather light bulb, a good cropper, but not keeping well beyond January. S. II.

WAYSIDE DELIGHTS.

Paper read by Mr. W. CHITTY, Florist, of Stamford Hill, at a Meeting of the "Mutual Improvement Society," Wesleyan Chapel, Stoke Newington.

I cannot better introduce the subject of this evening—"Wayside Delights"—than by referring to a little incident that occurred to myself some four or five years since. At that time I was engaged at some distance from home, and one morning, after breakfasting at the little country inn where I domiciled myself while in that neighbourhood, I came up with the old postman who delivered letters in the adjacent village. After the usual salutations and remarks on the weather, &c., the old man said: "Before you came here I used to walk up and down this road without noticing anything, but since reading what you have written about the plants growing by the roadside, I do really find the walk a very interesting one; and in noticing the various plants my walk does not seem so long as it used to be." It gave me very much pleasure to find that I had been the means of adding a new joy to the old man's life. He had lost an arm, in what way I now forget; in other respects he was a very good specimen of a country peasant, courteous in demeanour, hale and vigorous, though between 70 and 80 years of age. Some papers of mine upon the botany of the neighbourhood had been read by him in the columns of the GARDENER'S MAGAZINE, and he had learnt, though very late, that the "waysides" of life are full of objects of interest to the careful observer. It has even happened that plants have derived names from some circumstances which have happened in their neighbourhood; hence we read of the oak beneath which Deborah, Rebekah's nurse, was buried, that it was called *Allonbachuth*, "the oak of weeping" (marginal reading). It is recorded of the botanical traveller, Allan Cunningham, that while pursuing his researches in



Nuneham Park.



White Lisbon.

sometimes almost angular, quite flat at the base, and in outline closely approximating to a triangular form. Skin greenish white, silvery, distinctly marked with brownish longitudinal lines. Mild and sweet, not keeping long, and seldom ripening perfectly at the neck, where it is always slightly moist and supple. A good cropper, and first-rate for summer and autumn use.

EARLY SILVER SKIN, *Oignon blanc hatif.*—Large, the best bulbs measuring three inches in diameter. Round, compressed, scarcely flat at the base, the skin white and silvery with occasional small patches or streaks of whitish green. The flavour of this onion is extremely mild and sweet. It does not keep long, but is excellent for summer and autumn use for dishes in which onions constitute a principal feature. When grown for pickling, poor ground should be chosen, and the seed sown thick, and the whole crop be left to ripen off without thinning. In this trial the soil was far too rich for the production of bulbs suitable for pickling, and a very large proportion were at the end of September in a rank "bull-necked" condition, quite unfit for storing.

WHITE GLOBE.—Large, almost globular, outer skin pale tawny straw-colour, with occasional patches of bright light brown. Flesh sweet and moderately pungent. A good cropper, the principal bulk of the bulb being



Early Nocera.

in vertical measurement allows of the crop being thicker on the ground, increasing thereby the total weight. This variety was ripe on the 4th of August, and all finished off together without having their necks broken. When dry the neck is so shrunk that this variety is not well adapted to put on ropes, as the slightest shock detaches them.

BROWN GLOBE.—Medium size, globular, skin tawny with patches of bright brown. This agrees with White Globe in form and qualities, but does not grow so large, and is of a darker colour.

DANVER'S YELLOW.—Medium size, closely allied to Brown Spanish, but usually with a deeper colour at the base. The bulbs are particularly heavy and solid. The colour is a bright yellowish brown with occasional patches of cinnamon. It is a better cropper, and keeps longer, than Brown Spanish; in every respect first-rate. A picked bulb of 2½ inches in diameter weighed 3 ounces.

GIANT MADEIRA.—Elliptic in form, the root-plate projecting in a degree equal to the neck, the skin pale reddish brown with a faint wash of blue,

Australia he and his companions were at one period suffering from want of water, when they came unexpectedly upon a gushing fountain of excellent quality. The natives who accompanied him were so overjoyed at this discovery, that they gave expression to their gladness by dancing round the spring. It so happened that Cunningham found a shrub in the vicinity which he had not before discovered, and he gave it the name of *Chorozema*, from two Greek words—*choros*, "merry," *zema*, a "dance," merry-dance—in commemoration of their gladness at the unexpected supply of water in the time of their pressing need. The plant was *Chorozema varium*.

But suppose we turn back to the old postman, and walk with him the whole length of his rounds; and, with his newly-awakened interest and new-born relish for plants and flowers, let us peer into the hedge-rows, let us examine the plants in the ditches, and let us note these that spring up and show a bold front to the passer-by from the grass glades of the common-side. The old man's path was one of the richest in subjects of botanical interest that I ever came across. It extended from the town of Leatherhead to the extreme end of the village of Oakshott, bordering upon Oakshott Heath. On either side of the road, in various places, were large patches of *Ononis spinosa*, or rest-harrow, with its beautiful rose-coloured flowers, and well armed with its formidable spines. At one spot I found one plant of a white variety, producing larger flowers than the species. Sweet brier, some fine bushes, very beautiful in their season, when covered with their numerous gauze-like flowers of rich blush. And throughout nearly the whole distance the hedges were, in their season, festooned with rich masses of the *Rosa canina*, dog-rose; the common but graceful bryony luxuriated at many points, producing its glowing scarlet berries in profusion for the decoration of the roadsides during early and mid-autumn; in the season, *Arum maculatum*—or lords and ladies, as they are popularly called—had possession of the banks on both sides throughout nearly the whole length of the postman's route. Bluebells, primroses, foxgloves, furze-bushes, the yellow hroom, blackberries, the lovely bugle-plant, *Ajuga reptans*, the wayside convolvulus, *Convolvulus arvensis*, several beautiful hawkweeds, all in their season, contributed to the interest and pleasure of the passenger. I must not forget the beautiful *Bartsia odontites*, a charming plant, growing from 6 to 12 inches in height, the terminal shoot and the tip of every side-shoot crowned with whorls of flowers of a most lovely rose-colour; and what adds to the beauty of this plant is, that the bracts, or the scale-like appendages that enclose the flowers before their development, are tinged very deeply with the same lovely hue. Always in the neighbourhood of *Bartsia*, the last named plant, and in close association with it, is the delightful little eye-bright, *Euphrasia officinalis*. Wherever I have been hitherto I have always found these two plants associated, excepting in one case at Ewell, where I found *Bartsia* growing alone. Here, between Leatherhead and Oakshott, there are large patches of *Euphrasia*, forming quite a carpet on that part of the common near to "Prince's Cover." The great ragwort, *Senecio Jacobaea*, is very fine in the dampest parts of the locality, producing immense corymbs of its rich yellow blossoms almost into the winter; moneywort, *Lysimachia nummularia*, covers with a rich carpet of green and yellow some very damp spots. One of the most beautiful of English plants, *Erythraea centaurium*, or the common centaur, is very fine in some spots, producing panicles of its deep rose-coloured flowers

in great profusion. The harebell, *Campanula rotundifolia*, is very beautiful in some spots. Perhaps no flower presents a more enchanting aspect than the ladies' bed-straw, *Galium cruciatum*; fine patches of this glorious plant, throwing out immense thyrses of its soft yellow flowers, support themselves by the low bushes on various parts of the common, while the diminutive *Galium pusillum* covers with immense patches of the purest white many places on either side of the road. The hatcher's broom, *Ruscus aculeatus*, is to be found in large patches at the foot of many of the large oaks. The only plant I ever saw of *Epipactis latifolia*, a somewhat rare British orchis, I found growing very near to the old Bear Inn, close to the old postman's path, under shelter of a tall hedge, and nearly hidden with the long grass. I saw but one other orchis near the path, and that was a fine spike of *Orechis maculata*. At one particular part of the wayside, where a small rill of water was always running, there were large breadths of the lovely blue-flowered brook-lime, *Veronica beccabunga*. Some of the finest plants of burdock, *Arctium lappa*, that I remember to have seen. When this plant is found four or five feet in height, and furnished from the bottom upwards with branches, and covered with its beautiful mauve-coloured flowers, it is really a stately object. Very near the end of the old man's path, I found a large patch of hart's-tongue fern, *Scelopendrium officinarum*, growing on a hard clay-bank. In close proximity I found the male fern, *Lastrea Filix-mas*; the female fern, *Athyrium Filix-femina*; the prickly shield fern, *Polystichum aculeatum lobatum*; the crested fern, *Lastrea dilatata*; the prickly crested fern, *Lastrea spinulosa*; the royal fern, *Osmunda regalis*; the heath fern, *Lastrea Orocrotis*; the hard fern, *Lomaria spicant*; and the common polypody, *Polypodium vulgare*; last of all, but not the least beautiful, the common brake, *Pteris aquilina*, grew on the common sides through nearly the whole length of the road. Under the dense shade and shelter of a plantation of fir-trees at the top of the hill, some plants of the last-named species grew to the height of seven feet, with the fronds as gracefully and regularly arranged as an ostrich plume.

As the old man left the village of Oakshott, on the return journey, one of the most beautiful undulated landscapes anywhere to be seen presented itself, embracing Leatherhead Downs, Epsom Common, Kingston, almost round to Hampton Court, on the right; on the left, Box Hill and its environs, the view in this direction extending far into Hampshire. Seen from this point, the whole country is laid out in pasture and arable land, intermixed with large glades of common oak, elm, and rich masses of Scotch pines. On a fine summer evening, in the presence of such a view, one can hardly refrain from exclaiming with the bard of Inspiration, "The little hills rejoice on every side. The pastures are clothed with flocks; the valleys also are covered over with corn; they shout for joy, they also sing." It would occupy too much of the time of this meeting to enumerate all the plants which turned up as so many new creations in the postman's path; but there were many others of equal interest with those I have mentioned. There were several species of *Hypericum*, or St. John's Wort, with their bright yellow blossoms; several species of *Erysimum* and *Sinapis*; large breadths of the lovely germander, *Veronica chamaedrys*; wild thyme; several skull-caps, *Scutellaria*; the graceful base-rocket or English mignonette, *Reseda lutea*; several species of *Mentha*, or mint; a few rushes, many kinds of grass, and some interesting sedges, every individual of which, to the plant-loving passenger, would be an object of intense interest.

Extending our walk a little beyond the village, there are large patches of that most curious of British plants, the sundew, *Drosera rotundifolia*, covering large breadths in daup places. In association with this, the bog-asphodel, *Narthucium ossifragum*, renders itself conspicuous by its numerous umbels of rich orange-coloured flowers. That interesting parasite, the dodder, *Cuscuta epithymum*, is very abundant among the heath. This plant is supposed to arise from and derive its nourishment from the soil in the first instance, and as soon as it has made sufficient growth it attaches itself to a congenial plant, inserts its feeders into it, and thenceforth derives its nourishment from the plant to which it is fastened. Having established itself, it seems to detach itself entirely from the soil. I have examined several plants in various stages of growth, but have never been able to detect any connexion whatever with the soil. An interesting plant called *Hypericum erodes*, a water plant, and rare, I found in large quantity. I have never met with this plant in my peregrinations elsewhere. Not far from where I found this plant, I discovered large patches of the exquisite *Lycopodium inundatum*, or club-moss, covering wet places with its delicate transparent green, and as delicious to the touch and tread as the richest Turkey carpet. While speaking of the vegetable productions of this locality, I will only mention one more, and that is, I one day came across a patch of a most enchanting fungus of a rich vermilion colour. This was certainly one of the most strikingly beautiful things I ever recollect to have seen. They were growing on the margin of a pond, from a soil composed of the rotted leaves and twigs of fir-trees, under the shade of which they had acquired a large size, and the most exquisite colouring. Without particularizing, I will only add that this locality was rich in varieties of beautiful fungi. All the British heaths, with one exception, grew fine in this locality. About the middle of Oakshott Heath, I found a very fine patch of a white variety of *Erica cinerea*. The only iris indigenous to Britain, *Iris foetida*, I also found here, growing close to the footpath on the margin of a coppice.

I have been thus particular at the risk of tediousness, that any one visiting that locality may be able to recognize all the plants I have named in the positions indicated. These wayside plants have ever been to me sources of perennial interest. When I have been wandering through coppice paths, and by ditch-sides, and have been delighted with the manifold forms of beauty which have in succession presented themselves, I have frequently been reminded of the lament of the poet that

Full many a flower is born to blush unseen,
And waste its sweetness on the desert air.

But I am quite sure there is not a word of truth in it; wherever there is a plant growing or a flower blossoming, there is a present God, moulding into beauty and filling with fragrance these products of His special skill, and rejoicing in the work of His own hands. Does He not ask, "Who hath divided a watercourse for the overflowing of waters, or a way for the lightning of thunder; to cause it to rain on the earth, where no man is; on the wilderness wherein there is no man; to satisfy the desolate and waste ground; and to cause the bud of the tender herb to bring forth" (Job. xxxviii. 25-27). Do we not know that in places the eye of man has never seen, and upon which his foot has never trodden, numerous plants, animals, and insects of the most beautiful types abound, and there is no intelligent eye but His own to exult in the perfection of His various works? And that He does delight in His own work we learn from Genesis i.—that after evoking into being the various creatures of His skill and power, "God saw everything that He had made, and, behold, it was good." In passing

negligently by any of the works of His hands, though it be but a wayside plant we withhold from Him the tribute of admiration which is His right and reasonable due. It is a very significant fact that almost every highway is furnished with growths of green on either side. The beneficence of the Almighty Father is especially apparent in this arrangement. It seems to be an especial provision for the necessities of cattle, that they may have the opportunity of refreshing themselves as they pass from one place to another. All ruminating animals derive their chief support from the various grasses, and He who ordained that the mouth of the ox employed in treading out the corn should not be muzzled, has so contrived that the beasts of the field are enabled to crop the sweet, juicy, and nutritious herb from the margin of every pathway along which the demands of trade or the occasions of pleasure may require them to travel.

Pretty much the same description will apply to many of the pathways of our native land. In one locality one particular class of plants will prevail, and in another other classes will be more prominent. The configuration of the landscape will vary in every district, and in every part of the land, from whence a view of any extent can be obtained; the disposition of the hills, the general arrangement of the landscape in all its features, will suggest to the observer the consummate taste and unapproachable skill of the Great Architect.

One of the most exquisite of wayside delights is to be obtained from an observation of the innumerable trees growing in the gardens by the pathsides in the suburbs of towns, and in the parks and gardens of country places. The bursting of the buds in spring into masses of green of every shade; the development into blossom of the stately horse-chestnut, the elegant lathurnum, the delicious hawthorns of various colours, the fairy-like flowers of the common acacia, the noble panicles of the flowering ash, and the countless flowers of the Judas tree, covering every part of the stem, from the earth upwards to the tip of the remotest twig,—these delight the eye with their exquisite shapes and colours, and many of them convey very pleasurable sensations to the organs of smell. The beauty of these wayside trees is very much enhanced by the glowing tints of autumn. Nothing can surpass the glory and beauty of large masses of trees, when their leaves have assumed various tinges of yellow and gold, auburn and crimson, all blended so as to produce a most exciting and admirable picture; and though these appearances shadow forth decay and death, yet for the time they are among the most striking objects that can be looked upon.

The maple, the Liquidambar, the Virginian creeper, and some others of North American origin, have their leaves of a rich ruddy crimson before falling off.

Every wayfarer who has been overtaken by night has, whether he would or not, turned his eyes upward in admiration and wonder to the innumerable stars that twinkle above and around him, and many a time has been compelled to say with the astonished poet:—

Oh, what a confuence of ethereal fires
From urns unnumbered stream to a point,
And centre in my sight!

And the complete exactitude with which these bodies accomplish their revolutions cannot fail to impress one with the fact, that the Almighty Ruler stakes his veracity and faithfulness upon the unerring certainty of their motions: "Thus saith the Lord, If ye can break my covenant of the day, and my covenant of the night, and that there should not be day and night in their season; then may also my covenant be broken with David my servant, that he should not have a son to reign upon his throne" (Jer. xxxiii. 20, 21).

The wayfarer may have learned the great comparative magnitude of the heavenly bodies, may have learned something of their balancings, and of their necessary relations one to the other: he will be filled with wonder, astonishment, and reverence, and he will be compelled to acknowledge that such results can be the product of nothing short of infinite power, skill, and contrivance, and will probably express himself in some such words as these—

His arm Almighty put these wheeling globes
In motion, and wound up the vast machine.
He formed in His palm these mighty orbs,
And bow'd them flaming through the dark profound,
And set the bosom of old Night on fire.

The railway passenger who spins over a large breadth of country has abundant sources of delight in the rich corn-fields which in rapid succession present themselves to his view, and the pastures covered with flocks and herds. As he observes these, he perhaps wonders how it is that while sheep and oxen are feeding upon precisely the same herbage, it produces wool upon the back of one, and hair upon the back of another. Now the bold configuration of the ground, and the rich masses of the incumbent forest, astonish and delight him. Now he whirls through a cutting, and while he is knitting his brows and straining his sight to get a glimpse of the character of the strata through which he is passing, his mind recurs to that wonderful event when every portion of the earth's surface was whelmed beneath the mighty flood, and that particular portion of it through which he is now passing may have received its character from the settlements of the different materials which must then have been mixed up with the circumambient waters, according to their different degrees of gravity; and he admires the wisdom which has arranged these crude-looking substances—sand, stone, chalk, and a variety of other things—in such forms as that in a general way they turn out to be most useful to the inhabitants of those localities where they most abound. The railway traveller who passes frequently over the same ground may interest himself very much by watching the progress of vegetation on the banks—may, indeed, have special points of this sort, in which he may get to feel a growing interest. I could name several individual plants, and masses of plants, that I have watched with great interest for several years by the sides of a railway along which I have travelled nearly every week for some years past. I will only particularize one—that is, a very fine plant of *Lythrum salicaria*, or Willow-leaved Loosestrife, growing upon the right-hand bank from London, about half or three-quarters of a mile from the Sutton station, on the London Bridge and Epsom Railway. This plant always attains a large size, and every year has been crowned with large spikes of its rich rose-coloured flowers. Its integrity has been preserved every year by the men who mow down the herbage on the banks every season, until, in the course of the past summer, some barbarians ruthlessly cut it down.

Only one more; the railway traveller in a country like our own, which is for the most part under cultivation, has the largest opportunity of observing how beneficently and sufficiently all the wants of living things are provided for by the universal Father, and if he is at all disposed to recognize the hand of God in the plenty scattered along his path, he will detect himself involuntarily exclaiming with the shepherd-king, "The Lord is loving to every man, and His tender mercies are over all His works." Every wayside is strewn

with delights; every walk, every ride, at any time, in any place, abounds in objects of interest. From the lines I have read you will gather what are my own tastes, and to which part of the wayside I should turn in search of interest, if, indeed, interesting objects did not, as they mostly do, obtrude themselves upon my notice. I will finish this paper by saying, that my walk to this room to-night was fraught with interest. How so? did you admire the shops as you came along? No. Had you an agreeable companion to talk to? No. My thoughts were upon the pavement I walked upon. In admiration of the wisdom of God who had made such a material as Yorkshire paving, in such plenty as to enable us to pave our ways and thoroughfares with it, and who has given to men the wisdom and ability to extract it from its quarries, and shape it and make it contribute to our use and comfort as we journey along the ways of life: "All Thy works praise Thee, and Thy saints bless Thee" (Psalm cxlv. 10).

Calendar.

WORK FOR WEEK COMMENCING NOVEMBER 23.

Kitchen Garden and Frame Ground.

ARTICHOKES to be dressed for the winter by removing any late heads, the stalks of which can be inserted in a bed of earth under cover till wanted; next remove the large leaves, and mould up the plants without throwing any soil into the centre. As clippings of hedges and prunings of trees are generally burnt at this time of year, keep the ashes dry, and at the first opportunity after having earthed up the plants, spread the ashes two or three inches thick over the ground between them.

BEANS AND PEAS not yet sown for speculative crops may be got in now the weather is fine; the same sorts to be used as advised a few weeks back. Choose a dry sheltered position. If there is plenty of spare room in frames or pits, preparations may be made for early crops without incurring the risk of sowing out of doors. Fill a frame with turfs cut the usual width, and laid grass-side downwards. Sow the seeds pretty close together along the centre of each breadth of turf, and then sift over some fine soil just to cover them, and shut up. As soon as the seeds have started, give air cautiously, and keep them as hardy as possible. As they rise, occasionally add more soil, so as to keep earthing them up; this will make them more strong and stubby than by covering them their proper depth in the first instance. In February the turfs may be lifted out, and the plants divided without any injury to the roots, and so planted out in drills of well-prepared soil, and protected with long dry litter and reed wattles, until the weather allows of complete exposure.

BRUSHWOOD is of many kinds. Clippings of hedges and small prunings of bush fruits and trees are generally of no use for firewood, except in the furnace of a saddle or cannon boiler, for which in some gardens all such stuff may be used. But there ought to be no waste of anything that will burn, and at this time of year labour can generally be afforded to deal with these things in a way to economize every scrap. Lots of real good firewood may be looked out by first chopping and sawing up all loppings of fair size; at the same time large gnarled and twisted branches should be stored for rustic work. Many a gardener has to buy in spring stuff that he might have supplied himself with by a sorting of the timber obtained in cutting down old trees and in the clearance of old plantations. When the best of the stuff has been stored, char all that remains, and keep the ashes under cover for use. In charring, a flame should never be allowed; a smouldering fire reduces without waste; a flame wastes the best part of the material—that is, the charcoal. To prevent too rapid a consumption, keep the heap well covered with turf, clay, or other soil, so as to confine the heat and prevent too free an access of air.

GARNISHING AND FLAVOURING HERBS should be taken up and potted in case of severe weather. Parsley and mint are generally scarce in February, because there is no care taken in time to secure supplies. Large roots of parsley potted now will keep green and fresh till wanted. The roots of mint should be potted in leaf-mould, and the pots plunged in an asparagus bed, or placed on a flue to force it gently. Parsley may also be protected on the ground by means of hooped mats and litter.

Flower Garden.

ALPINES suffer more from wet than frost; choice kinds had best be potted and put in frames, as during January there is usually much havoc committed among alpins on rockeries. The only safe way to keep up a collection is to have duplicates of all the species in pots.

FLOWER BEDS not occupied should be deeply stirred and kept rough. The fear of an untidy appearance causes many a flower garden to get sour and full of vermin, whereas the soil should be as thoroughly broken and pulverized as that of the kitchen garden. The beds may be manured now where the positions are comparatively dry, but it will be as well to defer manuring till the spring. If supplies of turf are wanted for next year's potting, get the material in at once, and stack in long narrow ridges like dwarf walls.

GARDEN ROSES.—Useful varieties of roses which furnish an abundance of flowers, and contribute to the gaiety of the garden are always in request, and should have attention in these pages equally with varieties that are especially prized for exhibition purposes. Roses of this kind, however, are so valuable for the general purposes of amateurs, that it is doing good service from time to time to bring their claims and merits into light, though in so doing it may be necessary to go back to ancient lists. These free-flowering, pretty, and hardy kinds are capable of many interesting applications as objects of border decoration. Some form admirable bushes for the corners of intersecting walks, where they may be left to grow, sparsely pruned, in natural luxuriance; or they may be trained over rustic arches, improvised from spare branches of shrubs and trees, to form vistas from distant points of view. Others, again, are especially adapted to ramble over "banks and braes," among fantastic roots and stumps; or to form a canopy of blossoms for summer-houses and bowers. Others, again, will clamber skywards, flinging flowery festoons as they ascend; or serve to conceal rough fences, or unsightly boundaries, dotting that which would be offensive to the eye of taste with lovely and brilliant blossoms. One of the most interesting and beautiful methods of utilizing these roses is to bud the stronger-growing kinds with numerous other sorts of various colours. Another way in which these gems of the garden should be employed is pegged down in beds; white, yellow, rose, and scarlet charmingly intermingling, and if on their own roots, multiplying themselves year after year, till their owner could supply half a neighbourhood from their prolific suckers. Mere generalities, however, do not convey much practical instruction; let us, therefore, proceed to an examination of the kinds suitable for the purposes we have indicated. For instance,

let us take that old Bourbon *Armosa*, a kind hardly heard of nowadays. What a glorious thing for a bright ever-blooming bed! Rosy, double, and free to a degree, though small, and without much substance; like many others hereafter to be named, having no pretensions as a florist's flower, but invaluable for the bed or bouquet. Take others of the Bourbon class, which abounds in roses eminent for garden properties, such as *Acidalic*, *Bouquet de Flore*, *Comice de Seine et Marne*, *Emotion* (new), *Pierre de St. Cyr*, *Dupetit Thouars*, *Paul Joseph*, *Le Grenadier* (magnificent dark colours of various shades), *Paul et Virginie*, *Madame Desprez*, *Sir Joseph Paxton*, and *Bourbon Queen*, and we have a selection of hardy autumnal bloomers of different colours and habits, admirably calculated for numerous garden purposes, which will bestow upon us blooms when blooms are, alas, few and far between. Some of the true *NOISSETTES* are very rampant growers, and commendably persevering in habits of bloom. *Luxembourg* is an old variety of this kind, which will form a corner bush, and which, in three or four seasons' growth, will attain the size of a huge lilac-tree, large enough for a whole garden of other kinds to be budded upon it. Other desirable sorts among the Noisettes may be found in *Jaune Desprez* (unfortunately very tender), *Eclair de Jupiter*, *Vicomtesse d'Avesne* (I fancy this is a Noisette), *Ophirie*, a peculiar colour, *Triomphe de la Duchere*, *La Biche*, *Lamarque* (a show rose), superb on a warm wall; and their new congeners, *Louise Darzins* (which quite supersedes that old favourite, *Aimée Vibert*), *Madame Alfred de Rougemont*, *Lady Emily Peel*, and *Pavillon de Pregny*. These afford a completely different but not less useful class of border ornaments, for the choice of the cultivator of moderate desires, who has an eye for homely beauty, and is not craving after the empty honour of a prize-box at some second-rate show. Some of the older *HYBRID PERPETUALS* furnish us with fine specimens of the garden rose proper. What a chaste thing is *Noemi*! *Sydonie*, again, quite an enchantress, with globular blossoms of true pink, a rare colour in modern roses. In continuation of the older roses, we enumerate *Marquise Boella*, *Desgaches*, *Louis Bonaparte*, *Souvenir de Leveson Gover*, *Mrs. Elliot*, *Madame Laffay*, *Paeonia*, *Dr. Marx*, *Duchess of Sutherland*, *Baronne Prevost*, *Mère de St. Louis*, *Reine des Fleurs*, *Dr. Ruschpler*, *Pio Nono*, *Madame Phelip*, *Madame Place*, *Baronne Halletz*; and of modern, *Le Rhône*, *Jean Bart*, *Parmentier*, *Wm. Paul*, *Admiral Nelson*, *La Brillante*, *Thérèse Appert*, *Reine de la Cité*, *Triomphe des Beaux Arts*, *General Simpson*, *Ornement des Jardins*, near to scarlet, *Madame Bravy*, and *Lord Palmerston*, and we have a goodly array of pretty free-blooming varieties for almost any purpose our gardens require. To these may be added about a dozen of the finest roses we possess, so often enumerated it would be waste of space to repeat them here. We must yet take a passing look at the *CHINAS* that are specially useful. *Mrs. Bosanquet* is delicately beautiful, and decidedly still a first-class flower in the camellia-like style, which cannot be dispensed with for any purpose. The *Pink China* is also most useful, and there is a scarce variety called *Belle de Florence*, which we saw at Messrs. Lane's Nursery in the past summer, which makes a sumptuous bed of the most glowing pink colour. To these may be added *Louis Philippe*, *Archduke Charles*, the changeable rose, and *Cramoisie Supérieure* and *Fabvier* for bedding. But it is to the *TEAS* we must look if we desire true perpetuality, and it is to this class all the really continuous bloomers owe that valuable habit. The most hardy of this beautiful section may be adopted with safety in any warm and sheltered position not too far to the north, if a little temporary protection in the rough Hyperborean blasts. Unfortunately, these charming productions of nature are so delicate in constitution that they cannot bear even the smell of frost, so that if we wish to cultivate them under the open canopy of heaven they must, like our own beauties, have their winter furs and victorines, or something equivalent, unless under exceptional climes and conditions. Some, however, are more hardy than others, and such will be found among the following lists: *Buret*, *Bougère*, *Caroline*, *Devoniensis* (one of the earliest English-raised roses, and still unsurpassed), *Goubalt*, *Gloire de Dijon* (first-rate in every quality), *Madame de Vatry*, *Mareschal Bugeaud*, *Melanie Vilternoz* (a show rose), *Narcisse*, *Safrano*, *Madame Falcot*, *Sombrieul*; *Vicomtesse de Cazès* must be added, although so susceptible of the "winter's whip," on account of its continuous and prolific bloom. Thoroughly protect it, and although the upper shoots may be killed back, it will, phoenix-like, renew itself from the roots when touched by the revivifying beams of the summer sun. In connexion with the subject, the season of planting suggests a few directions for that operation. As soon as the ground is sufficiently dry to become friable, plant *at once*. The trees planted before Christmas gain half a season. Take care the briars and those on their own roots are not planted deeper than the collar; manettis can scarcely be too deep, but eradicate any too prominent eyes that can be detected. Let the soil be rich, the planting firm, the mulching thick, the watering in dry weather in the spring be copious, and with auspicious fortune there will be abundance of lovely blossoms to make the garden glow, to adorn the vases, and to decorate the button-hole.

Greenhouse and Conservatory.

ERICAS of the winter-blooming kinds are to be kept as well aired and as hardy as possible. When requiring water, give the roots a good soaking, choosing bright mild weather for it if possible, and repeat the watering the next day if any doubt whether the ball has been moistened through. After this, let them go nearly dry again, but never beyond a certain point of dryness, or the ball will get hard. The general stock of Cape heaths will bear a few degrees of frost without harm, if kept well aired at all favourable opportunities. What is most likely to injure them is a dry fire-heat, and a too dry state of the roots. But they will want very little water at this time of year, and should have no encouragement to grow.

CHRYSANTHEMUMS may be kept in trim to keep the houses gay for a long time yet, if a little care is bestowed on removing dead leaves and keeping the foliage healthy. Some of the later kinds will now be coming into bloom, and a little fire-heat will be good for them if the weather is severe. The whole stock should be looked over now to see that all the plants are tailed correctly, to prevent errors in propagating next spring. Put in cuttings at once of the varieties to be grown as specimens for next year. The mild heat of a bed of leaves will promote their rooting, and it is as well to give them a little help, as if they remain in the cutting pots a long time before they make roots, they get exhausted, and do not grow with a proper vigour. Remember that small cuttings make the best plants. We believe a good deal of the difference in specimens exhibited is owing to the mode in which the cuttings were struck. As size is of great importance in specimen plants, the sooner the cuttings are put in the better, that they may have a long season of growth.

HYACINTUS that have filled their pots with roots may now be pushed on by placing them over a moderate bottom heat. In the early vinery the dung-bed will answer admirably, as the vapour will give the foliage a rich green

healthy hue, and the flowers will come in fine spikes. But they must be prevented rooting down into the dung by being placed on flat tiles or slates.

THE AZALEA INDICA.—This noble plant is now in process of being forced, for the decoration of the conservatory, the first batch in good establishments usually coming to perfection in December, and being succeeded by others until May, when the pelargonium takes its place, as the most showy greenhouse plant. Though, in common with many other fine subjects, it is very easy to grow and flower the Azalea in perfection, it is nevertheless very easy also to make the plant a mockery of itself and its cultivator, or, I might say, its destroyer. I hope I shall not offend any of my readers by saying that amateurs rarely do this plant well, but professional gardeners are generally expert in handling it. However, should what I have said offend any one, I will endeavour to make amends by a short and useful essay on the subject. The plants are now at rest, or have lately been put into force. We will therefore consider their treatment as it commences from this season. The plants may be kept in a cool greenhouse, until the natural warmth of the advancing spring causes them to bloom naturally, or they may be made to bloom at any time during the winter by placing them in a genial temperature. If kept cool they require but little water during winter, but it is most important, winter and summer, never to allow azaleas to become dry at the root. If dried up for a week or two, as in some greenhouses they are, the flower-buds never open, except in the likeness of bits of chaff, which fall from a sort of leafy eye when the plant commences its spring growth. But if forced water must be supplied in exact proportion to the amount of heat, and the syringe must be used freely and frequently, not only to wet the leaves, but also the bark. A fierce or sudden heat is most injurious—more injurious, in fact, than a little frost to those treated on the cool system. Plants to be forced should be removed from the pit to the greenhouse, and, after a week or ten days, may go to the stove or forcing-pit. If the temperature can be regulated to a nicety, it ought to start from 50°, which will dispose them to move quietly, to 60°, which will cause a very promising swelling of the buds, and thence rise to 70°, which is the maximum heat for forcing this flower. A humid atmosphere is essential to success, and the plants should be as near the glass as possible, to enjoy all the light that they can have at this dark season. After the flowers fairly begin to open, cease using the syringe, but continue to give water in sufficiency at the roots; and once a week, from the first stage of forcing till the flowers are full out, give give them a dose of weak liquid manure made by steeping sheep or deer dung in a tub, and using the solution in a quite clear state. When fairly out, and indeed before they attain their fullest perfection, remove them to the conservatory, or wherever else they are to be exhibited, and maintain for them a heat as near to 60° as possible. When the flowering is over, the plants make their new growth for the season. Indeed, this often commences while the flowers are still at their best; and, in my opinion, the little tufts of emerald green leaves peeping out amongst the flowers intensifies the beauty of the plants; for what is colour, however rich, without a little green to give relief? But some cultivators nip out these shoots in order to preserve a dense and uniform mass of colour. Every one to his taste. All I need say on the subject is, that nipping out these shoots does the plants no harm, and so those who like to do it may. I am not in favour of turning out either camellias or azaleas during the summer. I know that in many gardens it must be done, because of the small extent of glass compared with the number of plants cultivated. Certainly the splendid camellias at Chandler's years ago, and in the present day at Messrs. A. Henderson's, Edgware Road, and at Messrs. Veitch's, Mr. Turner's, and in all the best managed private gardens, are always under glass. Travellers tell us that in their native climes these shrubs grow in damp shady woods where tall trees tower above them, and effectively screen them from the sun. Therefore, to be always under glass, and effectually shaded in the summer, is consistent with their natural habits. However, those who must put them out are advised never to do so till the end of May, then to choose for them a position equally sheltered from wind and sun. Azaleas forced early must of necessity make all their new growth in the house, and the best way to manage them is to carry them back after they have flowered to the pit, or house, in which they were forced, and there again let them have forcing treatment, say a temperature of 55° by night, rising to 65° or 70° by day, with frequent syringing and watering, to encourage a free growth. At the end of May, these may go out of doors with the rest, if "turning out" is the practice of the garden. The subject of repotting is one of great importance. Many of my best plants have been three years in their pots, but have been annually top-dressed with thoroughly-decayed cow-manure, assisted with liquid manure. As a rule, it is desirable to give them a small shift every year—that is to say, to shift them into the next size. Any larger shift is more harm than good. I prefer to shift them in autumn, after the growth of the season has become quite ripe, and I can feel the flower-buds in the points of the shoots. The operation is a very simple one. Turn out the plant, remove the crocks from the bottom of the hall; have the new pot ready to receive it, with crocks regularly arranged for drainage, and covered with a layer of tough fibry peat, or nodules of very fibrous loam. Lower the plant into its place without disturbing any of the roots, and fill in with a mixture of yellow loam, two parts; peat, one part; quite rotten dung, one part; and sharp sand, one part. Ram the stuff in firm all round, give one good watering, and set the plant aside till the time comes to force them. This process of shifting may be performed immediately after the flowering is over; but if shifted at that time, they should be placed on a bottom-heat of 65° to 70°, to promote the formation of the roots in the new soil. As for pruning, any moderate shortening-in may be done at any time, but the best time is immediately after flowering. We sometimes meet with old scrubby azaleas that have been much neglected. The best way to recover these is to keep them cool till March, and then cut them down to the shape and size required. Immediately after this operation, lay them on their sides on a moist propagating-bed, or on a very sweet dung-bed, giving no water at the root, but frequently plying the syringe with tepid water on the old wood. A heat of 70° is the utmost they should be subjected to, and indeed 60 degrees will suffice, if no more can be afforded. They will soon begin to bristle with little green shoots, and when these are half an inch or so long, knock the plants out of their pots, and pick the earth out from amongst the roots, and cut the roots back considerably, and finish by potting them in as small pots as they can be got into, to allow of an inch of fresh soil all round for the new roots to run into. They must be immediately stood on a tan-bed or on any surface heated to 70°, and there be kept in a sort of vapour bath, but have very little water at the roots until they are growing freely. Then gradually increase the supply of water to the root, and diminish the degree of humidity in the air, and you will in due time have a fine growth. This is a golden rule for grinding old people young in the queenom of Flora, and it applies particularly to hard-wooded plants that have become old and ugly, such as camellias, oranges, &c., &c.; but it does not apply to

heaths, for they will not stand the heat, and, indeed, the best way to treat old and ugly heaths is to throw them away. To propagate azaleas is a most easy matter, but success depends on taking the cuttings at the proper time. Take cuttings of the young shoots when they are about two inches long, when they are quite soft, but yet have made a good growth. The garden term for this condition is "half-ripe." If getting woody, they will not strike; if very sappy, they will quickly rot. Having made the cuttings, dibble them into silver-sand, sprinkle them slightly, cover with bell-glasses, and let them remain in a warm house for a week. Then place them on a bottom-heat of 60° to 70°, and keep them always moist, but never wet, until they begin to grow at the points, when the bell-glasses must be taken off. About a week after that, pot them separately in small pots filled with equal parts of peat and silver-sand, put them on a gentle heat, again use the syringe upon them regularly, and they will soon fill their pots with roots. You now have but to shift them on annually, and to pinch out the points of the young shoots to promote a bushy habit, and in due time they will repay you for your care. In selecting azaleas, a few of the most distinct and striking will serve the purposes of most cultivators. For those who love collecting there is abundant room for speculation and entertainment in this magnificent family, the varieties of which are very numerous. The following is a good selection of twelve old varieties:—Admiration, Criterion, Etoile de Gand, Extrani, Gem, Gledstanesi, Sir H. Havelock, Iveryana, Juliana, Perfection, Perryana, Variegata. Among varieties of more recent introduction, I would name as desirable, Oracle (F. and A. Smit), paper white; Reine des Pays-Bas, violet and crimson; Grande Duchesse de Bade, red and chocolate; Fascination (B. S. Williams), pink and carmine; Stella (Veitch), orange scarlet, the finest-formed azalea known; Vesuvius (Veitch), like Stella, and a very nice point to determine which is the best of the two; Splendidissima (B. S. Williams), red and white, striped like a carnation; Dieudonna Spae, salmon and white; Flag of Truth, semi-double white. I could name a hundred more without risking the introduction of a bad one, for they are all good. But I have named those that are most distinct in colour, most free to grow and bloom, and most perfect in the several properties required in these flowers. But I must not forget a few varieties that are worth adding to collections already formed. Most important, for the sake of its splendid golden flowers, is *Azalea sinensis*, a deciduous kind, which produces its flowers before the leaves. It is a grand conservatory plant, and nearly hardy, therefore do not force it in a strong heat. *Bouquet de Fleure* is a splendid hardy hybrid; the flowers are red, white, and yellow. *Petunia-flora* is a superb variety of the India race, which makes a fine contrast to whites and yellows in the conservatory, the colour being rosy purple. *Phœnix floribunda* is a good purple, not quite a show flower, but invaluable for decoration. Lastly, *Azalea obtusa* is a little rosy-flowered gem for the cool conservatory or greenhouse, and a good subject for forcing; and *A. amœna* is like it, but much hardier, and answers to perfection for the front of an American bed in sheltered places. Azaleas are subject to few diseases or insects when properly treated; but sometimes the best treatment will not prevent thrips. To deal with this pest, proceed as follows: Take five pounds of soft soap and dissolve it in ten gallons of rain-water; then add one gallon of strong tobacco water. Into this mixture dip the plants, and lay them on their sides, to prevent any of the mixture reaching the roots. In about half an hour (or less) after the dipping, wash them in a tub of soft water, and they will be as clean as if never a thrip had touched them. In the course of a fortnight repeat the process, which will kill any young that may have been hatched from eggs which the first dipping did not remove. The dipping does no harm to the plants provided it is not allowed to dry on them; hence it is I say wash them in half an hour or less. If too large to dip, wet them with the mixture by means of a syringe, taking care to lay them on their sides that the leaves may be wetted on both sides and the mixture prevented reaching the roots.

Stove and Orchid House.

ORCHID HOUSE to be kept at as low a temperature as is consistent with safety. The use of excessively high temperatures has been the cause of more mischief than all the rest of the mistakes in orchid culture. Keep the atmosphere of the house moderately dry, and as sweet as possible. One of the most important matters for the young beginner is to learn to decide when the pseudo-bulbs are ripe and ought to be at rest, and to proportion the period of rest to the habit of the species—matters which depend more on personal observation than on the precepts of books.

GESNERA ZEBRINA is one of the most useful of winter flowers, and should have every encouragement, for its exquisite leaves are almost as attractive as its scarlet and yellow flowers. They will require an average temperature of 65° to 70°, with plenty of water, and to be syringed occasionally while pushing for bloom; but this must be done with great caution. Any that are to be started now must be potted in a rather more peaty soil than for summer culture, and have very little water until in active growth.

EUPHORIA JACQUINIFLORA will soon be in fine condition, if carefully treated. Let it have good stove temperature and plenty of light, but be careful to give it very little water. It is often spoiled by amateurs, who think as the plant is in a flowering state it ought to have abundance of moisture, which is a mistake. If kept very wet at the roots, the leaves will fall off. At the same time it must not get dust-dry.

Forcing Pit.

PINES in fruit will need a moist air and a good bottom-heat. The general stock must have as low night temperatures as will be safe, say 55° for a minimum, and by day 70° to 75°, and not higher. Dung-heat is rather troublesome this time of year, and there must always be at hand materials for lining and covering up, in case of a sudden change to severe weather.

VINES in course of breaking may be assisted materially by making up in the house a large dung-bed. The dung should have been turned twice, then to be wheeled in, and made up solid as for a hotbed, but the surface not to be covered with soil. The ammoniacal vapour and the moisture together will give great vigour to the new growth, and if the roots are properly encouraged there will be a grand start made for an early crop. If this cannot be done, syringe frequently, and put troughs of water over the dunes or pipes. Vines now to be started should not have much heat, say 55° by day and 45° by night, to be increased gradually; in fact, any hurry in starting vines into growth has to be paid for afterwards in shanking, mildew, deformed bunches, or some other grievance.

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Correspondence.

A FOG IN THE FRUIT GARDEN.—I have been so bewildered by the several claims of rival systems of fruit culture, and the almost angry, but mostly cynical tone of the disputants, who have been airing their doctrines, and perhaps (who knows!) pushing their trade at the same time, by the aid of the great discussion, that I will not vouch for the truth of a single word I am now about to say, or for the soundness of any argument, or the reasonableness of any opinion. No man, so perplexed as I am, should feel confidence in himself; but, in spite of my confusion of mind, I have no confidence in any one else; so for the present I can see nothing but a fog in the fruit garden. That I have a fruit garden I am tolerably sure—would I were so sure of some other things I hope will prove true! yes, and I have some fruit too, the consequence, let me assure you, of doing the very opposite I was advised to do by the great adviser in whom once upon a time I put my trust. Let me unfold to you a page or two of my domestic history. I selected, I bought, I planted. I was under the spell of a book which taught me to prefer little trees to big ones, which taught me to chop off their roots and pinch back their heads, and generally speaking to starve, mutilate, and ultimately murder them; so that if the delusion lasted, I should soon want some more. Yes, I selected, I purchased, I planted. More than this, I actually believed that miniature trees would produce more fruit than mighty ones; that the more I cut away their roots and their branches, the more I pinched out the hearts of their summer growth, and laboured in various ways to debilitate them, the more fruit I should get. I even went so far as to believe that a paltry little apple-tree the size of a doll, a tree just big enough to adorn a window-sill, would produce fine apples. So I had a house built, and filled it with potted trees, and all went merry as a funeral bell; for many of my trees died, and the more I pinched, potted, and pruned, the more they refused the fruit I coveted. Yes, I was in for it heart and hand for orchard house and miniature fruit garden, and got a bushel or two of fruit of middling quality every year, in return for such an outlay in money and labour as ought to have secured me tons of fruit, and the most luscious ever ripened by the sun. In spite of the constant teachings of nature, I went on pinching, repressing, starving, deforming, and the more I laboured the less I got. I had followed my book, and spent my money, and seldom had an apple to eat. I began to think that the paradise stock must have borne the apple that Eve seized upon for the ruin of the world, and was therefore cursed beyond hope, and might have remained of that opinion had not my neglect of my orchard actually proved the means of its restoration. I left off pinching and pruning, and the trees grew with astonishing vigour, making stout strong shoots, such as they had never made before. I was astonished; the scene was changed, the very leaves appeared to know that the tormentor (that is me) had desisted, and were just twice as large, and ten times as numerous as heretofore. The first winter after this outbreak of new life in the trees, I had a careful pruning performed, sufficient only to shorten back the longest of the shoots, and cut clean away some that were shut out from light and air. There was less fruit than before in the summer that followed, but there was again a good growth, and the strong rods of the previous year were beginning to bristle with short stubby fruit-spurs. When winter came again, I was compelled to thin the plantation, owing to its crowded state, and I therefore transplanted about half the trees, leaving abundant space amongst them. The next summer there was an enormous crop. Since that happy epoch in my domestic history I have had abundance of fruit of all kinds, and I have learnt of a surety that a certain degree of vigour is essential to fruitfulness, and that before we trouble about any system of pruning, we must make sure first of healthy free-growing trees, and give them time to accomplish what is required of them. As for the orchard house, with its trees in pots, I give an opinion, founded on experience that I have paid for, that it is a more serious, because a more costly, delusion than the miniature fruit garden, with its starving stocks, punished roots, and pinched-in branches. Mine is now serving me well as a cool vinery, and the once potted trees are growing freely in the open quarters. When I want forced peaches, or early fruits of any kind, I will again have an orchard house, but never will I fid-fad with those little toys that, in return for labour that would suffice for half an acre of orchard, give you a couple of dozen or so of pears or plums, about which you are expected by advocates of the system to go into fearful ecstasies. Miniature trees and pinching and root pruning are all very well in their way, but let us not suppose, as some would have us do, that we must begin with trees so small we can scarcely see them, and then labour hard to destroy them in order to make them fruitful. You startled me the other day when you said on this subject, that inasmuch as there could be but so much fruit to so much fruit-bearing surface, stunted trees could be of little use for profit, for the simple reason of their smallness of bearing surface. Of course, you can't expect a billy-goat to drag a load that would be difficult for an elephant, and to trust for the filling of a fruit-store to a lot of paltry little bushes with constitutions undermined, and their remaining energies repressed by extravagant pinching, is simply absurd. I believe in pinching when performed with skill and with careful lifting to promote the formation of surface fibres, and moderate manuring to give the fruit some size and flavour, and, in short, with whatever assists nature, and with nothing that wars against her. As to the stocks that have been vaunted so of late, especially the quince for pears, I do not hesitate to say that, by skilful treatment, pear-trees grafted low may be brought into bearing very nearly as soon as the same kinds on the quince, and with the advantage of better trees at every stage of their growth. The paradise stock for apples is excellent if a moderate growth only is required, but let us have that moderate growth in its integrity; let us not starve, abuse, and mutilate the trees in the expectation that a destructive system of cultivation will render them fruitful. No, my doctrine is, train your trees to any form you please, practise pinching or long pruning at your discretion, but make all your plans subservient to the ruling principle, that a tree must be allowed to grow, and that with some degree of vigour, or it can never produce fruit. AN AMATEUR.

POYNTER'S EARLY PEA.—For justice sake, I have no doubt you will kindly grant me space in your paper to say that I fear you have been misled in your trial of peas, so far as my "stock" is concerned; it (my stock true) is not Early Frame, as I can prove by my customers, some of whom grow acres of both kinds side by side. Further, I have not Mr. W. Clark's name as a purchaser of my pea, the only London agents being Messrs. Veitch and Sons and Mr. B. S. Williams, and no peas sold as mine would be genuine without the label as enclosed. I have not "pushed" it as new at a big price, but as a stock second to none, a few pence over the price of the common stocks of early peas. I much regret that so useful a trial should be nullified by

any errors, as I believe it to be the duty of all seedsmen to fairly and honestly help all such, at whatever cost of character of their own "dear children." I may mention, in passing, that I believe my pea was fully, and I am sure fairly, tested with most of the early kinds extant, got from the growers direct by J. B. Saunders, Esq., The Laurels, Tamton; and should he see your paper, and would kindly give his experience on the matter, it shall settle it, so far as I am interested.

Tamton, Nov. 14, 1867.

ROBERT H. POYNTER.

Replies to Queries.

Subscriber.—1. Tarragon. 2. Chervil. 3. Burnet.

Books.—S. B.—A new work on variegated-leaved plants is announced for publication by Messrs. Bell and Daldy; it will be illustrated with coloured plates, and the descriptions will be contributed by Mr. Hibberd.—W.—You will find Mr. Grindon's "Manual of British and Foreign Plants," published by Pitman, Paternoster Row, invaluable. The price is about four or five shillings. It contains the names, natural orders, native countries, and uses of all the plants that are known to be in cultivation.—S. S.—The best book on British plants is that by Professor Syme, in course of publication by Mr. Hardwicke. A good cheap work is Deakin's "Florigraphia Britannica," published by Groombridge.

Ferns for a Balcony Case.—X. Y. Z.—We understand that your fern-case occupies the position of a window, partly projecting beyond the line of the house, and the whole being visible from the apartment, the aspect of the case being west, or nearly so. The ferns selected should be hardy, and it is desirable they should be of bold handsome form and evergreen. Plant them in a mixture of good turfy peat chopped up to the size of hazel-nuts, with one-fifth of silver-sand added. Before putting in the soil, lay down two or three inches of broken flower-pots and clean broken bricks, and over that an inch of charcoal; then add four to six inches depth of the mixed peat and sand. By proceeding in this way you will give the ferns a fair chance to live and thrive. Some of our friends think it sufficient to buy the ferns, and then plant them in such a way that they are sure not to live, or at best they live only, and do not thrive. The following, amongst hundreds that are suitable, are recommended for their fine appearance and hardy constitution: *Scolopendrium vulgare crispum*, *Scolopendrium vulgare lobatum*, *Polystichum lonchitis*, *Polystichum angulare imbricatum*, *Polystichum acrostichoides*, *Onoclea sensibilis* (deciduous, but fine), *Asplenium adiantum nigrum*, *Asplenium marinum*, *Asplenium angustifolium*, *Asplenium Michauxii* (last two deciduous), *Athyrium Filix-femina*, *Frizelia* (deciduous, very distinct), *Blechnum spicatum*, *Ceterach officinarum*, *Lastrea æmula*, *Polypodium vulgare Cambricum*, *Campotisorus rhizophyllum*, *Woodsia ohtusa*, *Cyrtomium falcatum*, *Woodwardia Japonica*, *Selaginella obtusa*. These twenty are easily obtainable at comparatively low prices; they are various in form and colour, and would make a fine group in a large balcony case.

Bulbs for plunging out.—S. B.—There is still good time to pot a lot of bulbs for plunging out in spring. We find that potting such things as hyacinths and tulips singly in 60-sized pots is better than grouping them in larger pots; we now deal with them in this way largely. If price is an object, obtain cheap mixtures of hyacinths; from these very good spikes may be obtained. A few of the most distinct tulips for colour will be the best or you; but you may have a few dozens each of all the cheaper sorts, taken at random from any catalogue without fear, for they are all good, and in a mixed border all will be useful. Procure the bulbs, pot them, and cover them with four inches of cocoa-nut fibre at once.

Zizania.—Mr. Hibberd has not published a work on ferns. You cannot do better for the British species than order Moore's "Manual of British Ferns," published by Groombridge and Sons; price 5s.

Flowering Shrubs.—J. Harris.—Plant in the front of your shrubbery plenty of *Weigelia rosea*, *Ribes sanguinea*, *Spiræa prunifolia flore-pleno*, double-flowering *Furze*, *Persian Lilac*, *Deutzia scabra*, *Forstytbia viridissima*, double-flowering *Peach* and *Plum*, grafted low down for bush-culture; *Berberis Darwinii*, *Berberis dulcis*, *Garrya elliptica*, *Ligustrum Japonicum*, and *Viburnum plicatum*, and you will have abundance of flowers, especially in spring. A few herbaceous plants, such as *Pæonies*, *Irises*, *Delphiniums*, *Aconitums*, *Lychnis*, *Lysimachia*, &c., are desirable elements in shrubbery borders, to render walks in summer and autumn agreeable.

Roses on Clay Soil.—G. B. B.—If you break up the soil well and manure liberally, all the roses in your list will thrive in your clay soil. Add to the list *Lord Nelson* and *Sir Joseph Paxton*, for the sake of their abundance of flowers. We should prefer for a windy place and a clay soil brier roses one to two feet high, but if they are well treated own-root roses, if vigorous varieties, will do nearly as well on clay as on loam. We recommend briars as likely to be best for you. The difference of price on which you remark is a matter on which we cannot offer advice. You will see beef, mutton, corn, &c., quoted from the market letters in the papers at different prices; at some nurseries they never part with a plant unless it has legs to stand upon and a head to prove its reality, at others the shadows of plants are thought good enough to sell. As a rule, the highest prices represent the best goods, whether plants or what else, though of course not necessarily so. Use your own judgment on that matter.

Paradise Stock.—Learner may find the paradise stock at almost every nursery in the country where fruit-trees are grafted. It is a variety of apple which produces an inferior fruit, but in constitution is peculiarly well adapted to furnish roots for the better varieties, and is as easily propagated from cuttings as currant-trees. There are two sorts of paradise—the English and the French; the first is the most hardy, but the second is preferable for warm climates. Both of them root freely near the surface, and being by no means luxuriant in growth, the trees grafted upon them do not attain to a great size; hence for dwarf bushes and low cordons the Paradise Stock is eminently useful.

F. B.—Roses should be manured annually. If the flue will not heat so small a house it is useless and absurd. Why, a little charcoal stove such as Joyce's would be better, because, though not a perfect mode of heating, it does produce heat and diffuse it kindly.

T. J.—The yellow sport from Autumn is a good pompon, and if not available for exhibition purposes, will at least be useful and valuable for the conservatory and for bedding. For the plunging system, it will no doubt be far preferable to *Berrol*, which for a long time past has been the best early yellow. You must obtain rooted cuttings from the shoots which bear the yellow flowers.

Salt for Asparagus.—Salt.—Asparagus beds may be dressed with salt at

any time without injury, but the most effectual and economical way of using it is to give a thin sprinkling once a month, from the end of March to the end of September, and to abstain from applying it during the remaining months of the year. There can be doubt at all that salt acts directly as nutriment to asparagus, and is especially useful in helping to maintain a moist condition of the soil during hot weather. This query has been replied to about a dozen times within the six years that you have been a subscriber; perhaps it would be well now to become a reader, if you should do us the great honour to subscribe any more. Should you write again in the same tone, your letter will be quietly committed to the flames.

Gleichenias.—Enquirer.—The splendid ferns of this family require careful management when young, and it is desirable always to give them as much warmth as they will bear without becoming rusty. The soil should be good turfy peat in a rather lumpy state, with quite a fourth part of silver sand and finely-broken charcoal added. The drainage of the pots should be perfect and the plants should always be grown in as small-sized pots as possible, over-potting being carefully avoided. Several of the new species thrive in the greenhouse if taken care of, but such as *G. dichotoma*, *G. furcata*, and *G. pubescens* require the stove. The one of which you send a pinna is *Microphylla*, which requires a warm greenhouse.

Cocoa-nut Fibre Refuse.—A Florist will find this material useful in propagating if mixed with an equal bulk of sharp sand. It matters not whether it is used in a brick pit, in boxes, seed-pans, or what else; if moderately moist, almost any sort of cutting will quickly root in it, provided of course that the temperature and humidity of the place where propagating is attempted are suitable. The refuse may be employed for the same purpose, without sand mixed with it, but the roots formed in that case are not such good roots as those produced when sand is added.

Colours of Flowers, &c.—Florist.—There is no published list of colours, or of terms employed in describing the colours of flowers. Nor is it desirable there should be; no, nor is it possible. Why, some people cannot see distinctions of colour that others see; and descriptions and definitions are of no use, if the sense needed for applying them is deficient. Pray understand that we are not hinting that you cannot detect any and every shade of colour; of your ability in that way we know nothing; but, to speak of this matter to any useful purpose, we feel that the matter of chief importance is that individuals differ in their relative powers of distinguishing shades of colour, and the best possible rules, therefore, would be variously interpreted. A few years' practice in judging at exhibitions, and describing plants and flowers, would convince any one of the utter impossibility of reducing chromatic nomenclature to anything like system.

IS LICHEN-GROWTH DETRIMENTAL TO FOREST AND FRUIT TREES?

The following is the substance of a paper "On the Relations of Lichen-growth to the Health and Value of Trees and their Products," recently read before the British Association, at Dundee, by Dr. Lauder Lindsay, of Perth:—

There is, it would appear, a radical difference of opinion between lichenologists on the one hand and arboriculturists on the other, as to the effect, on the value of the timber and bark of the trees on which it occurs, of Lichen-growth. Lichenologists have been in the habit of describing lichens as deriving their nourishment *wholly from the air*, as non-parasitic, and as making use of trees simply as *bases of support*. Some, especially of the earlier, writers not only deny any possible harm, but demonstrate a considerable amount of actual good, in so far as lichens attract moisture to the trees on which they occur, and thus assist in their nourishment and growth. All "practical men," on the other hand—all those who are concerned with the cultivation of timber, bark, or fruit trees—without theorizing on the subject, are unanimous in describing lichens as detrimental to growth, and as depreciative of value. My friend Mr. Anderson, of the Kinnoul Nurseries, Perth, tells me that trees or shrubs coated with lichens are "immediately discarded as unsaleable," while Mr. Bell, factor on the Kinfauns estates, gives me a similar assurance as to the diminished value of oak-bark when infested by lichens. Mr. Gorrie, horticultural editor of *The Farmer*, and one of the most experienced and discriminating arboriculturists in Scotland, Mr. Moore, of the Sydney Botanic Gardens, New South Wales, and other practical authorities, whose opinions carry great weight on such a question, have borne similar testimony. My inference from this testimony is that they regard lichens as *true parasites*, living, in great measure at least, at the expense of the bark on which they occur—interfering with its healthy action and growth. While regarding lichen-growth, however, as, in a certain sense, or in some measure, a *cause of unhealthiness or disease* in the trees which it affects, they also admit that, in a certain other sense, it is a *result of unhealthiness or disease*. The evidence appears uniform that lichen-growth should never occur in forests or nurseries which are the subject of proper care, where the trees or shrubs are properly thinned, where the conditions of healthy growth are sedulously provided. Not only so, but I am assured that the disease of lichen-growth, when it occurs, can be removed or dissipated by removal of the tree which it affects to more favourable conditions of development. Mr. Moore, of Sydney, tells me he has seen lichen-growth disappear from a tree simply by transferring the latter to a richer soil or more favourable locality, or by supplying it with proper manure.

It is inconceivable that there should be such unanimity of opinion among arboriculturists, totally devoid of bias or theory, and expressing only the results of repeated observation in very different quarters of the world, without the existence of some good ground for their assertions. My impression is that arboriculturists are right to a greater extent than are the lichenologists, and that lichens must be regarded as, in some measure at least, *parasitic*, drawing the constituents of their *thallus* from the objects on which they grow. I pointed out in 1856, in my preliminary work on "British Lichens" (p. 50), that the filamentous lichens belonging to such genera as *Usnea*, *Ramalina*, *Evernia*, and *Parmelia*, which coat with shaggy flowing masses oak, fir, and other trees, and whose growth is the main subject of dispute between lichenologists and arboriculturists, contain such bases as silica and alumina, lime, potash, and soda, magnesia, manganese, and iron, in combination or not with carbonic, sulphuric, hydrochloric, phosphoric, or other acids. The most of these inorganic constituents could not have been derived from the atmosphere, and, indeed, we are shut up to the conclusion that, as in the case of higher plants, they are derived from the surfaces or substances on which the lichens containing them grow. This conclusion is further supported by the recorded facts that chemists have detected iron in greatest amount in species affecting ferruginous soils, and silica in those growing on quartzose or rocks or their debris.

I am not, however, prepared to contribute any new facts towards the

settlement of the interesting question which forms the heading or title of this communication, or of the other equally interesting, but less practical and economically important, questions which naturally suggest themselves for consideration in connexion therewith. My purpose is rather to call attention to the paucity and unsatisfactory character of the facts or opinions that have hitherto been recorded, and to invite the record of *facts*, as contradistinguished from mere *opinions*, bearing upon the following points more especially:—1. What are the precise grounds on which the assertion is founded that lichen-growth is detrimental to timber and other trees? 2. In what way does such growth injuriously affect the timber, bark, fruit, or foliage of such trees? 3. How far is lichen-growth a *cause of unhealthy or diseased development* in the trees on which it occurs? 4. How far is it a *result of such development*? 5. To what extent do lichens draw their constituents, *A. organic* and *B. inorganic*, from the *atmosphere*? 6. To what extent from their *bases of support*—the bodies on which they grow?

ON THE NOMENCLATURE OF PLANTS AND FLOWERS.

Among the difficulties connected with horticultural pursuits, that of the nomenclature of plants and flowers, derived from the classical languages, is often a drawback and discouragement, especially to the unlearned. This difficulty, however, is more apparent than real; for the recollection of a few simple principles, which most of us have had enforced at our fingers' ends in the days of boyhood, a limited number of descriptive words, and a Latin dictionary, will suffice to elucidate even the most recondite terms to be found in the catalogues, beyond which, in the present paper, it is not proposed to treat.

In the first place, the adjective must agree in gender and number with the noun, or word to which it is added to describe some circumstance respecting it. We have only, therefore, to consider or ascertain the gender and number of the noun to know what the termination (where there is more than one) of the descriptive word should be. Thus in "*Acacia armata*," the noun *Acacia* being feminine, we must say "*armata*," and not "*armatus*" or "*armatum*." "*Abutilon*" (bearing in mind that Greek nouns in *on* are equivalent to Latin in *um*) must have "*insigne*," and not "*insignis*."

The second case is where the descriptive word is intended to denote the discoverer of any specific production, or the person after whom it is named. Here we have the rule, "that the word or words specifying, 'belonging to,' or 'the possessor,' must be put in the genitive case." Drummond's Phlox will therefore be written *Phlox Drummondii*; Atkins's Cyclamen, *Cyclamen Atkinsii*, and so on.

Thirdly follow certain terminations, such as "*ensis*," denoting the habitat, or place where the plant is naturally found—for example, *Plumbago Capensis*, or *Cape Plumbago*; *Hydrangea hortensis*, or *garden hydrangea*. Analogous to this are the suffixes "*oides*" or "*ana*," signifying "likeness to"—as "*jasminoides*," "*Atlecana*," "*ceus*," consisting of; "*osus*," full of or abounding in, as "*globosus*," very globular; "*bundus*," abounding in, as "*floribundus*," "*ssimus*," the superlative of a quality; "*lus*" or "*ulus*," diminutive; "*formis*," relating to shape, &c.

The principal parts of plants or flowers, the peculiarities respecting which originate distinctive names to the variety, are commonly the roots, the inflorescence, the foliage, the calyx or flower-cup, the pericarp or seed-vessels, the corolla or blossom, the pistil, the seed, and the nectarium or honey-cup.

Some of the most common adjectives used in floral nomenclature follow below:—

		COLOUR.		
Striat-us,	-a, -um,	-a, -um,	striped.	
Nitid-us,	-a, -um,	-a, -um,	shining.	
Rose-us,	-a, -um,	-a, -um,	rosy.	
Violace-us,	-a, -um,	-a, -um,	violet.	
Alb-us,	-a, -um,	-a, -um,	white.	
Ni-ger,	-gra, -grum,	-a, -um,	black.	
A-ter,	-tra, -trum,	-a, -um,	purple.	
Purple-us,	-a, -um,	-a, -um,	scarlet.	
Coccine-us,	-a, -um,	-a, -um,	painted.	
Pict-us,	-a, -um,	-a, -um,	two-coloured.	Tricol-or—oris, three-coloured; &c.
Bicol-or—oris,	two-coloured.	-a, -um,	yellow.	
Lute-us,	-a, -um,	-a, -um,	spotted, or stained, or blotched.	
Punctat-us,	-a, -um,	-a, -um,	variegated.	
Yittat-us,	-a, -um,	-a, -um,	green.	
Maculat-us,	-a, -um,	-a, -um,	blue.	
Variegat-us,	-a, -um,	-a, -um,	crimson.	
Virid-is,	-e, -um,	-a, -um,	pearl-like.	
Cœrule-us,	-a, -um,	-a, -um,	saffron-yellow.	
Kermesin-us,	-a, -um,	-a, -um,	red.	
Margaritace-us,	-a, -um,	-bra, -brum,		
Croc-at-us,	-a, -um,			
Ru-ber,	-bra, -brum,			
FOLIAGE.				
Umbellat-us,	-a, -um,	-a, -um,	shadowy, or umbrella-like.	
Cremulat-us,	-a, -um,	-a, -um,	crimped.	
Racemos-us,	-a, -um,	-a, -um,	very branching.	
Frondos-us,	-a, -um,	-a, -um,	very frond-like.	
Fimbriat-us,	-a, -um,	-a, -um,	fimbriated, or fringed.	
Hirsut-us,	-a, -um,	-a, -um,	hairy.	
Acuminat-us,	-a, -um,	-a, -um,	pointed.	
Dentat-us,	-a, -um,	-a, -um,	toothed.	

And many others. "*Phyll-us*," -a, -um, and *folium*," leaved; "*macro*," large; "*micro*," little or small; "*microphyllum*," small-leaved; "*buxifolium*," box-leaved; "*bilobatus*," two-lobed, &c., will serve to illustrate these.

SIZE, HABIT, AND APPEARANCE.

Major, greater; minor, less; *nanus*, a, um, dwarf; *giganteus*, gigantic; *magnificens*, magnificent; *splendens*, splendid; *reticulatus*, netted; *arundus*, spined; *regalis*, royal; *virgatus*, twiggy; *gracilis*, slender; *floro-plenus*, full-flowering; *erectus*, erect; *glandulosus*, glandular; *plumosus*, plume-like; *affinis*, connected with; *lanceolatus*, lance-like; *ensiferus*, sword-like; *corymbosus*, in corymbs; *venustus*, comely; and many other terms, readily to be found by reference to any ordinary Latin dictionary.

The subject is of too extensive dimensions to be treated exhaustively in a single paper. Sufficient, however, has been indicated to popularize the subject, and to enable any ordinary reader, with a little patience, to obtain an insight into the meaning of most of the names of plants and flowers, and with some botanical terms commonly to be met with.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. Imp. avg of 43 yrs. Grnhl	Orchids that may be in bloom. I, Indian House; M, Mexican House; G, Greenhouse.	M D	
			rises.	sets.	rises.	sets.	rises.	sets.	rises.	sets.	Barometer.	Thermometer.						Rain.
1867																		
1	S	1st Sunday in Advent	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	1867
2	M	Princess of Wales born, Dec. 1, 1844.	7 46	3 53	11 21	a. m.	8 49	p. m.	29 78	29 73	36 31	33.5	.20	40 5	Limatodes rosea, M	.....	Brazil	1
3	T	Napoleon elected Emperor, Dec. 2, 1852.	7 47	3 52	11 52	"	9 49	"	29 79	29 74	50 25	37.5	.08	40 4	.....	rosa alba, M	.....	2
4	W	Thomas Carlyle born, 1795.	7 48	3 52		p. m.	10 53	"	29 78	29 70	55 48	51.5	.10	40 2	Odontoglossum maculatum, G	.....	Patagona.	3
5	Th	Length of day, 8h. 2m.	7 49	3 51	0 45	p. m.	11 58	"	29 69	29 60	56 50	53.0	.14	40 0	.....	membranaceum, G	.....	4
6	F	Sun south at 8m. 53s. before noon.	7 51	3 51	1 8	"	a. m.	"	29 79	29 74	56 44	50.0	.48	39 6	Barkeria elegans, M	.....	"	5
7	S	Marshal Ney executed, 1815.	7 52	3 51	1 33	"	1 6	a. m.	29 85	29 52	57 45	51.0	.16	39 7	Laelia albida, M	.....	Orizaca	6
			7 53	3 50	2 0	"	2 16	"	29 71	29 45	51 29	40.5	.00	40 0	.....	aneps, M	.....	7

The Gardener's Magazine.

SATURDAY, NOVEMBER 30, 1867.

THE TEMPERATURE OF PLANTS DURING THE NIGHT is always lower than during the day where nature is undisturbed, but in plant-houses of all kinds it is occasionally otherwise, especially at this time of year. It is quite certain that an excess of heat during the hours of darkness is directly injurious to plants, and the cause of many of those morbid affections about the symptoms of which we hear much, and the causes of which we hear little. The forcing of seakale is a good illustration of the evils of undue night temperatures. In this instance we want an unhealthy or unnatural production, and we obtain it easily by means of *heat combined with darkness*. But there is no substance, little nourishment, and no constitutional vigour in the blanched shoots of seakale. If those same shoots had to make plants, they would be the most miserable plants ever seen, that is to say, if they ever became plants at all, and it is a question if that would be possible. Now it is a strange thing that thousands of cultivators who are well advertised by the artificial character of seakale, nevertheless, load on the fuel towards nightfall, and compel their plants to make long, weak, half-blanched shoots, when, as they know, a short growth, or no growth at all, would be preferable.

It is a fact of the utmost importance that plants of *all kinds* will bear with impunity a lower night temperature than is customarily recognised in the management of plant-houses. In the most torrid regions of the globe, the temperature at night is frequently very low. Readers of the Rev. J. D. Hooker's Himalayan Journal will remember the records of orchids and hoar-frosts; and readers of Livingstone will call to mind his accounts of chilly nights on the Zambesi. Everybody, that is to say everybody who reads, is familiar with the fact that in the hottest parts of Hindostan, and in the hottest seasons, the temperature of the air at night is commonly twenty, thirty, and even forty degrees below the temperature at midday, and that ice is manufactured by simply pouring water at nightfall into the saucer-shaped hollows scooped in the earth, the rapid evaporation from which, combined with active radiation, produces so low a temperature that ice is quickly formed, and is gathered up for the next day's comfort of the "sahib." If we were to be taught by some gardeners who take a pride in calling themselves "practical men," we should believe that Sir Cresswell Cresswell had been called upon to pronounce a divorce between Heat and Light, and had obsequiously complied; yet we may be pretty well sure he never did anything of the kind, for he was one of those good men who believed that in the realm of nature truth was to be found. High night temperatures are most injurious to plants, no matter from what part of the globe they come. A general rule can be given in respect of the temperature to be kept at night, and it is simply this, that it should be *always lower than during the day*. In many gardens the fires are lighted about 4 p.m.; by 6 p.m. there is a kindly heat diffused, or it may even happen at 4.25, for some of the tubular boilers demand only fifteen to twenty minutes to send thermal telegrams all over the place (at a great price in coke!), and forthwith the temperature of every house so fed rises, and the *heat increases as the darkness increases*, and that is PLANT MURDER. Do not suppose, good reader, that it is only in remote and very darkened districts this takes place. Nothing of the sort. The mischievous system is in action in the garden whence this is written; the fires are lighted late in the afternoon, and the houses are comfortably warm after dark, and the plants are already becoming long-jointed, pale, and attenuated; the Dæmon of *fire-heat without light* has got possession, and will for a time have his way. But that need not prevent us raising the warning voice. Gardeners, nurserymen, whatever ye are, keep down the night temperature, and if you want growth let the glass rise by daylight, and whatever growth is then made will be green and worth having.

No. 135, NEW SERIES.—VOL. X.

PRESENTATION TO MR. MITCHELL.—A very handsome tea and coffee service and timepiece in marble were presented to Mr. Mitchell (now of the firm of Lamont & Mitchell, Edinburgh), on the occasion of his retiring from the charge of the Palace Gardens, Hamilton, to engage in the nursery and seed trade. It was presented last Friday (15th inst.), at a dinner in the Douglas and Clydesdale Hotel, Hamilton, presided over by J. C. Forest, Esq., banker, Bailie Thorburn being croupier. Upwards of forty gentlemen were present.

AUCUBAS IN FRUIT have ceased to be rarities, but hitherto very few have been seen in the open air. In the garden of Thomas Bewley, Esq., Rockville, Dublin, there are some fair-sized garden bushes quite loaded with berries. Their colour is at present yellowish green, but as the season advances they will ripen to a lustrous red. Hitherto it has been considered essential to apply the pollen by hand for the fertilization of the plant, but in this case there was no manipulation performed; one small plant was placed in the vicinity of the trees, and the present crop of berries is the result. An oft-repeated query is thus answered. Cultivators have asked if there is any chance of the female aucubas becoming fruitful without the aid of skill, and it is evident there is a very fair chance indeed; we may even venture to say that, wherever a few males are planted near or amongst females, the berries will be produced in abundance.

THE BIRMINGHAM EXHIBITIONS of cattle, poultry, implements, &c., in the Bingley and Curzon Halls, will commence on Monday, Dec. 2, and close on Thursday, Dec. 5.

THE SMITHFIELD CLUB CATTLE, ROOT, AND IMPLEMENT SHOW, in the Agricultural Hall, Islington, will commence on Monday, Dec. 9, and close on Friday, the 13th.

Exhibitions of Chrysanthemums.

SOUTH ESSEX.

This society's exhibition, in the Artillery Hall, Stratford, was undoubtedly the best of the season in the neighbourhood of the metropolis. The hall is of ample dimensions, clean, cheerful, well lighted. Unfortunately for a chrysanthemum show the walls are wainscotted with varnished oak or an imitation thereof, and the bright brown colour of this is decidedly prejudicial to the colours of the flowers. A clear neutral gray, or a decided dove-colour, would no doubt be the best background for relief to the numerous half and quarter tints that prevail amongst chrysanthemums; at all events, the brown of new varnished oak, or oak-stain, is not desirable, and in the present case the exhibition was in some degree marred by it. The committee had foreseen this, and had to some extent neutralized it by freely hanging the walls with wreaths and chaplets of evergreens. This part of their work was admirably done, and this beautiful apartment was rendered additionally elegant by the bold lines and circles of deep green that were carried round the walls. The judicious staging and grouping of the plants and flowers resulted in the production of a grand effect, and we must not forget that several of the plants were of such dimensions and perfection as to enhance the dignity and richness of the groups in which they occurred, while attracting attention and admiration for their individual merits. There were three immense groups, placed on three several sides of the hall, forming three splendid and harmonious pictures. In the classes there was abundant competition, and in general quality throughout plants and flowers were in several cases superior, and in all cases equal to, the best at other exhibitions of the season.

PLANTS.—There was a special competition for a plated tea-service, value £5, the group to comprise not less than 20 plants. The schedule said, "It is expected by the contributors to this prize that the collections competing will be of a superior character (quality and general effect will be the leading features in this class). The judges are therefore empowered to withhold the same from any group," &c., &c. The three groups put up were all characterized by their superior character, and the first prize was most properly awarded to Mr. Simmons, gardener to Mr. Alderman Finnis, Wanstead, for a group which was perfect as to the style, size, and colours of the plants, and as to their grouping. The colours were balanced perfectly, and the arrangement of the plants was such as to carry the eye up successively from plant to plant till the crown of the group was reached, and that consisted of a gigantic plant, superbly rounded and finished, and covered with rosy flowers. The second place was given to Mr. Whitbread, gardener to — Sewell, Esq. There were some grand plants in this lot, but there were also a few rather past their heyday, and a couple of dark pompon standards, balanced with a yellow standard for a centre to them, detracted much from the effect. These dark pompoms (they were plants of Bob, no doubt) were inconspicuous, and hence the places where they stood appeared more like black holes in the group. A pair with rosy or purple flowers would probably have shown more freshly and effectively. Mr. Donald, gardener to J. G. Barclay, Esq., had the third place. Now Mr. Donald had some finer plants than Mr. Whitbread—some, indeed, of the finest plants ever seen—but there was a want of uniformity, some specimens having just turned the corner of absolute perfection. Nevertheless, taking them plant for plant throughout, there can be no doubt that Mr. Donald's lot was the best of the two left after the first prize was disposed of. And here arose the nice point for the judges, who must have passed a few anxious moments in deciding the matter. Well, the judges did right, no doubt, in putting this lot third; for it was most unskillfully grouped, and in several parts of it the combinations of colour were in the worst possible taste. Mr. Donald is one of the best specimen growers, no matter what subject he takes in hand, amongst a thousand who call themselves such. If he will give his mind to the study of colour as he has to cultivating, he may splendidly efface the recollection of being third in this grand competition by taking first against all comers. Another special prize was

offered by Mrs. Hilleary for the best collection of twenty plants, consisting of poupons, ferns, and fine-foliaged plants. The first place was taken by Mr. Low, gardener to Lieutenant-Colonel Capper, M.P., Upton, with a pretty and very bright group, in which bush poupons predominated. 6 *pyramid pompons*: first, Mr. Low, with fine specimens of Cedo, Golden Cedo, Mr. Astie, St. Thais, Calliope, and another; second, Mr. Whitbread, with General Canrobert, white and golden Cedo, Calliope, Hélène, Salomon. Mr. Lucas and Mr. Donald also contributed. 4 *dwarf pompons*: first, Mr. Low, with Lilac Cedo, Hélène, Madame Eugène Domage, and Antonius. 3 *standard pompons*: first, Mr. Low, with neat fresh table plants of Madame Eugène Domage, Salomon, and Cedo Nulli; second, Mr. Lucas, gardener to Miss Drake, Leytonstone, with Antonius, Bob, and Fanny; third, Mr. Whitbread, with Golden Cedo, Madame Rousselon, and another; fourth, Mr. Simmons. The third and fourth lots were larger than the first and second, but they wanted finish and were too coarse for any but the roughest conservatory purposes. 6 *large*: second, Mr. Donald, with good plants of Antonelli, White Christine, and Bixio. 3 *large* (amateurs' class): first, Mr. Parker, with Lady Harding, fine; Annie Salter, and Golden Christine. *Single specimen in any sized pot*: first, Mr. Simmons, with a finely-grown White Christine in a 20-inch pot; the plant measured over head from edge to edge 8 feet, and through from edge to edge at the base 5 feet 6 inches.

CUT FLOWERS, 24 incurved: First, Mr. Hilleary, of Ilford Road, with superb examples of Queen of England, Golden Beverley, Dr. Brock, Eve, Duchess of Wellington, Prince of Wales, Cherub, Mrs. Cunningham, Little Harry, Fingal, Mrs. Brunlees, Venus, Jardin des Plantes, Mrs. Haliburton, White Globe, very fine; General Bainbrigg, Selina, Lady Harding, Lady St. Clair, Golden Dr. Brock, Prince Alfred, Lady Slade, Mrs. Heale. Second, Mr. Donald, with White Globe, Venus, Mr. Jay, Prince Alfred, Lady Slade, Rev. J. Dix, Duchess of Wellington, Yellow Perfection, and others. Third, Mr. Whitbread, with Princess of Wales, St. Patrick, Dr. Brock, Lady Slade, Prince Alfred, Jardin des Plantes, and others. Fourth, Mr. South, gardener to — White, Esq.—in this lot a fine Empress of India. 12 *incurved*: First, Mr. Beadle, gardener to — Cottan, Esq., Wanstead, with Empress of India, Prince Alfred, General Bainbrigg, Themis, General Slade, Bella Donna, Goliath, Venus, Dupont de l'Eure, Jardin des Plantes, Novelty, Princess of Wales. Second, Mr. Brown, gardener, to — Ellis, Esq., Abbey Wood, Kent, with White Globe, Goliath, John Salter, Prince of Wales, Golden Beverley, and others; fine. Third, Mr. South. Extra prizes to Mr. Whitbread and Mr. Hodson, gardener to G. Harcastle, Esq. 12 *incurved (for amateurs only)*: First, R. G. A. Hilleary, Esq., with Jardin des Plantes, Prince Alfred, Golden Beverley, Lady Slade, Duchess of Wellington, White Globe, Golden Dr. Brock, and others. Second, Mr. Greenfield, with Beverley, Prince of Wales, Prince Alfred, and others. Third, Mr. Shipman, with a fine Beverley, and others. 6 *incurved*: First, Mr. Browne, with Prince Alfred, White Globe, Prince of Wales, Goliath, Bella Donna, Golden Beverley. Second, Mr. Beadle; third, Mr. Lucas; fourth, Mr. Simmons; extra, Mr. Hodson. 6 *incurved (for amateurs only)*: First, Mr. Greenfield, with Rev. J. Dix, Prince of Wales, Prince Alfred, Beverley, Dr. Brock, White Globe. Second, Mr. Shipman; third, Mr. Shippett. 12 *reflexed*: First, Mr. Donald, with beautiful examples of Prince Albert, Ariadne, Sabrina, Alma, Lord Clyde. Second, R. G. A. Hilleary, Esq., with a fine Progne, Attraction, Madame Leo, and others. Third, Mr. Whitbread. 6 *large Anemone-flowers*: First, Mr. Brown, with Lady Margaret, Madame Goderau, Mrs. Peters, Louis Bonamy, Prince of Anemones, Gluck. Second, Mr. Hilleary; third Mr. Whitbread. 12 *Anemone-pompons, in bunches of three each*: First, R. G. A. Hilleary, Esq.; second, Mr. Donald; third, Mr. Brown; extra Mr. Parker.

There were three beautiful collections of fruit, the best being that sent by Mr. Donald, comprising fine Black Hamburg and Chasselas Musqué grapes, apples, pears, &c. 2nd, Mr. Groves, of South Grove, Mile End. 3rd, Mr. Deacon. Mr. Burton contributed the best design for garden; 2nd, Mr. Beadle. Several handsome ferns were shown, and the miscellaneous subjects added very much to the interest and beauty of the exhibition.

EAST LONDON.

The exhibition by this society in the Vestry Hall, Bow, was one of the best the society has held, and proved attractive to a large concourse of visitors. One of the special attractions was a group of fine-foliaged plants, supplied by Mr. Prestoe, of Victoria Park, many of which were remarkable for their beauty and rarity. Mr. Wilkinson, of Mile End Nursery, sent a group of ornamental plants, and Mr. A. Forsyth, of Brunswick Nursery, Stoke Newington, contributed a great collection of specimen chrysanthemums, both large-flowering and pompon varieties, and several stands of cut flowers. Mr. Allen, of Norfolk Nursery, Shacklewell, embellished the table on which the cut flowers were staged with the silver épergne, with which he was lately presented by this society, with flowers; and there were many miscellaneous contributions, of scarcely less importance, to vary and enrich the exhibition.

PLANTS.—Mr. Ford presented the best collection, the plants being fresh and in fine condition as to flowers. 2nd, Mr. W. Greve, with a beautiful lot. 3 *specimen pompons*: 1st, Mr. Lowe, with neatly-trained and richly-flowered plants of Madame Eugène Domage, Hélène, and Lilac Cedo Nulli. 4 *specimen pompons*: 1st, Mr. Lowe, with Calliope, Cedo Nulli, Golden Cedo Nulli, and St. Thais. 2nd, Mr. Whitbread, with good examples of General Canrobert, Bob, and another. 3 *specimen chrysanthemums, large flowers*: 1st, Mr. Parker, with well-trained plants of Lady Harding, Annie Salter, and Golden Christine. In an extra class for 3 *specimens, large flowers*, 1st, Mr. Whitbread, with Christine, Jardin des Plantes, and White Christine; fine. 2nd, Mr. Drain, of Southgate Nursery, Kingsland, with Christine, White Christine, Golden Christine. 3 *plants without stick or tie*: 1st, Mr. W. Grovo. A good class, because the generally ragged and disorderly appearance of the plants furnishes a powerful argument for careful training and tying, without which no specimen can be fit for presentation.

CUT FLOWERS.—24 *large incurved*: 1st, Mr. Waites, with Prince Alfred, Lady Slade, Mrs. Heale, Lady Harding, Lady St. Clair, Golden Dr. Brock, White Globe, General Bainbrigg, Selina, Jardin des Plantes, Beverley, Mrs. Haliburton, Fingal, Mr. Brunlees, Venus, Cherub, Mrs. Cunningham, Little Harry, Prince of Wales, Duchess of Wellington, Eve, Queen of England, Golden Beverley, Nonpareil. 2nd, Mr. Whitbread, with a fine lot, comprising Prince Alfred, Lady Slade, Dr. Brock, Princess of Wales, Golden Eagle, &c. In two other classes for 24 *incurved*: 1st, Mr. Hawkes, with a beautiful lot of flowers, Beverley and Yellow Perfection being extra fine. Mr. Ford second in each case. 1st 12, Mr. Schrier; 2nd, Mr. Joffery. 1st 6, Mr. Hawkes; 2nd, Mr. Ford. 36 *large anemone-flowers, with foliage*: 1st,

Mr. C. Parker, with Antonius, Roso Margaret, Astrea, Perle, &c. An extra prize for 6 *large anemone-flowers* to Mr. Grace, who showed fine samples of George Sand, Prince of Anemones, Fleur de Marie, and others. Mr. Sinclair presented a beautiful group in this class.

The best collection of fruit came from Mr. W. Grove, who put up 30 dishes of apples and pears in splendid condition, and some well-ripened Muscat grapes. Mr. Deacon and Mr. Smece contributed beautiful collections of apples, pears, and grapes. Mrs. Grove contributed a beautifully-finished decoration for the dinner-table, which was much and deservedly admired. Mr. Burton presented an attractive design for a garden, wrought out in sand and flowers.

SOUTH LONDON.

The exhibition by this society, at South Street, Camberwell, was fixed at a later date than others, and was the better for it, the plants being full out, and, generally speaking, in excellent condition. In the classes for plants, Mr. James Butcher took first place in the classes for 6 and 3 respectively, the best 3 anemone pompons, and in several other classes, inclusive of groups of pretty bushes in 48 and 32 sized pots. The best specimen pompon came from Mr. Bignell; it was a well-grown plant of Madame Marthe. An extra prize for specimen pompon was awarded to Mr. Maidnell.

CUT FLOWERS.—12 *large*: 1st, Mr. Tozer, who showed good samples of Princess of Wales, Lady Slade, and Rifleman. 2nd, Mr. Payne, who had good blooms of Prince of Wales and White Globe. 3rd, Mr. Pink. In the maiden class for 12 *large*, 1st, Mr. Barker, with Lady Slade, Jardin des Plantes, Empress of India, and others. In the maiden class for 6 *large*, 1st, Mr. Barker, who had fine blooms of Jardin des Plantes, Beverley, General Slade. In the class for 12, to be judged by properties only, 1st, Mr. Butcher. In the corresponding class for 6, Mr. Payne presented the best group. Mr. Lecquire presented a fine half-dozen in the class for amateurs, amongst them beautiful examples of Lady Slade, Prince of Wales, and Beverley. 2nd, Mr. Pink, with Themis, General Slade, and others. 3rd, Mr. Butcher. 4th, Mr. Hurd. 6 *anemones*: 1st, Mr. Butcher, whose blooms of Gluck and Prince of Anemones were extra fine. 2nd, Mr. Pink. 12 *bunches of pompons*: 1st, Mr. Butcher; 2nd, Mr. Head, jun. For the best bloom in the room, the winners were Messrs. Payne, Lecquire, and Tozer. A first-class certificate was awarded to Mr. Butcher for two seedling anemones of 1867.

THE TEMPLE GARDENS.

Out-door exhibitions of this favourite autumnal flower deserve the attention of all who are interested in making floriculture largely subservient to the happiness of mankind. If the chrysanthemum were adapted only for the conservatory and the exhibition room, it would be one of the most popular of popular flowers, but its out-door uses enhance its value a thousandfold; and, indeed, whatever can be made available to brighten up the ground in the dull season of November must be precious to human eyesight. The public have every year an opportunity of judging what may be done with chrysanthemums as materials for the decoration of the open garden, and though this is not one of the best seasons known to cultivators, these gardens have for a long time past been extremely gay with them.

Mr. Broome's border at the head of the garden has been and still is bright with myriads of well-grown flowers. The manner in which the border is now covered contributes greatly to the pleasure of an inspection, especially on those days when a bleak wind suggests the desirability of ignoring gardens and gardening altogether. The large incurved varieties are the especial favourites of Mr. Broome, as becomes the veteran florist. These he manages with consummate skill, and as the names are attached to the best flowers, visitors have abundant gratification. During our brief inspection, we noticed as particularly good the following: Mrs. George Rundle, White Globe, White Queen (which is the same as the Empress of India), Beverley, White Formosum, Venus, Hermine, Little Harry, this is very good, and, being compact and stiff-habited, lasts a long time; Jardin des Plantes, Yellow Formosum, Chevalier Domage, Faust, St. Patrick, Sparkler, Lady Harding, Dr. Sharpe, one of the most brilliant flowers known amongst chrysanthemums; Hereward, Cherub, Gloria Mundi, a fine yellow; Prince of Wales, General Slade, Prince Alfred, this is always good, and scarcely ever needs to be dressed for show; Ranunculus, Mr. Gladstone, Bernard Palissy, Arigena, Prince Albert, fine for colour; Progne, Nil Desperandum, &c. Mr. Broome has filled his beds with nice bushy plants of the several varieties of Cedo Nulli, a capital plan, as they all grow alike, and make a charming variety of distinct and bright colours. Mr. Broome has to furnish these beds several times in succession throughout the season, hence the present display is produced under circumstances of peculiar difficulty, and is by so much the more praiseworthy.

Mr. Dale appropriates but a small extent of space to show flowers; but in his little tented corridor he has some beautiful specimens. Here we noticed fine examples of Jardin des Plantes, Antoulli, Lady Slade, Mrs. George Rundle, Vesta, Nil Desperandum, Fleur de Marie, Hotty Barkor, a scarcely known but most valuable flower for its colour, which is a bright pink shading to a lilac.

Mr. Dale makes amends for the limited extent of his display of large flowers by truly splendid beds of pompons. These flowered rather late, but came out well. There are some brilliant beds of Salamon, Aurora Borealis, Comto Achille Vigier, and others. The composite beds, which for several years past we have described at length, are as perfect as ever, and models for imitation in any private garden where late autumnal flowers are wanted. Let us again take one bed as an example. The diameter of the bed is about 15 feet; it is planted with centro of Gerbe d'Or, a fine yellow in the way of Aigle d'Or, but holding up its flowers better; then in succession to the margin there are circles of Aurora Borealis, Mr. Murray, Miss Talfourd, Lilliputian, and Canrobert. The stiff-habited kinds, such as Florence, answer better for this kind of work than many of the varieties that are prized at exhibitions; and there are a few, such as Riquiqui, that are of no use at all, though in consequence of their fine colours they would be invaluable were they manageable.

BUCKINGHAM PALACE.

During the whole of the past month of November, the great conservatory at Buckingham Palace, Pimlico, has been gloriously gay with specimen chrysanthemums. Mr. Wynoss, Her Majesty's head gardener there, is an enthusiastic cultivator of this noble flower, and one of the few remaining

veterans who have seen its first developments of the possibilities of perfection. If we could have gathered a little company of sceptics, or, in other words, of such as "don't like chrysanthemums" amongst the practitioners of horticulture, to go round the conservatory with us on the occasion of our visit lately, we think there must have resulted a complete conviction in the mind of all that this is indeed a noble flower, when generously dealt with and judiciously exhibited. It needs judgment, certainly, in its presentation; hence badly managed shows do more harm than good; they simply disgust people with a flower which it is admitted lacks positive colour, but which by its season, variety, adaptiveness, and intrinsic beauty, merits all that can be said in its praise, whether as a subject for home decoration within doors and without, as well as for the exhibition. Mr. Wyness has grouped his plants, which are mostly tall single specimens, such as are grown for cut flowers, with leafy plants of various kinds, such as palms, ferns, camollias, huge cypripediums, citrus, and other subjects of a solid and massive character. From amidst these masses of foliage rise the grand flowers of the chrysanthemums of all colours, the many white and yellow flowers telling well in the midst of dark green foliage; in fact, the abundance of leafage brings out even the brassy, coppery, and bronzy flowers perfectly, and these are usually the least telling where *chrysanthemums only* are seen.

The greater part of Mr. Wyness's plants, some hundreds in number, have been grown out of doors in the open ground until the end of September, or later, and were then potted, staked, and grouped, and allowed to flower. The buds were of course thinned out long since, so that the average number of flowers is about half a dozen to a plant, and these are for the most part fit for show. There must have been some two to three thousand of specimen blooms in the conservatory during the present season. This brief note will prove that the growing of superb flowers may be reduced to a very simple system, and possibly many of our readers who cannot find time to attend to potted chrysanthemums in the height of summer may be induced to give this easier plan a trial. There are, first, two conditions essential to success—the ground must be thoroughly well prepared by deep digging and abundant manuring, and the plants must be put out as early in the spring as it is safe to do so.

Another matter of great importance in reference to this particular display is that fire-heat has been used freely and *without injury*. On the day of our visit the Prince of Wales was enjoying the beautiful scene, and, it may be, visitors were not unknown; therefore a comfortable warmth was an essential aid to the proper use of the display. We did not look at the thermometer, but the temperature must have been about 65°. Mr. Wyness assured us that the fire had been going steadily for some weeks past, and we therefore took particular notice of the foliage, which was fresh and green, and the colours of the flowers were pure and bright.

We forbear to enumerate the varieties that were most prominent in this splendid collection, because in all our reports, more or less, the names of varieties are predominant. But we are bound to notice a splendid seedling variety here, called *Princess Beatrice*. This is a grand incurved flower of the finest form and style of finish, and, what is of the greatest importance, the colour is a lively tint of rosy-pink. It is a glorious addition to the few good varieties of *cheerful colours*, and whoever gets possession of it will prize it. What is to become of this, one of Mr. Wyness's best seedlings, we do not know.

CORRECTIONS.—In report of Brixton Hill, given last week, Mr. Alunn (1st prize for 3 plants, &c.) should be Mr. Munn, gardener to J. Treadwell, Esq.; Mr. Battery should be Mr. Buttery; for Mr. Tilee read Mr. Filec; for Mr. Salman read Mr. Salmon. The reporter states that he copied the names from the cards with care.—At the East Tower Hamlets show, the 1st prize for 12 blooms, a silver cup, presented by Mr. R. Atkins, was awarded to Mr. W. Eickhoff.

LINDSEY HOUSES, CHELSEA.

The lovers of the Chrysanthemum may now witness some notable examples of successful training of this splendid autumnal flower, in the front gardens of several houses on the banks of the Thames, in the above-named locality. The various colours of yellow, pink, crimson, puce, bronze, white, and particoloured, of large and pompone varieties, are here so happily blended, and so neatly trained to the party-walls and palisades, as to form the most delightful and unique exhibition it has been my lot to witness in the open air, under such a simple course of culture as has here been pursued. The plants occupy narrow borders at the foot of the party-walls, which, as I happened to be passing in spring, I saw were being manured and deeply dug, the old plants being pulled to pieces, and the fragments (of large and pompone varieties) mixed, and planted close to the wall. The after-treatment seems to have consisted principally in neatly training, blending, and interlacing the branches of the various sorts, so as to thoroughly clothe and cover the walls from the ground upwards, both with healthy foliage and flowers, forming now the richest mosaic, only possible with the peculiar tints exhibited in the flowers of the chrysanthemum. Trained in the usual fashion, this plant presents a far less satisfactory appearance (with its bare stems, devoid of foliage for some distance from the ground, and huddled patches of colour), than by the mingling and blending plan above described. And those who have unsightly walls, palings, &c., in their gardens, will do well to run down and take a lesson on chrysanthemum training from these examples. Steamboats, from all the piers, will land visitors at Battersea Bridge, within one minute's walk of the spot.

November 21st.

A PARROT STORY.—"You see," said the old darkey, "dis parrot belonged to a baker in Richmond. Now each baker is 'lowed to make a certain number ob loaves ob bread every day, and no more, 'cause if they do they will be serving out stale bread to the customers. Well, dis baker had baked more than his share one day, an' hid de surplus under de counter. De parrot was hanging in his cage and seed it all. Bimeby in comes de inspector an' finds ob bread alright, an' is goin' out again satisfied, when de parrot cocks his eye at him and sings out, 'Dere's more bread under de counter!' So de inspector grabs it, 'cording to law, and carries it off. Well den, de baker goes to de parrot werry mad, an' takes him by de head, and fatches him a twitch or two an' flings him in de gutter for dead, 'longside a pig just dead ob de measles. Bimeby de parrot begins to crawl about, his feathers sticking out, an' his head lopped on one side, an' den stops an' looks at de pig werry pitiful, an' ses, 'Did you say anything about de bread?'"—*New York Sun*.

THE GREAT VINE AT THE VICEREGAL GARDENS, DUBLIN.

The Finchley vine was planted in 1855, and it now fills a span-roof house, 89 feet long by 16 feet wide. Mr. Thomson, in the last edition of his invaluable "Treatise on the Vine," tells us that he "saw it in 1864, when it had a full crop of excellent grapes, weighing 476 lbs.; in 1865 it bore 400 lbs. of grapes; in 1866, 300 bunches, some of them weighing 5 lbs.! It took seven years to furnish the house with bearing wood." About the same time as the Finchley vine was planted, one of the compartments of the fine curvilinear range in the Viceregal Gardens, which had been used as a fish-house, was diverted from the latter to another purpose, and cleared of the figs. The length was about 70 feet, the breadth then about 16 feet, or something more. At one end a large plant of heliotrope grew for years, its sweet-scented flowers being in demand at the Lodge. Growing with and among the heliotrope, a vine-shoot used persistently to come up year after year from a stool, or, perhaps, a vine that had by chance been stuck there. Be this as it may, Mr. Smith took pity on the struggler, and resolved to give it a chance. He led the rod up the end the first year. From this leading stem another season he trained four laterals longitudinally at intervals of about four feet towards the opposite end. A short time sufficed for these laterals, closely spurred, to extend the 70 feet, and carry splendid crops of highly-finished grapes. It was resolved to widen this and other portions of the range by removing the wall back some eight feet, and forming a hip or half-span, thus making the width about 24 feet. This afforded room for another longitudinal rod under the ridge, and from this short rods are taken at right angles down the hip towards the back wall. It is some five or more years since we first drew attention to this magnificent vine, and the splendid crop it then carried. Since that it has year after year been a source of wonder and admiration to all who saw it, yielding annually somewhere about a quarter of a ton weight of large bunches and highly-finished grapes.

This year it was a picture, the bunches being beautifully coloured, more especially towards the upper portion of the rods. The weight of marketable grapes was accurately kept, the result being 6 cwt. 1 qr., which, at 2s. per pound—a low figure, considering the quality—would bring £70. The crop was not ripe till September (very little fire-heat having been given), when grapes are abundant, and do not bring more than the above figure. If forced a little, and in a little earlier, the crop would bring double £70.

One of the principal, and perhaps the only valid, objection to a single vine is that which holds as regards the one-boiler system. If anything goes wrong there is a hitch, a blank. This, however, is easily obviated by having a second vine planted at the opposite end, and letting the rods alternate. Mr. Smith, with this view, we perceive, has planted a white grape at the opposite point. When this latter extends, as the other has done, the effect of the pendent lines of luscious clusters, black and amber alternating, will be very beautiful to look at. We trust this splendid example of the extension system, and of our good friend Mr. Smith's skill as a first-class grape grower, will long maintain its vigour and productiveness, and continue to be one of our horticultural wonders, and the pride of the Viceregal Gardens.—*Irish Farmers' Gazette*.

REMARKS ON THE PRACTICE OF UNNAILING WALL TREES.

Many of our profession permit themselves in their practice to be guided by traditional rules, regarding any diverging from them as savouring of *theory*. I very much regret that the use of the word "theory" is generally but ill understood by my brother gardeners. It is not an uncommon occurrence to meet with many in our craft who are anxious to impress us with what they consider a very serious fact, which is, that their practice is quite divested of anything that has the remotest connexion with theory, while at the same time they are daily in their practice indulging in speculative flights, and so illustrating all that they wish to be understood as condemning. Are we not often cherishing the thought that we are the sole possessors of some particular method of culture which others have yet to discover? Now the conception of that idea in the first instance was perhaps hypothetical, and required working out to elevate it into a theory. But regard it in whatever other sense you may, it amounts to this much, that having ascertained its value you have reduced it to practice, and theory is nothing more than the reason for the practice—the rationale of the facts on which practice is founded. This latter remark applies to my subject—the treatment of peach and nectarine trees when planted against garden walls. Many very excellent gardeners still persist in adopting a very old plan at this particular season, —that of unailing the principal portion of the shoots or branches. Does this practice benefit the tree, or, otherwise, is it necessary for the promotion of health and their fruitful qualities? I contend that it is not actually essential for the fulfilment of these requirements, that we should annually resort to the system of stripping them of the major portion of their shreds and nails. My experience has led me to test both modes. Let it be understood that I am speaking of those that are of mature growth, and not young fast-growing trees, whose branches have to be retrained annually, so as to fill up vacant spaces. Let us consider both sides of the question; first, we relate the arguments mostly advanced by those in favour of unailing the branches. They say by removing and cleansing all the old shreds, and adding new where required, that we are performing a very useful work—that of destroying a quantity of insects that as yet are in embryo, they being secreted in the shreds and crevices of the wall, and that by loosening the shoots we admit the elements to perform their work of cleansing the latter. Further, it is argued that it will retard their blooming season, thus enabling us with more certainty to secure a crop of fruit, by escaping the evils which late severe spring frosts inflict on vegetation. I will endeavour now to refute these propositions, basing my argument in the first instance on the importance of saving time by abstaining from useless labour. The majority of gardeners are not burdened with superfluous assistance, and perhaps there is no operation that consumes so much time in the spring as the nailing and training of wall trees; and more so where the walls are of any great extent. In the most favourable weather it is a tedious employment, and it frequently has to be done in very cold dull weather, because the season is so far advanced as to require the completion of the work.

The practice which I now advocate, and have pursued for the past several years with success, has been to afford more than ordinary attention to the training and disbudbing of the shoots during the summer months. The latter work is generally performed very quickly, and thus, instead of nails and shreds, twigs are employed, which are fastened crossways or otherwise, so as to retain in position a number of shoots at once, and thus the labour is

reduced which would have to be necessarily expended, if the individual shoots required for next season were to be permanently trained and nailed. I now ask, why should the tree be allowed to support for several months wood that must be considered as nothing more than surplus stock? And does not the crowding of such a quantity of useless wood tend to encourage the breeding of insects? I contend that by carefully attending to the requirements of the trees for the succeeding year, we aid in preserving their strength, and afford those shoots that remain the advantages which light and air confer in maturing their growth. Of course I admit that the trees will require the usual survey in the spring or winter, but their useless wood can be removed without altering their symmetry, or unnauling the whole of the branches. Some of the shreds will also fit tightly; these will have to be loosened.

Not a few of the drawbacks to which wall-trees are subject may be often traced to the lack of due attention during the summer months. This does not arise from wilful neglect, but from the pressure of other work which so divides our attention; yet, if we are anxious to preserve them in health, we must bestow a little extra time at that particular season in attending to their wants. One of the great evils of unnauling is that, for the purpose of getting quickly over the job, a great deal of hacking and cutting away of the wood is resorted to, so as to reduce the labour of nailing. If we want an example of the benefit which accrues from the system now advocated, we have only to take the chrysanthemum and many other similar plants, which have to attain quantity and quality within a given time. The growers of them always remove all superfluous wood and laterals as they present themselves, so as to allow the energies of the plant to be devoted wholly to the flowering wood.

Surely the practice of annually unnauling the whole of the lesser-sized shoots and branches, must tend to increase the means of secretion for insects caused by the vacant holes which the withdrawn nails have left! To avoid some of the evils which nails create, I have known the proprietors of gardens to have strong wires perpendicularly fixed at equal distances; to these the trees were trained by tying, &c. I think it is unwise to endeavour by artificial means to seek at any time to check their blooming season, as it must to some extent cripple the maturity of the flower, for the more freely the flower develops itself the finer will be the fruit. The greatest danger we have to guard against in the shape of frost is when the fruit is just emerging into its first stage of swelling; then it is we must be on the alert to shelter them from the effects of late spring frosts. Possibly damp does more harm than frost to all kinds of fruit-trees upon coming into flower, and hence the value of a good coping to a fruit-wall. In concluding these fragmentary remarks, let me remind my readers that we cannot supply the roots of the wall-trees with too much moisture during hot weather, as in the absence of such, red-spider is sure to spread among the foliage, and often it attains such a mastery as to prevent the perfect ripening of the wood. JON. F. McELROY.

HOOLEY HALL, THE SEAT OF J. C. PICKERSGILL-CUNLIFFE, ESQ.

This magnificent horticultural emporium is very prettily situated on the main line of the London and Brighton Railway, above the banks of which the mass of glass resembles a crystal town, in the midst of which appears the noble mansion, giving to the whole a fine and proportionate effect. The liberal and enthusiastic owner may justly be proud of the very excellent and well-constructed plant-houses which range here at every angle, subservient to the requirements of all classes of plants and fruits, also of the very fine condition in which every occupant is now in, to the great credit of the very able gardener, Mr. P. Mundell, who, during his sojourn at Hooley, has done much to improve the state of all under his charge. It must be a source of great satisfaction to his employer to see the skilful manner in which plants from every clime are handled. Here may be seen specimens of the extraordinary and curious lattice-leaved plant, *Owivandra fenestralis*, luxuriating with all possible vigour, and every ramification of its strange skeleton leaves perfect in structure, and all as happy as if growing in the steaming pools of that little known country, Madagascar, to which alone it is indigenous. In close proximity to this humble but rare aquatic, the magnificent *Musa sapientum* rears its majestic head some thirty-five feet high, and bearing a ponderous spike of huge golden fruit, colouring and looking as luscious as if it were revelling in its native wilds. Rivalling this glorious tropical giant, were some luxuriant specimens of Mandarin oranges, with foliage as green as spring grass, and bearing a crop of luscious fruit, which for excellence cannot be surpassed even in the celestial world, where climatic and other influences have the effect of rendering this fruit as common as cider apples in the West of England. Having glanced at these things, one is rapidly transported into a complete labyrinth of plants from almost every region of the globe. Orchids of the most curious types, both from the eastern and the western hemispheres. Ferns with rich waving fronds, showing the wealth of the world in this respect from Great Britain to Australasia. The beautiful Chilean climber, *Lapageria rosea*, and its beautiful variety *L. rosea alba*, are here in their glory, growing and flowering like European hops; and from the roof of this cool house hung myriads of bright crimson flowers of the showy *Tuesonia Van Volxemi*, the flowers of which are upwards of 8 inches long, suspended by thin foot-stalks of extravagant length. When trained, as I saw it here, on a roof at an angle of about 15°, the flowers of this superb climber are shown off to advantage, and prove this to be, when thus managed, the finest species of its numerous race. The *Ananassa*, or Pine of Jamaica, in its variegated form, was bearing a fine fruit, and showed the watchful skill of the manipulator in the robust health of this rare plant. But to do justice to this extensive collection, I will enumerate a few of those plants which here are the very acme of perfection. I will commence with the long span-roofed stove, upon the roof of which hung suspended fine panicles of flowers of the pretty *Pissiflora Kermesina*, *P. princeps*, most elegant; *Ipomoea Horsfallii*, *Bolatus paniculatus*, *Bougainvillea spectabilis*, and *Allamanda glabra* in variety, *Stephanotis floribunda*, &c. In the natural beds beneath were stately and well-grown specimens of *Crotan angustifolius*, being particularly long foliaged and well coloured; *Maranta Warscewiczii*, a new species from South America; also *M. Vanden-Hoeckii*, *Regalis*, &c. &c.; *Sansiveria Javanica*, *Coccoloba platycentra*; and among this group was a beautiful Palm, *Araca rubra*, one of the finest members of this noble family; *Cyathus circinalis*, the new *Dracena Veitchii*, *D. ferrea striata*, and a host of other rare and beautiful fine-foliaged plants. In the midst of this imposing group was a tree of beautiful proportions of *Stercubia fatida*, turned out and growing from the unheated border.

Adjoining this fine stove is the specimen Musa house, having the whole family of the Bananas planted out, and reminding one of a tropical forest,

wherein may be seen all those useful medicinal plants which add so much to our physical comfort, and which afford such a staple part of our foreign commerce. Intermingling with the tall gaunt stems of the *Musae*, were the tortuous and flexible branches of all the *Piceae* family, the stately *Myristica moschata* (nutmeg), the *Theobroma cacao* (cocoa), also the cocoa-nut palm, the allspice, cinnamon, black pepper, date palm, sago palm, &c. &c. On the sides of this stately house was a fine plant in full fruit of *Pissiflora quadrangularis*, also *Quisqualis indica*, reaching the top, and throwing out immense corymbs of scarlet blossoms. Here also was an *Allamanda Schottii* upwards of 20 feet high, with scarcely a bloom showing, while a plant of the true *A. Hendersonii*, not as many inches in height, was loaded with its yellow and maroon flowers. This species is a perpetual flowerer, and it is no difficulty to have it in flower for nine months successively. Unfortunately much confusion has been brought about in reference to this grand plant by Schottii being sent out for it, by those of the trade who erroneously supposed at first that the two were identical, but in which there is no resemblance whatever, except that they are of the same genus.

Attached to this house is what is termed the "East Vinery," in which are fine rods of beautiful, large, solid, short-jointed, and well-ripened wood, and on the back wall all the best figs in excellent bearing condition. Leading from this is a greenhouse, well filled with miscellaneous hard-wooded and hair-rooted plants, some flowering, others growing, and all in the best possible condition, and looking very gay. The division of this range is an intermediate section filled with plants chiefly indigenous to Van Diemen's Land and Australia (South). Emerging from this, the *Nymphaea* (water lily) house attracts attention. It is filled with all the choicest and rarest aquatic plants, associated with which are fine specimens of *Alocasias*, especially of *Veitchii*, *Zebrina*, *Lowii*, &c., &c.; also *Anthuriums*, *Crotons*, *Monstera* &c., and an admirable specimen of the sweet lemon-grass, *Andropogon schenanthus*; *Begonias*, and other charming fine-foliaged plants, are distributed about this interesting house, and myriads of rare plants dotted about the rocky sides of the water-tank, over which is suspended the beautiful Amazonian Cissus, and other aquatic climbers, whose roots, after ramifying through every moist crevice, reach to the water at last, and appear to live entirely from this source. All this fine rich foliage rambling away in wild confusion, gives this house a most interesting and charming appearance. It was in this house I noticed the mad-growing *Aristolochia ornithocephalum*, and *Cymbifera Thunbergia Laurifolia*, a host of climbing ferns, &c., &c.

Next in order was the Muscat house, with fruit beautifully ripened, still hanging. Fine bold berries, amber in colour and bunches well shouldered, were the chief characteristics of the crop; while beneath them, in the same house, were fine peaches and nectarines in pots, which had borne splendid crops, averaging five dozen on each, and looking as if they would give double that crop next season. In the pine stove were a lot of clean and healthy plants in different fruiting stages; the Queens especially had done good service. The lightest which Mr. Mundell had placed in the scales turned 4 lbs., while the heaviest was upwards of 7 lbs., and the whole indicated a masterly hand in their management. Amongst them were some remarkably fine winter cucumbers, which Mr. Mundell always prefers to grow in pots for winter use. His great theme is at all times to have full power over the roots, and his practice in this particular is everywhere traceable in the luxuriant state of his plants. Round the sides of this house is a reserve of winter-flowering plants, such as *Justicia*, *Poinsettias*, which are here grown as bushes, *Eranthemums*, *Libonia*, &c., &c.

Hard by this interesting house is the span-roofed orchid house, well filled with named and unnamed species. Among the former was observed, in good order, *Lelia Perrinii*, *L. superbium*, *L. purpurata*, making beautiful pseudo-bulbs, *Cattleya crispata*, *C. Mossiae*, and varieties, *Vandas*, *Epidendrum*, *Aerides*, *Calanthes*, *Dendrobium*, *Stanhopeas*, and other types of this interesting order. Among the unnamed species was one somewhat resembling *Phalaenopsis Schilleriana*, but having the laminae shorter, the mid-rib curved, and the whole surface of the leaf irregularly blotched with maroon. This, with many other very interesting species, especially a few after the type of *Sophranitis*, I found had been introduced from Central America by Mr. Bowman, who is exploring that part of the world in search of botanical novelties for Mr. Cunliffe. Through the same source this lover of horticulture has obtained many valuable bulbs of the liliaceous order, also some interesting *Physurus*. In this house was a beautiful specimen of that rarest of rare plants, the silver palm, *Calamus dealbata*, about which I shall have something more to say in future. Mr. Mundell in this house made a rapid stride in both ornamenting and utilizing the spaces beneath the stages. Rockwork has been erected, and the interstices filled with ferns, lycopods, &c., producing a pleasing effect, and subduing the harsh emptiness which all houses present which have staging on their sides and the spaces vacant beneath. In a new house recently planted with vines, all was ready for starting and cutting in March next—fine rods, clean and well ripened. Through the centre of this house is a water-tank for evaporation, and part confined for propagation purposes.

A range of peach houses, with two divisions, next commands attention. The wood of the trees is well ripened and set for the ensuing year's crop. These trees were nicely balanced with bearing wood, and showed unmistakable symptoms of good management; beneath were some admirable pyramidal specimen azaleas, and a few New Holland plants, all having been well baked in the autumn sun, and housed with a glow of health that is seldom seen in this class of plants during the late autumn months. In one corner of this house was the dormant plant of *Lilium agatum* which appeared upon our horticultural tables at Kensington and Regent's Park, in a 16-inch pot, the stem 8 feet high, and 15 blooms, each 14 inches in diameter, all expanded at the same time. This feature alone will suffice to illustrate Mr. Mundell's belief in the policy of artificial feeding of all members of the vegetable kingdom.

In the late vinery some alterations have this season been made, and young canes of Lady Downes, Alicante, &c., &c., have been planted. The house is now occupied with soft plants for greenhouse winter decoration; a fine range of pits is devoted to primulas, cinerarias, &c. Near here were upwards of 2,000 strawberries in pots, bearing fine, round, bold, plump, well-ripened crowns, and which promise well to yield abundance of fruit. Emerging from the forcing garden, we find ourselves in the midst of confusion, the old mansion being partially pulled down and rebuilt; new bowling green, croquet grounds, and pleasure grounds, are being made, and when completed will certainly much better correspond with these fine gardens and magnificent piles of glass. The whole of the plant-houses are heated upon the one-boiler system, which has recently been entirely remodelled, and the system much simplified and made much more secure. Three of Weeks's tubular boilers, No. 6, and one of No. 5, have been placed side by side with a spacious chamber at the back, in order that, should anything happen to either,

they can be taken out, examined or rectified, without interfering with the work of the remaining two. They all possess separate valves in the flows and returns, and each boiler can be worked uniformly with or entirely independent of each other. The system is the most complete I have yet met with, and tends to prove how ardent an admirer of nature and her vegetable beauties must be the proprietor of this princely place. The great attention, the solicitous care, and the liberal spirit which actuates him to meet the wants and requirements of the vast family of plants he has in his possession testify that love is the mainspring of his actions. May he live long to enjoy that which nature has ordained for the pleasure and recreation of man!

Epsom, Surrey.

J. R. T.

CONSTRUCTING A VINERY.—No. IV.

BEST FORMS OF HOUSES AND MODES OF VENTILATION.

For all early vinerics, whether large or small, no less an angle than forty-five degrees will prove satisfactory, and even fifty is not too much, especially in a low or shaded situation, as it is at all times desirable to secure as much of the sun's influence as the season of year will give us. An angle of forty will serve for those vines that are allowed to break naturally, as by the time they commence to grow the sun gets sufficiently high in the heavens to allow it to act with such force upon the house as will suffice for the free growth of the vines.

As regards the construction of the roof of the house, there is none to surpass that which allows plenty of air being given at the apex; and the old-fashioned sliding lights are not to be despised. But Messrs. Weeks and Co. have made a great improvement on these, by an ingenious piece of machinery which lifts simultaneously every top light. Air is thus given—little or much as it may be required—by simply turning a winch a few feet from the floor of the house. This simple although eminently ingenious piece of work does not put the lights out of their place further than raising them. Therefore, no rain can find its way into the house, which makes this principle of air-giving superior to the old sliding lights. The reader will find some description of this invention in my notes from Hawkhurst, Kent, where I saw it in work. Next to this invention, I prefer the sliding lights as offering the least obstruction to the escape of heated air. Those with fixed roofs, with ventilators in the back wall, are the next to be recommended, although they are not so well adapted for very early forcing, as there is nothing to check the ingress of cold air, like those houses which have a parapet carried above them, and the lights to raise or slide.

The worst of all descriptions of houses which I have dealt with for vinerics are those with roof ventilation,—I am not speaking of those patented within the last three or four years, but those of older date,—and, so far as my experience guides me, I cannot find one redeeming quality in them, as adapted for growing grapes with any degree of safety. It is quite true that good grapes are grown in them by some cultivators, but the general public know but little of the anxiety and the cares attending their production. I need not here give my special reasons for disliking them, but I may remark that I will not again risk my reputation in any place where I am required to force early grapes in houses with roof ventilation; and in this determination I do not stand alone.

Coming now to the question of front ventilation, I have always found it advisable to provide it either in the form of a sash or boarded ventilator. For a low-pitched house, a front sash is the best, either to open outwards or to swing on a pivot at both ends. Wires must be provided on which to train the vines; these should go lengthways the house, and be at least fourteen inches from the glass, and about ten inches between each two wires.

PLANTING THE VINES.

Vines may be planted with safety early in the autumn or the spring, or indeed throughout the summer, but winter planting in outside borders should be avoided, unless the roots are protected from wet and cold. I have previously briefly stated in these pages how well I succeeded with a house of vines planted early in the autumn, a few years ago—how by watering them with tepid water, and immediately covering up the border to confine the heat and to carry off the rain, cutting them down in mid-winter, and applying some hot fermenting material upon the top of the border in the spring to excite root action. Increased experience convinces me that with proper care this plan is preferable to planting dormant vines in spring; nevertheless, many prefer the latter method. So, I would say to all those contemplating the planting of vinerics next spring, secure your plants at once, cut them down to within seven or eight buds of the crown, cutting out all the eyes except the two top ones, and then stand them by in some cool house until the end of next March, if for outside borders; but if for inside, let the planting take place a month earlier. At the time of planting shake off all the

soil from the roots, and spread them out evenly over the soil not more than six inches under the surface.

Next to autumn planting is early summer planting: this is not yet practised by many, owing to its not being rightly understood. In many instances it is a very valuable practice, as it will be in my own case next spring, when, if I am spared, I shall work it out as follows: Having two new vinerics to plant—one in an inside border, and the other outside—I have obtained a sufficient number of plants to plant them both. The Black Hamburg house, with its inside border will be planted early in the now year; for the other house I have different varieties which I was anxious to secure. From these fruiting plants just brought in, I shall take three or four eyes from the points of each to strike in about a month's time. These eyes will be at once plunged in a bottom heat of about 80°, with a top temperature of 65°. With this treatment the buds will soon start into active growth; they will be repeatedly shifted, as they fill the pots full of roots, until the end of next April, at which time they will have attained a height of three or four feet or more. They will then be gradually hardened off in a greenhouse temperature, and be finally planted in the border about the first week in June. Thus I shall secure a stock of young plants for my house, while those which most people would have planted I shall have to fruit in pots in the same house, securing not only the plants, but a crop of fruit the same year.

Now, if any one asks how will the young planted canes succeed, let me say equal to, if not better than, those older plants would do, had I put them out instead of forcing them. When these young canes are planted with care in a well-prepared border, they seldom make a regular stand after planting; their roots are young and active, and by previously warming some nice fine soil to place round them, they at once take hold of it, so that there is scarcely ever any perceptible check upon their growth. I do not advocate this plan because I adopt it now under a force of circumstances, but because I know better results would many times be obtained than where weakly plants are put out in spring. It is nevertheless good for us all that we should sometimes be put in a strait, as it serves to bring out many useful lessons, for we can ill spare the loss of a whole house of grapes. But as the old vines removed from the house these young ones will occupy were past recovery, there was no alternative but to grub them up, and as stocking it again for one season with purchased plants of fruiting vines would be an expensive job, I am compelled to do my best towards preventing the loss of a crop, and at the same time secure a stock of plants of the same varieties for the permanent vines.

I append here a short list of varieties of grapes to meet the wishes of a correspondent, G. H. Sherman, of Colchester, but from which any of my readers may select with perfect safety.

For an early house.—The Frankenthal Hamburg, Black Prince, Black Hamburg, and Buckland Sweetwater.

For an intermediate house.—Pope's Hamburg, the Champion Hamburg, the White Frontignan, Trentham Black, Foster's Seedling.

For a late house.—Muscat of Alexandria, Lady Downe's Seedling, West's St. Peter's, Mrs. Pince's Black Muscat.

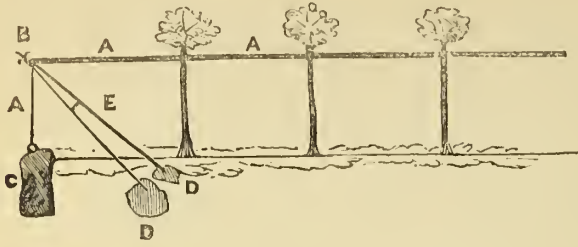
To these may be added the Canon Hall Muscat, a noble grape, but only adapted when it can be grown in a house by itself with a heated border, and to receive a temperature of 10° more heat than any other variety will bear when setting its fruit.

J. C. CLARKE.

SLAUGHTERING OF CATTLE.—*Galignani* states: "A series of curious experiments took place a day or two ago at the new slaughter-houses at La Villette, with a view to try whether oxen might not be spared the frightful tortures it is supposed they endure on being felled with sledge-hammers. It was believed that enervation might produce the desired effect, and this opinion was founded on the decision of physiologists, who affirm that the section of the spine will strike the animal down as if by lightning. The experiments, however, have not corroborated this opinion; on the contrary, it has been found that, although by enervation the ox is killed more rapidly, its sufferings are much greater, since it remains alive for more than fifteen minutes, and that it has not only the feeling of pain, but even the strength to keep back its blood when the veins were opened. Other experiments were made on sheep and calves: their heads were cut off, instead of merely cutting the spine, when curious signs of vitality were observed in the head. In one case the latter lost two ounces and a half of blood in six minutes. During the first minute all the muscles of the face and neck were violently convulsed; during the two following minutes the convulsions assumed another character; the tongue protruded from the mouth, which opened and shut as if the animal were alive, and the nostrils also expanded and contracted regularly. These convulsions increased when the tongue and nostrils were pricked with a pin. On putting the hand against the mouth and nostrils, the air was felt to go in and out as the head breathed. If a finger was held near the eye at a distance of two centimètres, the eyelids would shut, and then open again. This lasted a minute and a half; after which the eyelid would only close when touched; after the fourth minute it became necessary to irritate the conjunctiva in order to obtain a similar effect, and after the sixth minute all motion ceased."

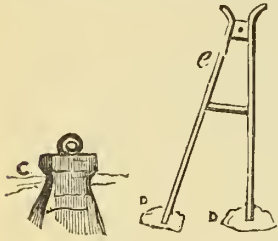
ON SUPPORTS FOR STANDARD ROSES.

A great difficulty for the rose-grower is to find proper supports for his standards. A stako driven into the ground



beside each rose, as generally used, is neither lasting, efficient, nor ornamental. If the roses are in line, it is much better to

have a wire extended for them all, which sways gently with the wind, and is capable of supporting them through the greatest storms; and as I have found it to succeed, and also, as I believe, have discovered the best manner of straining a wire for the purpose, I beg to send you the result of my experience. I. T.



STRAW FOR SHELTER.

The importance of shelter for stock in winter has been frequently discussed and strongly enforced in this journal—and it is to be presumed that every farmer will admit the principle—but some plead in extenuation of their negligence in this matter the impossibility, on account of their limited means, of putting up sufficient shelter for the comfort of animals under their charge. But this is, indeed, a very poor excuse; for where other materials are wanting, or where money and labour are scarce, most comfortable housing can be procured for stock of all kinds by an appropriate use of straw. In countries where timber is scarce, as on the prairies of Illinois, we have frequently seen the most warm and thoroughly efficient shelter secured by straw “fixings” even of the rudest kind. In these regions this is, indeed, the only abundant material for the purpose. Shelters for all domestic ani-

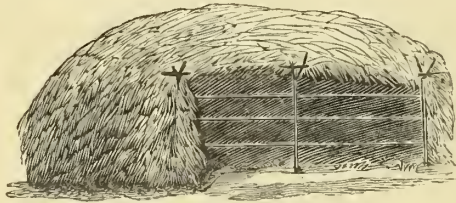


Fig. 1.

mals are constructed of it. A few poles form a roof-support, and the straw is piled about and upon them. On the sides of the shed the straw is either simply a trodden-down heap, trimmed with a hay-knife on the inside, or it is piled against rails. These are very warm sheds (see fig. 1), but they wet through, leak, and the straw rots, and must be removed after a short time.

Instead of these rude and primitive structures, much better sheds might be built, using the same materials. Much of the tall stubble, cut close to the ground, is long enough to make most excellent and durable thatch, if well put on. A few bundles of wheat might be thrashed out by hand and the straw saved, or even the machine-thrashed straw might be used and answer tolerably well, if a sharp pitch be given to the roof. Thatching is understood by many immigrants, and the principles upon which good work



Fig. 2.

depend are so simple, that where beauty is not demanded, any handy man will make a tight roof after a little experience. There are several methods of using straw to form the sides or walls of these stables. A convenient way is to set upright poles, about eight inches apart, and draw wisps of straw round each, so that both ends of each wisp shall be outside. It is best to lay these in horizontal courses, and beat down each course as it is laid, keeping it uniform and tight. As the filling-in with straw progresses, there may be a split pole woven in once in three feet or so, to hold the uprights in place. The straw is finally to be raked down on the outside so as to shed rain well. This makes a tight, warm, and lasting wall. The inner side is quite even, and it may be sprinkled with mud if there is danger of the animals pulling out the straw to eat. (See fig. 2.)

The accompanying illustrations, and the directions for construction, are taken from the *American Agriculturist*, to which able journal we are also indebted for the following account of other uses of straw in the same coun-

nexion. We would here, in passing, urge on all parties the importance of not deferring the necessary work of providing shelter until the severe weather has set in, and enforced the leisure to devote to the matter. A merciful farmer, or even one who has a wise regard for his own pecuniary interests, will make the opportunity, and secure the time while the weather is yet mild and favourable, so that when winter commences his stock will at once derive the protection and comfort they need, without having been previously exposed to, perhaps, some of the severest cold of the whole season.

STRAW DOORS AND SHUTTERS.

It is a great convenience where lumber is scarce to be able to make expeditiously a good door or shutter of any kind. Constructed of straw, a door may be strong, light, and tight. Tie or wire together a frame of round sticks, braced or stayed by cross-pieces to give requisite strength. (Fig. 3).

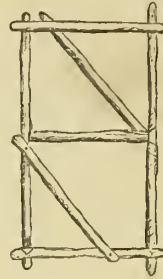


Fig. 3.

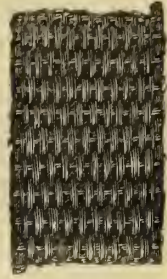


Fig. 4.

This frame should fit loosely in the window or door-place, and one of the upright pieces should be strong enough to hang the door by. Then wind a straw-rope of 1½ to 2 inches in diameter around the longest way, so as to cover the frame. Next, weave a tighter-wound straw-rope back and forth, plaiting the whole in a single mat. (Fig. 4). The strands on each side of the frame may be plaited separately, forming thus a double thickness of the straw-mat. We have seen affairs made in this way by the soldiers, and



Fig. 5.

stuffed with straw as the weaving progressed, and when done they made very good beds.

Straw-rope is made by twisting damp straw. Sprinkle a heap of straw the night before. All farmers should possess a set of centre-bits and stock. Take a large centre-bit and attach a stout wire hook to it, and place it in the bit-stock. Where the bit-stock is wanting, contrive some substitute. Two persons are required; one twists a loop of straw into the hook (fig. 5), and walks backward, turning from left to right—the other remains at the straw-

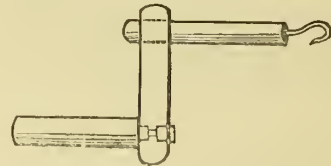


Fig. 6.

heap and feeds fresh straw to the lengthening rope. A sufficient length being attained, the rope is fastened upon a fence, or between poles or trees, until dry, when it will not untwist.

In a subsequent number of the same journal, a Scotch correspondent sent a drawing of a simple contrivance for twisting straw, in common use both in Scotland and England. The last illustration (fig. 6) sufficiently explains this home-made implement, which almost any farmer's boy will be able to construct.—*Canada Farmer*.

NOTES ON BEDDERS.

I beg briefly to reply to the interesting communication of Mr. J. B. Saunders on Bedders. I find from his observations that he occasionally visits the metropolis. I do not know whether he visited Hyde Park during the flowering season; if so, he would have seen the *Iresine Herbsti* in full perfection, forming one of the lines of ribbon border parallel with Park Lane. The secret of the successful treatment of this plant at Hyde Park was in inducing it constantly to be reproducing young growth, by pinching or stopping the shoots; such has been my practice during the past season.

As regards the Coleus and its varieties, I would only say that we are so attached to *Verschaffeltii*, that as a general rule the qualities of the other varieties have not been sufficiently tried as bedders to condemn them as in any way inferior to the established favourite. *C. marmorata* has yet to be put to a more extended trial before we can pronounce it as lacking the striking effect of *C. Verschaffeltii*; besides, we are seeking for variety. If Mr. Saunders wishes to see *C. Gibsonii* well done, he must visit Battersea Park during the season. The stock of *C. Veitchii* as yet has not spread itself so far and wide as to justify us in saying it is unworthy of a place by the side of its older rival.

The *Golden Variegated Balm*.—I did not recommend this as a bedder, but as an edging or line to a ribbon border, and I am somewhat convinced from my own practice, and what I have observed, that if the instruction contained in my notes of September 28th are strictly complied with in the annual propagating of the plants, and also the constant trimming of the shoots after they are planted, it will succeed. Thus treated, I have seen it preserve its true character till quite the close of the season. I remember a few years since visiting the garden of —Dobree, Esq., at Walthamstow, where I saw in

he month of September two edgings of this variety, forming the front lines of a broad but very effective ribbon border on each side of a long walk, and I was particularly struck with the correct character of the variegation; and the same practice as now recommended by me was adopted by the then respected gardener, Mr. Holloway. It may be that a bad variety of this plant is in cultivation. I know that frequently, when two people are discussing the merits of what they suppose to be the same thing, there is a mistake to the extent that each refers to a different object, and in that case the discussion has no practical value. No doubt our Editor can tell us if there are two distinct varieties of garden balm, as through him it was first distributed, and he has, I believe, some of the original stock still in his experimental garden.

Cerastium Biebersteinii.—In my remarks on this plant, I did not intend them to apply to the exclusion of *C. tomentosum* from our list of useful silvery edging plants (which Mr. Saunders will find on perusing my note). I should have been better understood had I have said, this variety superseded the well known *C. tomentosum* in being more erect and robust in its growth; and I intended in my observations to convey the latter meaning; but the mere omission of a word entirely alters the sentence. However, my opinion is unaltered in regard to its character: for a level surface *C. tomentosum* would have the preference, but for the front line of a bank or slope the former would be my choice, on account of its constitution.

In closing this reply, allow me to thank Mr. Saunders for his practical contributions, with a wish that many other persons interested in plants would through these pages boldly assert their opinion, though it be in contradiction to our own; it is by such interchanges of ideas that we arrive at truth, which is not and never will be one-sided. JNO. F. McELROY.

THE NEW ROSES OF 1867.

I have noticed that one of your numerous readers has been so kind as to give us rosarians all the information in his power about the new Roses of 1867; and also that he earnestly requests other rosarians to follow his example. In giving my quota of information, may I respectfully request others to do the same. About April last the following new Roses came here, viz., Alba carnea, Annie Wood, Antoine Ducher, Charles Verdier, Comte Litta, Comtesse Turenne, Horace Vernet, Jules Calot, Madame Anna Bugnet, Monsieur Noman, Madame George Paul, Madame Rival, Monsieur Thiers, Monsieur Plaisançon, Rose Perfection, Napoleon III., Thorin, and François Treyve. Such was my selection in the lottery-bag of Roses. In giving a description of the few that bloomed with me, it must be borne in mind that my residence is in the north of England, not very far from the county of Durham; consequently many roses which bloom well, and are very beautiful in the south of England, are almost worthless here. All roses to suit the northern counties should be of vigorous growth; the flowers should have coriaceous or thick leathery petals. Roses with thin petals rarely open here in autumn. I could this day, November 20th, cut a basketful of roses of the varieties having thick petals, such as Sénateur Vaisse, Gloire de Dijon, Charles Lefebvre, Alphonse Belin, and many others. But to the new Roses.

The following memoranda were made in a book at the time each rose bloomed:—

Comte Litta.—Bloomed in August, on a very small weak plant, which was cut up in May for propagation; colour very rich and beautiful, like Prince Camille de Rohau and Souvenir de William Wood; bloom medium-sized or small; petals large, thick, and velvety, imbricated, in form something like Fisher Holmes; colour velvety maroon; of free growth and handsome foliage; will be a pretty garden rose.

Antoine Ducher.—Bloomed 23rd August; colour very bright, a shade darker than Duchesse de Morny; flowers large, very double high centre, imbricated like Chabriland; outer petals shaded glaucous white; very highly scented; a magnificent rose.

Jules Calot.—Bloomed August 24th; colour a very deep rose, or light crimson, or reddish carmine; very large and very double, circular; form in the way of Madame Vidot; highly scented; a magnificent rose.

This rose and Antoine Ducher can be safely recommended.

Madame Anna Bugnet.—Colour very pale lilac rose, tinted white; large and very full, perfectly imbricated; famous grower, much scented; to give a description of colour, I may say it is something in the way of Alphonse de Lamartine. I think this will be a good rose for exhibition; it was highly recommended to me twelve months ago by a rosarian friend who saw it in Paris.

Napoleon III.—All that I can say about this rose is that it is a good grower, with beautiful foliage. I saw a bud in October, but it did not open freely. Colour of the petals dark crimson shaded purple or maroon. I do not like the shape of the bud it is long and pointed.

This rose appears to me to be nothing more than a son of General Jacqueminot clothed in a deeper shade of crimson than the parent. It may turn out a showy variety for the garden: it certainly does not come up to the description given by Eugène Verdier, and has already led to great disappointment.

Rose Perfection.—This rose I can honestly recommend. The plant is of vigorous growth, form of the flower beautifully imbricated, high centre, shape of a good Chabriland; extra large, $4\frac{1}{2}$ inches diameter, very full, abundance of stuff in it; petals large, thick, and smooth; the colour is a very rich deep rose, almost approaching to light crimson, back part of the petals a little silvery; highly scented; one of the right sort; bloomed November 12th, under a south wall, and opened freely. I have given this rose a high character, but have said nothing more than it merits.

Madame Rival.—I only saw a large bud of this variety, which had a close resemblance to Sœur des Anges. I think the petals are thin; it appeared glued up and never opened. It has the merit of possessing good foliage, and grows vigorously.

All the rest of my Roses for 1867 I can only speak of as not blooming in their true character, many not blooming at

all, having been severely cut up for budding. Many new Roses do not show themselves in their true character for two or three seasons; others show you what they are, or an approximation thereto, the very first bloom that opens. As an instance of this, I may mention that in 1866, I budded half-a-dozen briars with the new Rose Alfred Colomb. The following season (this year) the buds started vigorously, and in July and August bloomed. Singular to relate, all the blooms that opened on the whole half-dozen stocks were poor and thin. Sentence of death was of course pronounced on poor Alfred Colomb. Soon after this, one fine morning early in September, my attention was attracted to a very fine Rose under a south wall, on a Manetti; it turned out to be Alfred Colomb in all his glory. The colour appeared something in the way of a bright Beauty of Waltham. I was then convinced that Alfred Colomb was a magnificent Rose, with thick petals highly scented, plenty of stuff in it, form and habit of plant superior. We must not be hasty in criticising a new Rose; let them each and all have a fair trial in our gardens. No doubt climate, change of soil, and situation have a great effect on the Rose, and it is certain that hand propagation reduces their stamina. I quite agree with your correspondent, the Rev. N. Pochin, that the French nurserymen puff off their Roses in a manner quite suited to gull John Bull, and with a view no doubt to aggrandize themselves.

Our English nurserymen are not to blame; they generally state in their catalogues of new Roses that the descriptions given are not theirs, but the raisers'. I have been informed that our nurserymen, at the time they buy in a batch of new Roses, know very little about them. All appears to be a complete lottery-bag.

HENRY TAYLOR.

Rose Cottage, Fencote, Bedale.

THE PRINCIPLES OF ORCHID CULTURE.

(A Paper read by Mr. ROBERT WARNER, of Broomfield, at the International Botanical Congress at Paris, August, 1867.)

It will be evident to those who have made the culture of orchids their especial study, that the general principles laid down in the following remarks have in some cases to be modified. It is, moreover, certain that such deviations can only be made by those who have had considerable experience in growing orchids.

It is equally certain that any one following well-defined rules, when commencing any particular study, will be able to experiment with a fairer prospect of success than if he had begun without any settled plan of action.

It is indispensable that the orchid houses should be of a size and shape suitable for the sections proposed to be cultivated. For the northern countries of the continent of Europe, double-glazed houses are almost a necessity. In England they are not so essential, for the cold of its winter is less intense. In Italy they are not required; there the difficulty to contend with is the heat of summer rather than the cold of winter. The width of the houses should not be less than 10 feet or more than 18 feet clear inside; the former should have one path 4 feet wide down the middle, and the latter should have a stage in the centre of 5 feet, with a path on each side 3 feet 6 inches, and side stages each 3 feet wide.

Houses for orchids should be low rather than high. The narrow house should not exceed $7\frac{1}{2}$ feet in height in the centre, and the wide one not more than 10 feet 6 inches. Plenty of ventilation should be provided, both at top and bottom, but chiefly at top, and all openings should be fitted with perforated zinc, to keep out flies and bees, and also to perform the office of respirators. Good but not too thick shading is necessary. The heating power of the boilers and pipes should be 50 per cent. more than is wanted for every-day use. All rain-water falling on the roofs should be collected into tanks within the houses, which tanks should be so placed that the water may soon become of the same temperature, or even 10° warmer than the air of the houses.

For ordinary collections it will be generally sufficient to build two houses, one for the East-Indian and another for Mexican and Brazilian species; for those requiring cooler treatment will do well in any low grapery where only sufficient fire-heat is used to keep out frost, the vines being trained rather thinly, so that only one layer of leaves shall come between the glass and the orchids. The details of cultivation of particular species are best described in Mr. B. S. Williams's "Orchid Manual."

I now come to the time when purchases are to be made, and the first rule I lay down for beginners is, never buy a diseased or weakly plant.

The second rule is, let all orchids, like other plants, enjoy warmth and some moisture during their growing season. It is quite a mistake to suppose that what are termed cool orchids are any exception to this rule, the chief difference being that they require a longer season of rest than others.

This brings me to the third rule, which is one of the most important, viz., let all orchids have a good season of rest. The cooler the climate of their natural habitat, the longer season of rest they require. Some of the East-Indian orchids require but little rest, but even these must have some, if plenty of flowers are wanted. The way of resting orchids varies considerably. With some, coolness of temperature induces rest; in others, the comparative absence of moisture; and, again, there are some that cannot be made to flower unless nearly burnt up by the direct rays of the sun.

The fourth rule is, let plenty of air be given; a circulation of air at all times is desirable, even in winter; whether the air given should be hot or merely warm depends on the section grown, but in all cases draughts of cold air must be avoided.

The fifth rule is, let the utmost care and attention be given to keep the plants free from all insect enemies, whether they attack the leaves by suction or eat the roots, young growths, or flowers. Orchids are not more attacked by insects than the rose and some other beautiful garden flowers.

If the above rules are well followed success is certain, and in many cases the bulbs and leaves will be larger and stronger, and the flowers better and more numerous than in their native countries. It must, however, be borne in mind that orchids will sometimes die, in spite of every care. The members of the human race who can tell the doctors how and where they suffer do not live long, and even an oak-tree, though it may live a thousand years, dies at last.

THE WINTER PRESERVATION OF CULINARY VEGETABLES.

Acting on a knowledge of the hardening effects of autumn transplanting, gardeners have from time immemorial practised it with winter lettuces as well as cauliflower, and (in cold districts) even with cabbage-plants intended for early spring planting, well knowing that, if left in the seed-beds, they have little or no chance of enduring throughout the winter. In very cold upland localities, the transplanting of full-grown broccoli in November is regularly practised, as being the only economical mode of securing a supply of that best of spring culinary brassicæ; and in still more inclement high-country districts, the same mode is adopted for preserving savoy, cabbages, sprouts, the fine yellow but somewhat delicate varieties of german greens, and even "lang kale," which, by being so treated, are preserved almost as certainly as the untransplanted crops of the same kinds are in the least inclement low-country districts. In extremely severe seasons, low-country gardeners, who may have entirely lost their crops from not having adopted the precaution of transplanting at least a portion of them, are scarcely excusable when they offer to their employers, as the reason for the loss, that "the awfully severe frost did it, and they could not possibly have prevented it."

For the benefit of inexperienced amateurs and others, the mode of procedure in transplanting full-grown broccoli and other vegetables in November is here given. Having selected the ground for them, which may either be that in which they have grown, or some other more dry and sheltered place, choose dry weather for the work. Commence by forming a trench of sufficient depth; then take up the plants carefully, allowing as much as possible of the earth to remain attached to their roots, and strip off any decaying or withered leaves. Place them in the trench as nearly upright as possible, at such distances as the extremities of their leaves will stand about 3 inches clear, and so deep that from 1 to 2 inches of the lower portions of the leaf-stems will be under the levelled ground surface. Having thus completed the first row, turn in the earth, and form the next trench at such a distance as to allow of the plants standing about 6 inches clear of those in the first row, that a free circulation of air be allowed around them, and proceed thus till finished. The direction of the rows is not of much importance, but nearly south and north is preferable, more especially when shelter lines of branches are to be formed, as after explained. For late spring broccoli, which grow much between the return of warm weather and the time of their heading, it is advisable to place a layer of good rich manure under the plant, covering it with 2 or 3 inches of soil, so that the roots may not reach it till after killing frosts are past: this will ensure larger heads, and also somewhat prolong the period of their maturing. Similar modes of proceeding are also applicable to other kinds of brassicæ. Late celery is another precarious winter crop which may be treated in a somewhat similar manner. Much trouble as well as expense in rearing it will be saved if it is grown on the surface of richly-mauured ground, instead of in trenches, and only as much earth drawn up about the base of the plants, four or five weeks previously, as to secure them against wind, and give their foliage a compact upright set. In transplanting the full-grown plants, they should, of course, be placed quite upright, and the leaves held closely as well as roundly together, till the earth is placed and compacted about them. Parsley, spinach, leeks, late turnips, parsnips, &c., may also be better preserved throughout the winter by transplantation, modified somewhat from the previously-described modes, according to their different requirements. In the flower-garden, stocks, wallflowers, and other luxuriant-growing soft-wooded plants, may be beneficially treated in a somewhat similar manner, especially when their growth is over-excited by unusually mild autumn weather.

In regard to the best exposures for wintering culinary vegetables, as well as other plants, those lying between south and south-west are to be preferred, unless influenced by local and exceptional causes, as they are less rapidly acted upon by the sun's rays in clear frosty weather than more easterly and northerly exposures, as well as less liable to the sudden returns of evening and night frosts. Walls which face the south reflect most of the sun's heat, and southerly lying wall borders are deemed indispensable for culinary crops; but they are most effective when rows of branch hedges are run across them, so as to protect the crops alike from the early sun's rays and the sweeping winds of winter and spring, against which walls afford but little protection, unless when situated transversely to the wind current. These branch hedges are also of great service when run in a northerly and southerly direction throughout brakes of broccoli, as well as other winter brassicæ, &c., at distances of say 6 to 10 feet apart. A modification of these, in the shape of pea-stakes, are very serviceable when securely set between the double rows of early peas, which can be best done when sowing the latter. In all cases deciduous branches are better for forming those temporary hedges than evergreens, although a sprinkling of spruce branches of from 12 to 18 inches in height may be introduced along their bottom, as anything like overshadowing or drawing up tends greatly to unfit growing plants for resisting cold; hence the propriety of trusting mainly to deciduous instead of to evergreen branches for their shelter, as the former admit of sufficient air and light, while at the same time they secure the plants against the damaging effects of boisterous winds and the injuries arising from early morning sunshine.—*The Farmer.*

DANDELION (LEONTODON TARAXACUM).

To the Arabs, it is said, belong the merit of having discovered its virtues, the name of *Taraxacum* being a corruption, or rather alteration, of their Arabic word signifying edible; but whether they dried and roasted its roots, like the people of Göttingen, and drank a decoction of them instead of coffee; boiled them, as many of the Germans do, like salsafy and scorzonera; or eat the leaves, salad-fashion, like the French, is not recorded. Still, no doubt whatever exists that its medical properties were known to the earliest physicians, so many of them recommend it in all chronic liver complaints; and it has of late years been reintroduced, one may say, into medical practice—not that in cottage domestic treatment it ever went out of repute; for I remember an old woman, known to us as the "herb doctress," who gained considerable fame in the cure of bilious complaints by her wonderful tea, which was nothing more or less than an extract of dandelion, for I often helped her to gather the plant and make it. A pound of the fresh root to a gallon of water, steep the root in the water twenty-four hours, then boil it down to four pints, and strain, will produce a very strong decoction, of which half a teaspoonful twice a day is a sufficient dose for an adult.

The dandelion is so well known that it scarcely needs any description. Its yellow flowers brighten every roadside during the months of April and May, and are very sensible to atmospheric changes, opening wide in fine weather but closing in rain, and at the approach of night.

If you watch the florets of the dandelion when first the sun's rays touch

them in the morning, you will be able to see a motion in them, so sensitive are they to its light; and very few of our common weeds are better provided with the means of propagation than the *Leontodon taraxacum*, or *Taraxacum dens-leonis*, as some modern botanists prefer to call it, for its seeds are wafted by the wind far and wide. The Welsh children call it "daut y lleid," a literal translation of the French *dente de lion*; and I have sometimes known it termed the "hour flower," because they blow away its radiating silky hairs, and reckon the time of day by the number of puffs it takes to clear off the feathery fruit. Many of our small birds live on the seeds of this plant, and pigs are particularly fond of its leaves, and cows do not dislike it.

Water will extract the virtue of the dandelion far better than any spirit, and hence it is that neither extract nor decoction keep well for any period. The root should be taken up in autumn when full grown, and dried for use, but it is far more powerful when fresh. It contains tartaric acid and caoutchou according to Dr. John and Hermbstadt experiments, and is very efficacious in all consumptive diseases.—HELEN E. WATNEY, in the "Farmer."

Calendar.

WORK FOR WEEK COMMENCING NOVEMBER 30.

Kitchen Garden and Frame Grounds.

KITCHEN GARDEN.—Make plantations of rhubarb, seakale, asparagus, and horseradish. Roots of dandelion, packed together in leaf-mould and put into gentle heat, will furnish a delicate salad in five or six weeks. Paskall's seakale pots are best for the purpose. Keep dung and all soluble matters under cover. Turn over manures, and put aside in heaps, to be frozen, rotted leaves, and other materials suitable for potting, and, when well sweetened and pulverized, remove to bins in the potting shed to keep dry for use. Get sticks and stakes tied up in bundles ready for use; wheel turf and weeds to the muck-pit; get pots washed and sorted over, and crocks sifted into sizes for the potting bench. This is a good time to make new drains, improve watercourses, and plant hedges. Sow early peas and beans on warm dry slopes; broccoli to be heeled over with their heads to the north.

POTATOES for planting may now be brought out from the store, and placed in shallow baskets on dry moss or hay, and the baskets put in the full daylight in a position where frost cannot touch them. They will soon green over, and when they begin to sprout the sprouts will be short, hard, plump, purple, and not liable to snap off in the process of planting. We never had such good crops as by this method, and we always plant when the sprouts are a quarter of an inch long; by this time the season will be sufficiently advanced to render the planting a safe operation. The baskets should not be put in a warm place, as there is nothing gained by forcing them into growth, unless they are early sorts to be grown in frames.

CROPS AND RUBBISH.—It is at this time of year we can best judge if the gardener thoroughly understands his business. During summer there is such a luxuriant growth that the most carelessly planted crops oftentimes put on an appearance that wins for their possessor much more praise than he deserves; but nature is no longer in such a friendly and lenient mood, and where the work is badly done the aspects of the place will now reveal it. We expect to see in every kitchen garden at this time of year an abundance of winter greens of kinds suitable to keep up the supply till the spring is considerably advanced, and among these plots there ought not to be found a single withered leaf. The ground not under crops we expect to be clean and in ridges as if freshly dug, and, whatever the nature of the soil, we expect a dry hard path to walk upon, and a breath of wholesome air to keep us cheerful. If we scent the odour of rotting cabbage-stumps and heaps of other such rubbish, we call the gardener a sloven, for he ought to cover all putrefying substances with a few inches of mould to absorb the gases that otherwise escape to poison him and other people. If the place is not clean and tidy, now is the time to make it so by cutting-in overgrown fences, rooting up useless trees and shrubs that intercept the light and exhaust the soil, and clearing the soil of all decaying rubbish, both to economize all such stuff for manure, and avoid loading the atmosphere with gases that render it destructive to human life. Many a village has been half poisoned by a dahlia grower leaving heaps of green stems on the ground for weeks and weeks to rot; many a gardener has to pay a doctor's bill through making his ground into a brewery of stinks; and at least nine-tenths of the diseases in the country arise through the diffusion in the atmosphere of pernicious gases exhaled from stagnant water, foul ditches, and putrefying animal and vegetable substances. "Cleanliness is next to godliness" in the garden quite as much as in the house, and we may be sure that the first of gardeners would not have attained to the age he did unless he had paid more attention to cleanliness than a good many of his successors, who, in the present day, seem to think that dirt is essential to happiness.

Flower Garden.

FLOWER GARDEN.—Bulbs ought to be all planted by this time; but if any remain out of the ground, get them in without delay. Take up Tea Roses that are in exposed situations, and lay them in by the heels in a shed out of reach of frost. Cut down fuchsias that are to remain out all the winter, and cover their roots with litter or coal-ashes. Pansies, pinks, and other choice things in open beds should have a little light litter sprinkled over them in frosty weather, or be protected with canvas on hoops. Tulips protect in the same way. Look over plants in frames, and take off dead leaves, and keep the plants moderately dry.

CARNATIONS AND PICOTEES must have abundant ventilation and very careful watering. Take off the lights daily in fine weather. If any appearance of fly, which is easily detected on the top grass of the plant, fumigate twice. Get in turf from a strong loamy pasture for use next season; lay it up in a ridge till the grass is dead, then chop it over and turn frequently. Every time the heap is turned, put in traps for wireworm, so as to have the mass quite clean by the time it is wanted for use.

HYACINTHS, TULIPS, and other bulbs remaining out of ground may still be planted, and they will bloom very soon after those planted a month or six weeks ago. Plant large bulbs six inches deep, small ones three to four inches deep. If the position is damp, put silver sand under and around all bulbs of any value.

RANUNCULUS AND ANEMONE of common kinds for showy masses may be planted now, but choice and valuable kinds must be kept in the drawers till the beginning of February, and in the meantime get the beds ready by deep trenching and laying up the earth in ridges.

AURICULAS to be kept clean, and to have not a drop more water than will just keep them alive.

BULBS not yet planted must be got in, and as they are unusually fine this season, purchases may yet be made. We always advise early purchasing and early planting; but if we would ever excuse delay it is now, the stock being in such prime condition that the bloom is sure to be satisfactory, though the after-growth may be work through their remaining out of the ground too long.

EVERGREEN SHRUBS planted now must be heavily mulched with dung to keep frost from their roots.

ROSES may be planted now during dry weather; the ground to be in good heart, deeply trenched, and well manured. On loamy land broken up from grass roses do better than in ordinary garden soil, and those who grow for show should either use turf liberally or break up meadow ground for their best plants. Get in briars quickly before the best are gone. Manettis layered during summer may now be divided and planted out in rows for budding next season.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Dig round old fruit trees, and lay down a layer of old dung six inches thick, in a ring, three feet round the stem of each, and the size of the fruit will be improved next season. Trees that are sufficiently luxuriant should not have manure. Root-prune any trees that grow too luxuriantly to bear well. Give protection to any tender fruit-trees, and lay boards in a slope over vine borders to shelter them from excessive cold rains. Unrail from the walls the youngest shoots of tender wall-trees to prevent premature breaking. Let nothing lie in by the heels an hour longer than can be helped. Bush fruits properly taken up and properly planted ought not to miss the move in the slightest degree; but you are sure to lose a whole season if they lie about waiting to be planted. Strawberry beds may be made this month, but it is not a good time to plant strawberries.

BUSH FRUITS should be planted, potted, pruned, and manured. Burn the prunings, and if the ashes are not wanted for any particular purpose, throw them round the roots of trees; they are powerfully fertilizing. Gooseberries and currants may be lightly forked between to mix the manure with the soil, but raspberries should have three or four inches of dung, not very rotten, laid over the piece, and the soil between them should not be dug at all. Orchard-house trees may be pruned at once, and washed with a solution of eight ounces of Gishurst to a gallon of soft water.

Greenhouse and Conservatory.

GREENHOUSE to be kept as dry as possible, and scrupulously clean. If the pavement or tiles are green with conserve, wash down with hot brine and a cane broom, both for the sake of cleanliness and health. The sour, damp odour perceptible in houses at this time of year generally proceeds from the growth of minute vegetation in the form of a green slime, and this is very unwholesome, and probably as much a cause of the ailments gardeners are subject to as the frequent alternations of temperature to which they are liable. Plants in a soft state to be watered with great caution, but none to be allowed to flag for want of water. As water is often retained in little pools about the bottoms of the pots after watering, any containing delicately-constituted plants should be lifted from their places and put elsewhere to drain, to be returned when the battens are dry. On fine bright mornings use a little fire-heat, so as to allow of a free ventilation for a few hours. Chrysanthemums will keep the houses gay till after Christmas, when the first lot of forced shrubs, especially azaleas, will come in to take their place. In the conservatory whatever flowers are at command may be made the most of by judiciously intermixing with them good plants of Yucca, Acacia lophantha, camellias, and others possessing characteristic foliage. Hard-wooded plants in the greenhouse must have as much air as the weather will allow, and as little water as possible, as we may soon expect severe frosts. The thermometer should not descend below 38°. Soft-wooded plants will be subject to mildew if the house is at all damp, and must have fire-heat during foggy as well as during frosty weather. Shift any specimen plants that are in need of increased root-room. Peaches to fruit early must be frequently syringed, and have as little fire-heat as possible, but the heat may be allowed to rise, with plenty of ventilation, during sunshine. Ericas must have air at every opportunity, and, if forced with other flowering shrubs, must have the coolest place in the forcing pit, and be very gently stimulated. Greenhouse temperature 40° to 45°.

AZALEAS AND CAMELLIAS claim attention now that we have little else to depend upon to keep the conservatory gay. A little pains now bestowed in training and disbudding will repay, and Camellias are so heavily set with buds that, generally speaking, it would be most unwise to allow all to remain. We have seen lately bushels of buds removed in some places where a moderate show of fine flowers is preferred to a mass of indifferent ones, the profusion of which will weaken the plants. Azaleas to bloom early to have very moderate bottom-heat, and be syringed daily. Those still at rest to have a rather dry air. Camellias will not stand so much heat as azaleas. As you can get time, clean the foliage of specimen plants.

CLIMBERS in greenhouses may now have special attention to reduce their dimensions. Lay in wood for next summer's bloom, and clear the walls and trellises.

PELARGONIUMS must have a little fire-heat if the house is damp, and the temperature should be kept nearly at an average of 45°. Nice work now when the weather stops outdoor movements to train them into form for blooming, and stir the surface of the soil in the pots, and make the pots as clean as if they had just come from the kiln. The plants will enjoy to be put in Sunday clothes that way. When pots containing plants are washed, put them to drain and dry in a place free from draught, as the rapid evaporation from the outside of the pots causes a chill to the roots.

CALCEOLARIAS for specimens may now want a shift; they must on no account get pot-bound, or they will bloom prematurely. Water on fine mornings, and beware of green-fly and mildew.

CINERARIAS for exhibition to have a shift now into their blooming pots, or they will bloom prematurely through getting pot-bound. Give them the fullest possible amount of light, and keep them a good distance apart, placed on inverted pots, and they will thus have a free circulation of air about them, which will keep them strong and stocky. They will want plenty of air to prevent mildew. Choose bright mornings to water, and get their leaves dry before shutting up. See that specimen plants are in good shape, and peg out the leaves if necessary.

PLANTS IN FRAMES.—Wherever mildew appears cut away the part affected, at once, dust the cut part with sulphur, and admit a current of air, if possible, to hasten the drying of the wound. Remove all dead leaves and decaying litter from among the plants, and if any signs of vermin making ravages, cut

an apple into two or three pieces, and put each piece under a small flower-pot with the hole stopped up, leaving a crevice somewhere under the edge of the pots for slugs and woodlice to creep in. By lifting up the pots every day some will be found trapped, and may be destroyed. A bar or small plank of half-rotten wood laid on the soil at the bottom of a frame will very often attract all the woodlice that are harbouring in it, and on removing it in the daytime they may be discovered and destroyed.

BEDDING PLANTS should be looked over occasionally, and the pits and frames emptied and filled again to clear away all dead leaves and ensure a good airing. Amateurs have many losses through lack of attention to this work, and mildew makes havoc unseen while there appears to be nothing the matter. Short of actual frost, the more air the better; and if water is wanted, give a good soaking on a fine morning when the barometer is high and steady, so that the balls may get a little dry again before a change of weather to wet or frost.

VERMIN.—Now that gardeners have a little breathing time is a good opportunity for cleaning frames, lights, and the under-sides of stages, and other places where vermin harbour. In the stove there is often great need of such work when there is no time to do it.

Stove and Orchid House.

STOVE PLANTS in free growth must have fair supplies of water—not so many times a day, or so many times a week, but as they want it. Plants that have filled their pots with roots, and are now making new growth or pushing for bloom, will need more than those that have plenty of pot-room, and are not thoroughly established. Plants in the warmest end of the stove will enjoy a moderate amount of vapour produced by sprinkling the floor and pipes. One caution must be constantly taken to prevent the entrance of draughts, and especially after watering. Plants at rest to be kept as dry and cool as possible consistent with safety, and moderately well aired. Achimenes and Gloxinias at rest should be packed all together in a dry place. We suppose the cultivator to be able now to furnish the conservatory with showy specimens of Euphorbia Jacquiniflora, Poinsettia pulcherrima, Gesnera zebra, Begonias, Luculias, Camellias, &c., from the stove. But there must be a succession, and one of the first things to consider now is how to make the stove available, not only for the preservation of its ordinary inmates, but to forward furnishing plants for other structures. Plumbago capensis, Cytisuses, Azaleas, and Camellias should therefore be introduced at the coolest end of the stove, if there is room for them; a few Roses may be forced with them, and many ornamental-foliaged subjects will be found useful if in a clean and healthy state. Mixed stove selections must now be kept rather cool, as growth is not desirable. Keep the atmosphere of the house sweet by giving air on fine days, and be careful to remove dead leaves, mosses, and liverworts in pots, and whatever impedes the circulation of air or engenders unwholesome vapours. All plants approaching a state of repose to have little or no water. Plants in active growth must be watered with caution; let them have enough, but see that they do not stand in pans with stagnant water about their roots, or in wet places in the midst of mildew. Temperature of stove 50° by night, 60° by day, with a rise of 10° during sunshine.

ORCHID HOUSE.—In collections where there are now only a few orchids in a growing state, the forcing pit may be turned to account to receive them, so as to allow of the cooling down of the orchid house, and securing thereby a complete state of repose for the plants, which is scarcely possible if there happen to be a few fine specimens pushing into bloom or in an active state of growth. It is at this time of year we see the full value of divisions which can be respectively devoted to orchids from different climates and requiring now different temperatures. Orchids at rest to be kept comparatively cool and dry; 50° by night and 60° by day will be sufficient. Variegated orchids must have very little water now, and if in a warm house, will do better without than with bell-glasses; they are indeed generally kept too close. Rot and spot are diseases peculiar to this season, and are the result of too much moisture in the house or of drip from the glass.

ORCHIDS THAT MAY BE IN BLOOM IN DECEMBER.—Angræcum bilobum, eburneum, eburneum superbum, sesquipedale; Arpophyllum spicatum; Barkeria elegans and Skinneri; Bletia Shepherdi; Brassavola Digbyana; Burlingtonia amœna; Calanthe vestita rubra aculata; Cattleya maxima; Warszewiczia; Cœlogyne Gardneriana, media; Cymbidium giganteum, Mastersii; Cypripedium insigne, insigne Maulei, purpuratum; Dendrobium album, moniliforme; Dendrochilum glumacum; Epidendrum vitellinum; Grammatophyllum speciosum; Lælia acuminata, albida, anceps, Maryanii, peduncularis; Leptotes bicolor; Lycaste Deppeii, Skinneri, Skinneri alba; Miltonia Karwinski; Odontoglossum maculatum, membranaceum; Oncidium Barkerii, bicallosum, Cavendishii, incurvum, unguiculatum; Phajus grandifolius; Schomburgkia crispa; Sophronites cernua, grandiflora, violacea; Zygopetalum brachypetalum, Mackayii.

Forcing Pit.

FORCING.—Keep asparagus going for succession. Rhubarb, seakale, and French beans will soon be in request. Lay a few picked tubers of early potatoes on a warm flue to sprout for planting over dung-heat, and get a bed or two ready.

FORCED PEAS AND BEANS.—Tom Thumb is the best of all peas for forcing; sown now, and grown in pots with French beans, it will give a good return. Those who force for Covent Garden sow in October and November. This pea is of dwarf branching habit, and of very little use for outdoor work, being tender in constitution.

MUSHROOMS to be kept as near 60° as possible, and have plenty of atmospheric moisture. A steady temperature will greatly prolong the bearing of the beds, but if they are nearly at the end of their productiveness, make up fresh beds at once for succession. At this time of year it will be necessary to make a new bed every month to ensure a constant supply.

CUCUMBERS to be started now for the first batch to plant out next month. Sow in pots singly, and grow them on liberally, without running them up two or three together in a pot as if they had been wiredrawn. A dung-bed is the best place for the seed-pots, and the soil in the pots half-rotted turf, well chopped up with half-sweet leaf-mould. Fruiting plants must be thinned if the plants are more than moderately fruitful, or they will fail to give a succession when the fruit may be most desired.

VINES breaking to have a gradual rise of temperature, beginning at an average of 55°, with a rise of 10° during sunshine. As the vines acquire a vigorous growth, raise the heat so as to average 65° by day, and 60° at night when they come into bloom. Too sudden a rise will make long joints and weakly growth, independent of the injury to the crop. A warm dry border will do as much as the best management of the temperature of the house.

Replies to Queries.

Lilium roseum.—B.—The bulb must be preserved from the atmosphere until the spring, and then be potted in lumpy peat, and grown in the greenhouse. We find it best to pot them in the autumn, and give them only as much water all winter as will prevent the soil becoming quite dry, and manage a large collection of liliams on this plan. There is a danger in recommending it, that while the bulbs are dormant they may be destroyed by excess of moisture.

Gladioli.—Rex.—Take up the bulbs at once, and lay them, with all their green leaves attached, in any dry shed safe from frost for a week or two; then clean them and store them in dry earth or sand. In many places they are left out all winter, but we are quite satisfied that the practice could not be recommended for general adoption, because in heavy and damp soils frost would destroy many.

Trees, &c.—Silcotes.—It is useless to wait until they have shed their leaves; take them up at once, and plant them in their new stations quickly. Those who are late in their planting this season will have no excuse, for there has not been known a finer autumn in the experience of the present generation.

Large Currants.—S. S. S.—To obtain large fruit, procure trees of Black Naples, Cherry Red, Raby Castle, and White Dutch; plant them in sandy or calcareous loam, using manure liberally, and every year prune the last growth back to within two inches of the old wood. If a large crop is presented, remove some of the branches. Every autumn put on a coat of manure, and let it be carefully pricked-in between the trees with a fork; the workman to take care he does not touch the roots.

Chinese Paper Plant.—Senex.—It is well known in English gardens; the botanical name is *Aralia papyrifera*. At Kew, Battersea Park, and other public gardens, it is annually planted out, and is one of the most beautiful amongst what are called "sub-tropical plants." We have not known it to flower when so planted out, but it is quite a common thing for the plant to flower in the winter, especially if kept in a warm greenhouse. It would be additionally ornamental if it would flower in the open ground during summer, but that is too much to hope for. As yours is a mild climate and a sheltered spot, it is quite likely the paper-plants would go through the winter without harm, but you must take the risk entirely; we do not advise you to let them remain out.

Aucubas.—W. Harris.—Opinions differ; we consider the true green-leaved female aucuba a handsomer plant than the spotted aucuba of the gardens. The male is hardy of course, but this is not a good time to plant, unless you know the plants selected for planting have been out of doors for some months past. As a rule, they are grown and propagated under glass, and are therefore in too tender a condition for planting out at the commencement of winter. But all who want male aucubas should buy them now to make sure of the pollen, for nursery plants are forward for bloom. Obtain as many males as you want, and put them in a greenhouse or pit. When the flowers expand, collect the pollen with a dry camel's-hair pencil, and keep it in a tin box or any such dry receptacle until the females are in flower. It may be preserved for months if kept dry. Do not force the males at all, rather retard them, but take care that the flowers do not rot in the bud through cold and damp. In April next plant out the males, and thenceforward they will take care of themselves.

Literature.

The City Diary and Almanack (Collingridge, City Press, Aldersgate Street) has again made its appearance. In addition to the matter ordinarily given in a diary for the desk, it contains a large mass of official information with regard to the City not to be found in any other publication, the whole being carefully compiled and well arranged for reference. It is a complete guide to the various business offices of the Corporation and City generally. There is ample space for daily entries, and the blotting-paper with which the diary is interleaved is a very useful feature.

Correspondence.

POYNTER'S EARLY PEA.—Mr. Poynter, in the Magazine of the 23rd inst., having asked for the result of a trial given by me of his early pea, I cannot in justice refuse to give it, indeed, I do so with much pleasure, as it is unquestionably a very early and prolific variety. It was sown on a warm border a week later than "Sutton's Ringleader," and was fit for the table, if anything, a little before the latter variety, and most certainly bore a better crop. I am unable to offer a reliable opinion as to its origin, or whether it be, or be not, the variety named by the Editor, but I hope to give it and a few other of the approved "first early" varieties a fair and careful trial next year, and will not fail to communicate the result to "our" Magazine.

The Laurels, Taunton.

J. B. SAUNDERS.

ORCHIDS CHEAP AND GOOD.

You want to get up a collection of orchids, as you are charmed with the perfectness of the forms of their flowers, their curious development, their wonderful structural arrangement, so ably defined and portrayed by Darwin, and the gorgeous colours impregnated in some species, so wax-like in texture, crystallized as if with drops of silver, and the beautiful combination of colouring, both as regards contrast of colours and shading of some tints, which are not to be seen so blended and contrasted in any other of the great and marvellous floral race. Very well. You must first begin with those coming from great altitudes, enjoying an alpine home in the tropics, and luxuriating in air currents moistened by the dews of heaven. Such are the plants for a novice to begin with, as they are all perfectly at ease in a warm greenhouse temperature, ventilated freely in fine weather, and so managed in winter as to keep a minimum temperature of 40° Fahrenheit. All these plants, which we shall name under, delight in moisture. The artificial climate to which they are transferred must be a moist one, especially at evenings and during night. You may have it comfortably dry

during the day, and promenade with your friends without fear of being parboiled or subjected to the sort of climate which a Turkish bath suggests, for that is the sort of living which most people believe orchids in general to be satisfied with. There never was a greater fallacy, for these plants, as under-named, and many others which we could enumerate did space permit, only stipulate for cool treatment; and if anyone were to treat them, as has been done aforetime, to this sort of life, the sap would be pumped out of the fat-looking pseudo-bulbs, leaving them wrinkled, and their constitutions paralyzed like a used-up apple or potato in May. There are climates of the kind that require to be created to imitate the warm sultry jungles of the East India islands—such, for example, as Borneo, Java, and Manilla, which are particularly rich in *Saccobulbiums*, *Phalenopsis*, *Vandas*, and *Aerides*; but for such beautiful genera as *Odontoglossum*, *Oncidium*, and *Lycaste*, comparatively cool treatment is only requisite.

In going to market, the purchaser who is about to found a collection ought not to select *small plants* of orchids. At best they are but a slow growing race, and, but for continued importations coming to hand, plants of them would be virtually out of the reach of most people inclined to buy. At this day, however, there are "plenty and to spare," and purchasers have ample opportunity of making a good selection of medium-sized plants at reasonable prices. The minimum prices attached to sale catalogues are such as would be remunerative to the seller for the smallest plants he has to offer. The medium-sized-plants may cost a half more, but, being generally better established, they can withstand an amount of fatigue which would kill the smaller specimens outright. It is parsimonious and short-sighted economy, therefore, to deal with the little bits for the mere sake of possession. It requires long experience and an intimate acquaintance with the race to be able to minister to the wants of such as require nursing, and such treatment as will tend to convalescence; ergo the larger-sized plants are really the cheapest in the long-run.

Nothing will repay cultivation better than *Odontoglossum grande*. Clothed with handsome pseudo-bulbs, which are in turn adorned with large dark green leathery-looking leaves, it is an object to please the eye at all times, and when we come to look at it at the period of inflorescence it is gorgeous in the extreme. It abounds in Guatemala, and has been sent home in thousands. Very good blooming plants of it can be had from any house for a guinea—not the price of many soft-wooded novelties—and its value after years' possession, instead of being depreciated, is enhanced. *Lycaste Skinneri* is another Guatemalan subject of first-rate importance, furnishing a succession of bloom for at least six months in the year, and flowering at its best in the dreary months of winter. It is impossible to speak too highly of the decorative character of this plant; for besides being accommodating in the warm greenhouse temperature of this country, it has been proved to be a highly-prized plant for drawing-room decoration: not that the drawing-room atmosphere, and the subdued light which accompanies it, is the place for fairly testing its cultural capabilities, but that physiologically it can be so dealt with during its flowering period without seriously affecting its constitution. The knowledge of this fact is important when we see and estimate the growing desire to have plants of all kinds—the rarer the better—as articles of adornment indoors.

Take another genus, and we have a splendid representative for both effectiveness and cheapness in *Epidendrum vitellinum*. This was found in very elevated regions in Mexico, and has been introduced in quantity in recent years. Coddled as it was wont to be in the hot dry atmospheres of the plant stoves of the country, little wonder that it refused to grow. Now that it is placed in even a cooler climate than the two above-named species, it grows with a wondrous vigour, and flowers so profusely in summer and autumn as to attract general attention. It is a concoloured flower of rather tiny dimensions, possessing a rich, soft, vermilion hue, but it is not uncommon for spikes of it to yield twenty flowers, and when you have size of plant and additional spikes in proportion, the effect is charming in the highest degree.

Peru has furnished a vast host of exceedingly valuable plants for decorative purposes, and many of them are within the province of what we are aiming at in desiderating upon articles both cheap and good. First and foremost among these is *Oncidium incurvum*, a gem of the first water, which has been so knocked about and starved in many of our collections that its best friends have great difficulty in recognizing it. It has fallen a victim to that intertropical stupid treatment which we have so deprecated, and, pining out a miserable existence, its vital energies have succumbed. How different if a promising guinea plant was introduced into the mild, moist atmosphere of a Peruvian climate, such as is exactly suitable for all those we have enumerated! Instead of its pseudo-bulbs becoming wrinkled and its leaves flaccid and sickly-looking, such an eyesore that one would fain toss it, and others in a similar condition, into the rubbish heap but for their value, the bulbs plump up full of sap, and the leaves put on such a lusty appearance as is at all times pleasing. The splendid panicles of bloom which the species yields require only to be seen to be admired, and each individual flower, of lilac and white, is like a miniature doll dressed in gay attire. A large plant of this species, finely flowered, is one of the most beautiful and elegant things that any one could behold. *Oncidium excavatum*, too, is another plant which every one should and could grow. It is a yellow representative of the *Oncids*, a colour predominating in the family. Recently introduced from Peru under the name of *O. aureum*, it will win favour as its merits become known. The species may be considered to be one of the neglected plants, but it is time that it ought to rank differently. It yields immense panicles in the form of corymbs under wise treatment, and is a most telling plant in any mixed collection. Possessed of one of the most robust constitutions, it requires a good diet and plenty of water, and so treated it yields an ample return. As a flowering and an elegant habited plant it far exceeds its cognate species in colour and in growth as the popular *Viola cornuta* does the old *Viola tricolor*.—*The Farmer.*

FIGS IN FLEET STREET.—About a century ago the Rev. William George Barnes, then lecturer of St. Bride's, Fleet Street, planted a fig-tree in the forecourt of a house at the end of Wine Office Court, the history of which is that it was a little slip cut off a famous old tree at a house in Fleet Street, which house had been known by the sign of the Fig-tree. The tree in Wine Office Court attained considerable size and beauty, when, about 1820, the greater part of it had to be cut down, owing to its having been blasted by lightning during a severe storm. But the amputation preserved it, though now only a wreck; and two slips were planted in the area, which have flourished there despite soot and smoke. A great number of fig-trees have been propagated from this stock, and many of them are planted in the country. —*Once a Week.*

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.				M. Imp. avg. of 43 yrs. Grnwh	Orchids that may be in bloom. I, Indian House; M, Mexican House; O, Greenhouse.	M D
			rises.	Sun sets.	Moon rises.	Moon sets.	Barometer.	Thermometer.			Rain						
1867			h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	1867
8	S	2nd Sunday in Advent	7 54	3 50	2 28	p.m.	3 29	a.m.	30.42	39.13	49	20	34.5	.00	40.3	Laelia anceps Barkeriana, M Mexico	8
9	M	Smithfield Club Cattle Show, Islington, 9th	7 50	3 50	3 0		4 44		30.35	29.90	55	31	41.0	.06	40.4	" pedunculata, M.....	9
10	T	Royal Academy established, 1793. [to 18th.	7 57	3 49	3 40		6 1		30.12	29.49	53	24	38.5	.02	40.2	" prostrata, I..... Brazil	10
11	W	Full moon at 12h. 10m. p.m.	7 58	3 49	4 31		7 16		29.23	29.15	52	28	40.0	.12	40.0	Oncidium bicoloratum, M..... Guatemala.	11
12	Th	Grouse shooting ends, Dec. 11.	7 59	3 49	5 30		8 24		29.81	29.45	56	44	50.0	.04	39.6	" leucivum, M..... Mexico	12
13	F	Length of day, 7h. 49m.	8 0	3 49	6 38		9 24		29.52	29.31	56	35	45.5	.20	39.7	" oblongatum, M..... Guatemala.	13
14	S	Prinze Consort died, 1861.	8 1	3 49	7 52		10 14		29.47	29.37	50	28	39.0	.00	40.0	Lycaste Skinnerii, M.....	14

The Gardener's Magazine.

SATURDAY, DECEMBER 7, 1867.

THE WINTER DECORATION OF FLOWER-BEDS is so seldom attempted that, from the ordinary aspects of gardens, it might be supposed impossible. Yet, throughout the winter season, all the compartments that have been occupied with flowers during the summer, and especially those so situated as to be within view from the windows of the dwelling-house, might be richly furnished at a very trifling expense. In our essays on the "Plunging System," we have endeavoured to show that the compartments adjoining the residence, and especially the most highly-dressed portions of a terrace garden, might be kept gay at all seasons by the employment of plants in pots, systematically grown in quantities for the purpose. To furnish any considerable extent of ground, however, by the plunging system would be so costly that it is not to be thought of for the parterre *in extenso*; and, indeed, it is only for very select spots—choice entrance courts, and beds and borders nearest the windows,—that we have advocated its adoption. For all the larger spaces, the simple and comparatively inexpensive plan of planting evergreen shrubs is worthy of adoption. While these things are small, they may be planted in tasteful groups in November, or later, and be wholly removed and replanted in the months of March and April following, without being in the least injured by the proceeding. Thus they may be made to do duty in the parterre throughout the winter, and contribute to the beauty of some other portion of the grounds during the summer, or may go to the reserve garden, and be forgotten till wanted again.

It scarcely need be said that a little taste and judgment must be exercised in carrying into effect a suggestion of this kind. In the first instance, if the trees are to be planted in the beds without being prepared for the purpose by pot-culture, the smaller they are the more likely are they to bear such treatment without injury. But if potted trees are plunged, they may of course be grown on to any size consistent with the wandering life they are to follow; and so long as they can be lifted they may have larger and larger pots, and grow as freely as they please. But for temporary planting trees one to three feet high should be preferred to those of larger size. The planting in the beds should be done with as much care as if they were intended to remain there; and it would be well to plant them rather deep, both to secure the roots against the possibility of injury by frost and to give them a firm hold, and prevent the stems being loosened by the wind. The transplanting from these beds to the quarters they are to occupy the next summer must be still more carefully performed. In the first place, the trenches and stations they are to be transferred to should be well dug and broken up, and unless the soil is already of a rich, friable, kindly nature, a liberal allowance of good rotten manure should be afforded for all except coniferous trees, and these should have the aid of leaf-mould. If they are transplanted immediately after the easterly winds that usually blow in March have spent their animosity on the land, they will probably make roots immediately in their new quarters, and require no more care. But if east winds blow for any length of time after their removal, they are likely to be somewhat browned and impoverished. Nevertheless the risk of injury is extremely small, provided proper care is taken in the management.

No. 136, NEW SERIES.—VOL. X.

In the selection of trees, those kinds which may be purchased at a low price in quantities are to be preferred. Two of the most distinct and generally useful kinds are the common Aucuba and Berberis aquifolium. The common Euonymus is peculiarly rich and cheerful in the winter season. There are several varieties of Box, both green and variegated, that may be employed, and we must not forget the exhaustless variety of the Holly. Mere curiosities are of little use; we want distinct, bold, massive plants. The Irish Yew, while small, is an admirable subject to intermix with round-headed bushes of cheerful colour. Amongst coniferous trees, the common Junipers and Firs are to be preferred for the Planting System, but in this great department of the vegetable kingdom there is ample room for choice.

The Plunging System, where it can be carried out in its integrity, renders the region to which it is applied as beautiful, if not so bright, in winter as in summer. By systematic cultivation of suitable plants in pots, a grand system of grouping may be carried out with subjects that are noble and various in aspect, and rich in points of interest for the observant cultivator. From the genus *Hedera* alone we may derive materials for the complete furnishing of a winter garden. The fine chocolate hue of the Poet's Ivy, the light green, orange, and reddish hues of the Algerian Ivy, the rich dark green of the common Irish Ivy, the solemn blackish tone of Regner's Ivy, and the bright creamy, rosy, and silvery hues of the variegated-leaved ivies, afford such abundant variety, combined with a delightful freshness of colouring, that we may safely pronounce the cultivation of these plants in pots to be one of the first necessary steps towards rendering our gardens as beautiful during winter as they might be with the wealth of material at our command. But we may add to these many other beautiful subjects, which can only be made available for the winter garden by systematic pot-culture—such, for example, as the Skimmias, with their abundance of red berries; the *Cratægus pyracantha*, with its huge branches of fiery scarlet berries, the yellow-berried tree Ivy, a host of handsome Japanese shrubs; and it begins to be time to look for berry-bearing Aucubas in the winter garden, and there can be no better way of displaying them out of doors than to fertilize pot-plants, and plunge them out in groups when the flower-beds are emptied.

Very much has been said in praise of the variegated Kails for winter decoration. They have had a long and a fair trial in the experimental plunging garden at Stoke Newington, and after all we cannot say much in praise of them. Their colours are rich and various, the cut-leaved varieties are extremely elegant, yet when grouped amongst plants of such high finish as our specimen ivies, the cabbage is betrayed, and what promised to look like Hyperion is little better than a Satyr. For the shrubbery borders these kails are well adapted, and in the kitchen garden their appearance is truly splendid; but when transferred to a place where artistic finish is studied, they look coarse, inappropriate, very ungainly make-shifts. There is this grand objection to their use in any garden or part of a garden where a trim, neat, and lively tone is required, that in bright frosty weather, when evergreen shrubs sparkle and shine, these Kails drop their leaves and look like heaps of coloured rags.

THE SPANISH ONION OF THE SHOPS is frequently the subject of inquiry amongst cultivators, and the notions that prevail respecting it are of a most hazy nature. It is quite certain that no English-grown onions ever equal these in size, beauty, and mildness of flavour; yet there are many who would do their best to grow such, could they obtain a true sample of the veritable seed from which these handsome bulbs are raised. If inquiry were made at random of experienced cultivators, a great variety of answers would be given respecting the proper name and identification of this variety. A great many onion growers would assert it to be the Brown Portugal, differing from English-grown roots of the same only to such an extent as might be accounted for by being grown in another climate. A great many would vote for Brown Globe, some for Globe Tripoli, and a few, perhaps, for the handsome and rather tender-habited Giant Madeira. But the plain truth about this onion is, that it has no name in English gardens, and would not be of the least use to us were it introduced, and the genuine seed

freely offered from the seed stores. The proper name of this variety for purposes of identification, or for place in any list, is the PORTUGAL ONION; and this name is justified by the fact that Lisbon is the centre of the export trade through which our shops are supplied. This variety is extremely tender in constitution and therefore but ill adapted for cultivation in this country, which is sufficient to account for its absence from our seed-lists. It is variable in form, but always inclining to globular, and has a peculiar bright brown outer skin. Its mild sweet flavour is characteristic of it as a variety, for when grown in England, as it has been, frequently from imported seed, it is milder than most other English-grown onions, but in this climate it never attains to the size, the finish, and the delicate flavour for which the imported bulbs are so justly prized. This variety is readily distinguished from other kinds when growing by its bold bright green leaves, which are more robust than those of any other variety, and when drawn in a young state it is found to root deeper and more diffusely than any other kind. It does not keep long, and, all things considered, is not worth growing in English gardens, for though distinct and peculiar, it is much more the product of intense sunshine than of the course of breeding by which, in the first instance, it was obtained.

DEATH OF MR. MCNEILL.—It is our painful duty to announce the death of Mr. McNeill, of the Chief Secretary's Gardens, Phoenix Park, Dublin, which took place on Tuesday, the 26th of November last. Mr. McNeill will long be missed from the large circle of friends, by whom he was esteemed alike for his fine social qualities, his extensive and varied knowledge, and his genuine goodness of heart. As a plant-grower he had few equals, and his botanical acquirements were far in advance of the average of men occupying similar stations in life. He has left a widow and a young family to lament his loss, and miss him more than the best of his friends can do.

EXCURSION TO THE HOLY LAND.—An excursion has been planned by Mr. Gaze, of Southampton, for the early part of next year. It is proposed to form a party for the purpose of visiting Egypt and the Holy Land, going through Paris and Italy, and returning *via* Constantinople, Hungary, and Austria, the entire journey occupying rather more than two months, during which time the company are to be entertained in first-class style, put up at the best hotels, travel in the most approved fashion, and, where necessary, have military escort. The expense, considering what is to be done, is not great—£150 being the cost to each member of the party. Mr. Gaze has furnished such ample proofs of his ability to carry out a matter of this kind, that his name will be a guarantee for the general excellence of the arrangements.

AN ENORMOUS CHEESE, weighing $3\frac{1}{2}$ tons, in which the amount of milk used was equal to one night's milking of 15,000 cows, has been brought here from the United States for exhibition. It is, we believe, at present at Liverpool.

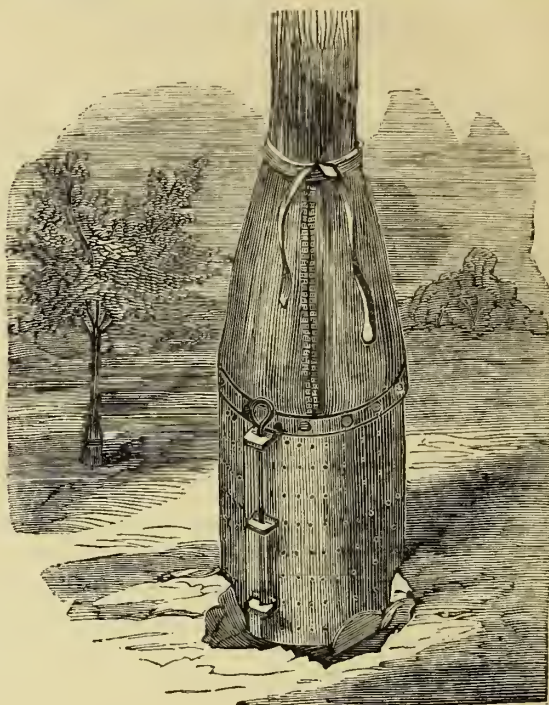
THE FIRST SNOW in 1867 fell on the night of Sunday last, accompanying a great gale which strewed the coasts with wrecks, and was so violent in the metropolis as to occasion a number of disasters. The splendid autumnal weather, which was the cause of universal rejoicing, came to an end on Saturday, the 30th, when the barometer fell, and heavy rain poured down. On Sunday the barometer continued to fall fast, and the rain became a deluge, while the wind rose almost to a hurricane. During the night of Sunday the barometer rushed up, and a stiff breeze blew; the ground was frozen hard on Monday morning, and on their windward sides the trees were coated with ice. According to the almanac winter commences on the 22nd of December at 6h. 46m. a.m.; but according to our sensations, and the aspects of nature, winter began on Sunday last. The following record of observations made during the few days of "extraordinary weather" at Stoke Newington may interest some of our readers:—

Friday, Nov. 29, 9 a.m.,	bar. 30.23;	Negretti's Aneroid, 30.22;	therm. 29°
Saturday, ,, 30, 9 a.m.,	,, 29.97	,, 29.96	,, 38
Sunday, Dec. 1, 9 a.m.,	,, 29.26	,, 29.26	,, 53
,, ,, 8 p.m.,	,, 28.77	,, 28.76	,, 32
Monday, ,, 2, 9 a.m.,	,, 29.45	,, 29.44	,, 30
Tuesday, ,, 3, 9 a.m.,	,, 30.00	,, 30.05	,, 28

CALCEOLARIA PISACOMENSIS, a Peruvian species, introduced by Messrs. Veitch and Son, and first flowered in England by them in the nursery at Chelsea, is the subject of an attractive figure in the December number of the *Botanical Magazine*. The flowers are of large size, and in general aspect resemble the flowers of a papilionaceous plant; the colours are bright red and orange. We call attention to this splendid plant as admirably adapted for the operations of the hybridizer, and as likely to furnish new and useful material for garden embellishment. It is a strange thing that although there are dozens of splendid species of calceolaria known, a mere fraction of the number are in cultivation. They are successively introduced, flowered, figured, and forgotten. We hope the one now before us will find a permanent place here.

THE BORER has been the subject of several serious complaints from cultivators in America and India during the past few months. The following is one amongst the many extracts from the papers in which accounts of its ravages have been made public; it is dated from Madras, Sept. 24th: "How many of your readers, I wonder, have heard of the 'Borer'? I never myself remember to have seen its name in any English newspaper. But here, in Madras, it has long filled the columns of our press, and lorded it over our dinner tables, until just now it had to give place to the Abyssinian Expedition. It is a kind of small grub which infests coffee plantations, and which in the coffee districts of this Presidency has done, and is doing, mischief incalculable. A planter told me yesterday that on one of his estates, 320 acres, or about 400,000 trees, had in one season been entirely and irrevocably destroyed by it. He estimated the yearly produce of these trees at £10,000, and considered that of this about one-half was net profit. The destruction was so sudden as to be inevitable. He had no intimation whatever of danger until he saw the leaves turn yellow and droop, and the

trees were then past all hope. This may have been an exceptionally bad case (I mean as regards the extent of the calamity, not as regards the nature, which is almost invariably the same), but there are many more very like it. Here and there planters have been positively ruined, and obliged to give up their estates and leave their homes. There is a report that the Madras Government think of appointing a special commissioner to investigate the subject, and it is, without doubt, well worthy of Governmental notice, for though many doughty champions have entered the lists against him, and many schemes have been confidently recommended for his overthrow, the Borer does not yet seem to have found his match." Turning to the *Scientific American*, we find that our transatlantic cousins have found a means of matching this destructive caterpillar, though the process appears to be costly. The borer works in secret and is not likely to be found, therefore to devise means for its destruction appears at present futile. But it is possible to pre-



vent its attacks by the adoption of the apparatus here figured. This is especially intended for peach-trees, although adapted to other fruit-trees. It is a cylinder of sheet metal pierced with minute holes for the admission of air. It can be opened and placed around the trunk of a tree, and secured by a rod passing through ears which project through holes in the outside lap of the cylinder. The cylinder is sunk a few inches in the earth and held by the soil being pressed around it and over the feet or legs secured to it. At the top is attached a piece of oiled cloth or painted canvas the top of which is held closely around the trunk by a string. The longitudinal seam is then sewed up or secured by a cord run in, so that all is kept tight below that point. A patent for this device was obtained Jan. 16, 1867, by George W. Dudderar, of Unionville, Md., whom address at that place for any additional information desired.

HIBBERD TESTIMONIAL.

When the testimonial was proposed, I made a few brief remarks, to indicate that I was aware of the intentions of my friends, and should leave them to work out the scheme in whatever way appeared to them best. It must, I hope, be evident to all that I did not trim my sails to catch the breezes of public favour in any sort of way, and perhaps it may be known that immediately after the proposal was made circumstances occurred which compelled me, in defence of my own integrity and independence, to convert into enemies many who in this testimonial business had promised to be valuable friends. Well, right or wrong, I have followed the course which I am sure honest men will approve. I have not allowed my interest to influence my judgment on any question with which it was my duty to deal. It is gratifying now to know that though I must have wounded deeply, however unavoidably, a considerable portion of my immediate connexion, the testimonial closed with a well-filled purse, which was gracefully handed to me by the committee, accompanied with expressions of feeling which increase my obligations far beyond the actual value of the gift. But those obligations are pleasurable; they give additional warmth to my thanks, and help me, by the assurances they afford of the appreciation of labours that have been rendered with a larger desire to do good than to secure personal benefits. I might believe I was not labouring in vain, but the testimonial is an assurance of such a wholesome faith, and I am bound by it to increased diligence, watchfulness, and earnestness in the discharge of every duty. To the worthy treasurer, Mr. James Crute, and to Mr. James Coldwells, the honorary secretary, I offer my heartiest thanks and assurances of esteem; I value the time and strength the Committee have bestowed in my service, and I accept with gratitude the many tributes of personal regard which have accompanied the subscriptions. To ALL who have aided, whether much or little, I am bound by every good feeling which should attend the reception of a gracious gift, and I beg them to receive the grateful acknowledgments of their devoted servant,

SHIRLEY HIBBERD.

Stoke Newington, London, N., Dec. 3, 1867

MIGHT AND MANE.—Lord Charles Somerset was telling a long story about his walking in the woods at the Cape one day, when he came suddenly upon a huge shaggy lion. "Thinking to frighten him," said the noble lord, "I ran at him with all my might." "Whereupon," said another, interrupting, "he ran away with all his mane." "Just so," said the lordship

Exhibitions of Chrysanthemums.

BRISTOL AND WEST OF ENGLAND.

We have spoken of the Brixton and Stratford exhibitions as the best in connexion with the metropolis, and now it is our duty to say that the Bristol exhibition surpasses in plan and detail all others in the empire. The present exhibition was indeed an advance upon all former displays of the kind, and, we scarcely need add, that completeness, richness, and variety were secured by adding to the chrysanthemums fine-foliaged plants and fruits. The Drill Hall, Queen's Road, where the exhibition was held, is admirably adapted for the purpose; it is spacious, not devoid of elegance, and well lighted; the comfort of visitors is therefore secured, which is a matter of as great importance as the quality of the exhibition. The chrysanthemums were ranged round the hall in a series of bold groups, and on a long table in the centre the stove and greenhouse plants, the cut flowers, and the fruits were placed.

PLANTS.—In the class for 9 *large*, Mr. J. P. Budgett took first place, with plants of enormous size, in perfect training, and with foliage and flowers fresh and abundant. We are inclined to think that this group would have taken first place had all the first-prize lots of the season been shown against it; at all events, they surpassed by far the average best we are accustomed to in London. The varieties were Golden Queen, Prince Alfred, Queen of England, Arigena, Lord of the Isles, Jardin des Plantes, Christine, Alma, and another. Mr. Barnes second, with Golden Queen, Sparkler, Queen, Her Majesty, Mr. Jay, Cherub, Lady St. Clair, Empress of India (same as White Queen), General Bainbrige. In the class for 6, Mr. Budgett first, Mr. Barnes second. In the class for 3, Mr. Budgett and Mr. J. H. Nash were the prize-takers. 9 *pompons*: 1st, Mr. Budgett, with Mr. Astie, Andromeda, Golden Circle, Bob, Bijou d'Horticulture, Aigle d'Or, Hélène, Miss Nightingale, and another; 2nd, Mr. Nash with Bijou d'Horticulture, General Canrobert, Salomon, Alexandre Pelé, Golden Aurora, Madame E. Domage, Aurora Borealis, Golden Circle, Hélène. 6 *pompons*: 1st, Mr. J. H. Nash; 2nd, Mr. John Jones. 3 *pompons*: 1st, Mr. Budgett; 2nd, Mr. C. Fisher. A splendid specimen Golden Queen of England was shown by Mr. Budgett, and Mr. Barnes presented a fine specimen Golden Christine.

In the classes for amateurs not keeping gardeners, there were some well-grown plants shown. 3 *large*: 1st, Mr. T. Rugg, with Prince of Wales, Golden Christine, and White Queen of England; 2nd, Mr. Yeates. 3 *pompons*: 1st, Mr. Yeates, with Madame E. Domage, Cedo Nulli, and Golden Cedo; 2nd, Mr. Rugg. In other classes the principal exhibitors were Messrs. Budgett, Barnes, Nash, Jones, and Rugg.

CUT FLOWERS.—24 *large incurved*: 1st, Messrs. Garaway; 2nd, Mr. T. Hobbs. 18 *ditto*: 1st, Mr. W. H. Morgan, of Plymouth, with as fine a lot of flowers as we ever remember to have seen on an exhibition table. We trust the exhibitors who came from distant parts—and there were a few even from London—took notice of the shape and make of these flowers, which had received but a small amount of dressing. 2nd, Messrs. Garaway. 12: 1st, Mr. Morgan; 2nd, Mr. Hobbs. In other classes the principal exhibitors were Messrs. W. H. Morgan, E. Rowe, of Southampton, and T. Hobbs. There were two classes for vases of flowers, one open and the other for ladies only. In the open class Mr. T. Canning took first place; 2nd, Mrs. M. Parsons. In the ladies' class, 1st, Miss Dodds; 2nd, Mrs. M. Parsons. Amongst the novelties was a superb bloom of *Bronze Jardin des Plantes*, from Messrs. Garaway and Co., of Bristol. This is a bronze-coloured sport from the celebrated *Jardin des Plantes*, and has all the fine qualities of the parent.

MISCELLANEOUS.—Although the miscellaneous subjects were subsidiary to the Chrysanthemums, they played a very important part in the filling up of the splendid scene. In the centre of the hall was a grand group of plants from Mr. J. Nelson, of St. Michael's Hill Nursery, for which a first prize in the class for a collection was awarded. A conspicuous member of this group was a plant of *Latania Bourbonica*, spreading 10 feet over; and also noticeable for magnitude and beauty were specimens of *Cycas revoluta* and *Dracena forrea variegata*. Mr. Budgett took second place in this class. A beautiful group of six fine-foliaged plants was contributed by Mrs. Miles; they were fresh and bright, and all good varieties. Mignonette plants from Messrs. Budgett and Barnes, superb; their delicious fragrance pervaded the whole of the room. Collection of plants in flower: 1st, Mr. T. Canning, with *Statice profusa*, *Hoya carnosia*, *Allamanda Hendersonii*, *Ixora Javanica* and *coccinea*, and another; 2nd, Lady Mackworth and Mr. J. D. Weston (equal). Nothing amongst the miscellanies proved more attractive than the *Poinsettias*, of which there were numerous beautiful specimens, bearing richly-coloured bracts. Mr. W. H. Wills took first prize in the class for six with glorious examples, and Mr. Budgett took second prize with plants admirably grown. Amongst the curiosities of a miscellaneous kind, special mention must be made of the female *Garrya elliptica*, in fruit, from Mr. C. W. Finzel, who also sent some ripe fruit of *Philodendron pertusum*. There were also examples of *Aucubas* bearing berries, some superb egg-plants and capsicums, several vases of flowers and fruits arranged for table decoration. The fruit classes were well filled, grapes, pines, pears, and apples constituting the principal features. The prize-takers in these classes were Earl Ducie, Lady Mackworth, Mr. H. G. Ludlow, of Westbury, Mr. Sampson, Mr. R. Thornton, Mr. W. Elger, Mrs. Miles, Mr. H. W. Green, Mr. R. P. King, Mr. Richards, Mr. Holder, and Mr. T. Taylor.

ROYAL VICTOR, OLD FORD.

This was a pretty exhibition on a small scale, which proved highly attractive to the inhabitants of the district.

PLANTS, 3 *large*: 1st, Mr. Baynter, with Gloria Mundi, Annie Salter, Princess Louis of Hesse; 2nd, Mr. Ball, who had a good Lady Harding, with others. 3 *pompons*: 1st, name not given, the plants were Mrs. Wyness, White and Golden Cedo; 2nd, Mr. Ward, with Salomon, Golden Cedo, and Astrea; 3rd, Mr. Fisher, with Canrobert, White Cedo, and another. 3 *standard pompons*: 1st, name not given, the plants were neatly-trained examples of Antonius, Aurore Boréale, Golden Cedo; 2nd, Mr. J. Ball, with White and Lilac Cedo, and another. 3 *pompons without training*: 1st, Mr. Eickhoff, with White Cedo, Mr. Astie, and Canrobert; 2nd, Mr. Pilgrim, who had good plants of Antonius and Golden Cedo; 3rd, Mr. Cormick, who had a fine Lilac Cedo. Other contributors were Messrs. Fisher, Baynter, J. Ward, and J. Ball. Mr. Baynter won the Royal Victor Cup with 6 splendid pompons.

CUT FLOWERS: 12 *large dressed*: 1st, Messrs. Henderson, with Empress of India, John Salter, Venus, Rev. J. Dix, Jardin des Plantes, Prince of Wales,

White Globe, Prince Alfred, and others; 2nd, Mr. Long, with Beverley, Cherub, Novelty, Oliver Cromwell, Prince Alfred, and others; 3rd, Mr. Cousens. 12 *large, as grown*: 1st, Mr. Peachey, with White Globe, Prince Alfred, Dr. Brock, Golden Dr. Brock, Beverley, Venus, and others; 2nd, Messrs. Henderson, with Prince Alfred, Beverley, Lady Harding, and others; 3rd, Mr. Long; 4th, Mr. Flowers. 6 *large dressed*: 1st, Mr. Wheldal, with Beauty, Golden Beverley, Pio Nono, Prince of Wales, Her Majesty, Mrs. G. Rundle; 2nd, Messrs. E. G. Henderson and Son, who had fine examples of Prince Alfred and Prince of Wales; 3rd, Mr. France. Other contributors were Messrs. Long, Eickhoff, Cousens, Baynter, Burnham, and Fisher. 6 *large, as grown*: 1st, Mr. Wheldale, with Cherub, Beauty, Mrs. G. Rundle, and others; 2nd, Mr. Peachy, who had fine blooms of White Globe and Beverley; 3rd, Messrs. E. G. Henderson, who showed Prince Alfred, fino; 4th, Mr. Burnham, who presented a splendid White Queen. Other contributors were, Messrs. Baynter, R. Fisher, Jones, and Smith. 12 *anemone-pompons*: 1st, Mr. Eickhoff, with Madame Montels, Mr. Astie, Miss Nightingale, and others; 2nd, Mr. Flowers, with Sidonie, Marie Stuart, and others; 3rd, Mr. Cousens. Other contributors were Messrs. Warren, Pilgrim, and Ball. 12 *trusses of pompons*: 1st, Mr. N. Hemmings, with a bright assemblage; 2nd, Mr. Ward. Mr. France presented an extra lot of large flowers of fino character, for which he was awarded a first place. Mr. Long, second in the extra class. Master J. Ball embellished the table with a pretty aquarium.

The prizes were distributed at a meeting held at the Royal Victor, Nov. 23rd, when Mr. Nichols presided. In several instances these were in money or plate, but in some of the classes implements and books were given, such as watering-pots, gardeners'-knives, thermometers, and Salter's Treatise on the Cultivation of the Chrysanthemum.

LIVERPOOL.

The November exhibition of the Liverpool Horticultural Society was better this year than ever, for fruits were shown in abundance, and the high-coloured varieties of apples were more brilliant than usual, and the chrysanthemums were throughout of better quality than heretofore. There is yet room for improvement in the treatment of chrysanthemums in this part of the world; but we see the Liverpool cultivators are progressing satisfactorily, and have no doubt they will equal their brethren of London and Bristol soon, for the great eastern and western cities at present divide the highest skill between them. The best groups of large-flowering chrysanthemums came from Mr. Hignett, gardener to C. Row, Esq., who is evidently a master of all the forms and all the varieties. His huge round bushes of the large-flowering kinds, his dwarf and standard pompons, were superbly done, and won for him the honours he deserved. In the nurserymen's classes, Messrs. Matthews, Whitfield, and Wilson were the principal exhibitors. The varieties shown included nothing new or special, being such as have had prominent notice in other reports. The cut flowers were decidedly poor, the cultivators having apparently been timid in respect of thinning, but the chief defect was in the dressing, some very fair blooms lacking just a few touches to give them their proper character.

Miscellaneous flowers were agreeably various, and, amongst ferns, primulas, mignonette, and poinsettias, it was delightful to see the pure white spikes of the little Roman hyacinth, one of the best bouquet plants known.

Fruits were admirably shown, and, as a matter of course, Mr. Meredith, of Garston, presented some splendid grapes. The principal collection from this cultivator was not intended for competition. It comprised Black Alicante, Gromier du Cantal (the Alicante of the vineyards of the Garonne), Child of Hale, a small-berried white grape which makes huge bunches; White Tokay, Foster's Seedling, Lady Downe's, and a bunch of Barbarossa that was ripe in May last and was now in perfect condition. These were all in the true Meredith style; we need not say more in their praise. The finest muscats in the competition classes came from Mr. Hill, of Keele Hall; these were grand in berry and colour. Fine samples were also shown by Mr. Blissett, gardener to H. Phillips, Esq. and Mr. Reid, gardener to S. P. Hope, Esq. The finest Black Hamburgs in the classes came from Mr. Woolley, gardener to W. Jackson, Esq., Birkenhead. The best Barbarossa from Mr. Sorley; these bunches were far above average size, and the berries were of the largest, and in perfect colour. Mr. Rawbone presented fine Alicante and Trebbiano. Pines were not plentiful; Mr. Freeman, gardener to the Earl of Derby, presented beautiful examples of Black Prince and smooth-leaved Cayenne.

Collections of fruits were admirably shown by Messrs. Woolley, Forbes, and Smith, and by Messrs. Rylance and Ashcroft, nurserymen. In these collections the most noticeable grapes were West's St.-Peter's, Black Hamburg, Muscat of Alexandria, Barbarossa. Pears: Marie Louise, Beurré Diel, Beurré Bosc, Ducaon's Incomparable, Beurré de Rance, Glou Morceau, Winter Nelis, Duchesse d'Angoulême, and Easter Beurré. Apples: Cox's Orange Pippin, Cox's Pomona, King of the Pippins, Ribston, Blenheim Orange, Court-pendu-Plat, Beachamwell. A dish of Raby Castle red currant was thought worth noticing, as the fruit was fresh and good, as if but lately ripened. In the classes there was a good competition, Messrs. Sorley, Reid, Whitfield, Smith, and Lowndes divided honours in the classes for pears; Messrs. Smith, Reid, Woollam, Freeman, Turner, and Thomson, in the classes for apples. The best culinary apples shown were Emperor Alexander, Blenheim, White Calville, Reinette du Canada, Flower of Kent, Golden Noble, Catshead, Kentish Fill-basket, Mère de Ménage, and Hawthorn.

THE CENTRAL HORTICULTURAL SOCIETY.

On the evening of Tuesday, the 19th ult., the members of this useful institution met at Dr. Johnson's Rooms, Essex Street, Strand; Mr. George Gordon, A. L. S., the president, in the chair. The lecture table was graced with an abundant supply of the finest flowers and fruits of the season, and consequently presented a refreshing and somewhat tempting appearance. The chrysanthemums were especially fine; many of them had been grown in the gardens of Buckingham Palace, and were kindly lent by Mr. Wyness, a member of the society. Several cases of grapes, the product of the ground-vineries of Mr. Wells, at Southend, are also entitled to high commendation both as regards fineness and flavour. The principal business of the evening, however, consisted in the reading of a paper by Mr. Joseph Newton, the well-known landscape gardener, on "The Approximate Principles of Chemistry as regards Horticulture and Agriculture." The essayist remarked upon the necessity of combining an accurate scientific knowledge of the varied elements of which soils are composed with lessons gained by experience and observation. He entered largely into detail as to the practical treatment

necessary for causing the earth to yield its maximum of sustenance to the numerous plants and animals which subsist upon its surface and productions, and showed that by judicious management the most sterile soils might be made fruitful. Especial attention was directed to some portions of the fens of Lincolnshire, as illustrations of his views. Mr. Newton demonstrated that it was possible also to convert unhealthy localities, reeking with miasma, into sites desirable for human habitation, and quite free from the exceptional diseases which had previously infested them. In short, the paper read was throughout instructive and valuable, not only to those engaged in agricultural and horticultural pursuits, but to the student of nature and the philanthropist.

An animated discussion followed, and in this Messrs. Green, Warren, Wells, Mr. Gordon, the president, and others, participated. Finally, in proposing a vote of thanks, Mr. J. Newton, of the Royal Mint, regretted that the proceedings of the evening had not been shared in by a far larger audience. So admirable an institution, he considered, should be liberally supported.

THE PEAR, WITH SOME REMARKS ON ITS CULTIVATION AND MANAGEMENT.—No. II.

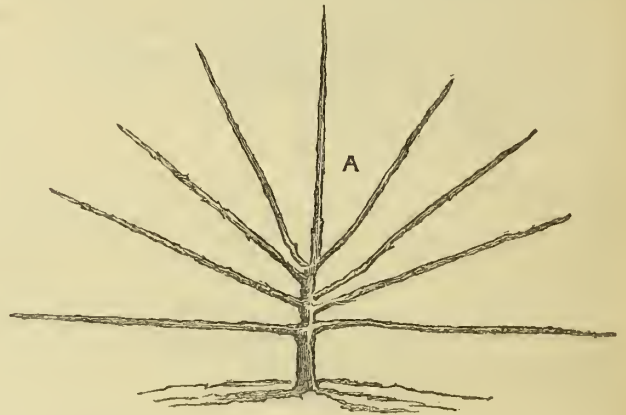
Having dealt with the management of the pyramid form in my last article, I have now to refer to the fan-shape for walls, and the remarks I made in my last with reference to the kind of stocks and soil will be applicable to this form of tree. The point of greatest consideration should be the positions we can give them on the wall; very many, and I may say too many, fill all the best parts of their walls with such subjects as peaches, nectarines, &c. This is all very proper, no doubt, for those who may like a glut of summer fruit, and none for the autumn and winter. But I happen to know that, although many like a good display of fruit in summer, they also like a few good pears in the winter, and, in fact, very often feel disappointed at their absence from the table. I also happen to know that they would be willing to see a less number of peaches, &c., eaten up by wasps and other insects, and so spoilt, if they could but have the gratification of seeing good dishes of pears during the winter. But as the filling of the walls is generally left to the discretion of the gardener, the proprietor no doubt often feels that he has not much room for complaint, as he is abundantly supplied during summer, and he can see that the walls are well covered with trees. But this is the difficulty that disappoints the owner, and is certainly not very creditable to the gardener's ideas of management. The walls are thickly studded with trees, but the majority of them are only such as produce fruit of a very perishable nature. Variety appears to have no charms for some gardeners, while it is, above all others, the one thing needful in every good garden. The gardener delights in growing peaches and nectarines, because it is generally considered that they require more skill in cultivating them, and as to whether all he can grow on his south and south-west walls will be consumed by the family, he never has a thought. These positions are too good for such common things as pears, he says, and so he goes in for peaches, gives his employer a thorough feast while they last, and consoles himself with the thought that his master ought to be satisfied with the abundance of the moment, and even feels hurt if there should be even a hint given about the absence of fruit on the dessert table during winter.

But this is not as it should be. The proprietor of a garden who pays liberally for its management, is entitled to something more than a few weeks' supply of fruit, and, in opposition to the prejudices of the gardener, he may reasonably demand it, and no man ought to make a stumbling-block of such wishes. But pears generally are so little known and appreciated by some gardeners, that they look upon them as intruders when they see a more sensible cultivator growing some favourite sorts upon a south or south-west wall. I heartily wish it was in my power to collect the whole posse of such gardeners into a circle next February, so that I could present to each a nice ripe fruit of the *Ne Plus Meuris*, and compel them to eat it; and all those who did not acknowledge its claims to notice as a desirable fruit to cultivate on a south wall I would have banished till their views were changed. The fact of the matter is, amongst some gardeners the pear is not a popular subject; it is looked upon as a common tree by those who know anything about it, and they are not many; and some would discard it altogether to make room for subjects that are higher in favour. But the owners of gardens must see to it, for I must give up in despair the hope of ever converting the gardeners to a belief of the high state of perfection the pear may be brought to in this country. It is only reserved for a few earnest cultivators to know this, and they, knowing their value, ensure for them the conditions favourable for the development of their perfections, and until this is more generally done a wider knowledge cannot be obtained. Surely it is better management of a garden when its occupants embrace all that is good and various, instead of being confined to a few subjects that give a supply only for a limited time, and that of subjects closely allied!

The superior excellence of such varieties as the *Ne Plus Meuris*, *Easter Beurré*, *Beurré Rancee*, *Josephine de Malines*, and many others, ought to win for them a position more favourable than a cold north or east wall; while such varieties as *Beurré Diel*, *Beurré Bose*, and the *Chaumontel*, should be comfortably ensconced on a west or south-west wall. Indeed, if the cultivator wishes to have them in perfection, he must so place them, or else he must be content with the miserable samples we too often see.

I must now hasten to more practical details. Assuming that the positions for the trees are well drained, and the soil deeply trenched up, I would advise the cultivator to secure early in October, or as soon after as possible, some trained trees of sound make and shape. They should have been trained two years before at least—three years would be better—as the larger the trees, the earlier will they come into bearing; and large trees will remove with as much certainty as smaller ones, if they have been properly handled.

The annexed sketch is a representation of a two years' trained tree, with an equal number of shoots on each side, and one going erect. On this upright shoot the cultivator must depend for furnishing the tree. The matter of first importance in the management of this espalier is to abstain from pruning the first season after planting. The cultivator will then probably find this central branch somewhat long and unruly; but never mind, that the knife will set to rights the next winter, if used by a skilful hand, and it will better bear it than at the time of planting. Probably, during the summer the tree may make a little breast-wood, which must be taken off about the end of July, or even a fortnight later will do no harm in strong soils, as the tree must not be allowed to exhaust itself in making useless wood. This, however, it will



do if the foreright shoots are taken off earlier, as the buds below the point taken off, instead of remaining dormant, will start again into new growth, when probably they will become fruit-buds if not allowed to grow prematurely. As these remarks are applicable in every way to the summer pruning of the trees in a more advanced state, I would beg the reader to take note of them, and then there will be no necessity for my repeating them again.

Referring to the central branch on the sketch, the cultivator will observe a cross mark, A. This is the point to which it must be headed back the next winter after planting. From the space left below this mark there will most likely push out four or five young shoots early the next summer. Secure, in the first place, the uppermost one to train up as a leader, exactly in the same manner as the one which was headed down. The remaining shoots are to be neatly nailed in at equal distances, to fill up the space on the wall. The points of these shoots, as well as those previously made, must remain untouched, except to be neatly nailed in as they grow, and not until they have extended the whole length they are required to go should they be stopped. But it is not so with the central shoot. This must undergo the same operation of heading down every winter, until the whole space is filled up. It will be understood from this that every year a fresh young leader is obtained by heading down in the winter, leaving five or six buds to break and afford a fresh supply of young wood, until the top of the wall is reached. As to the winter pruning of pear-trees, it is a thing of the past with all those who have a right to be called cultivators. Leave the pinching of pear-trees to those who have nothing better to do, and be satisfied with pruning your trees in the cool evening hours of the departing days of July; and if work presses, do not worry yourself if it is not done before the middle of August. Always prune those of weakly growth first, leaving the most vigorous ones till last, and then, instead of having a second crop of young

wood to cut away in the winter, which you will do if you follow the old practice of cutting them at midsummer, you will have some nice plump buds peeping out as the leaves fall, looking most healthy and promising for a crop the next year.

Very much more might be written, but I must be content with giving the more important details, for I should be sorry for the reader to get weary of the subject; I must therefore close with just a reference to the manner of root-pruning. It must be remembered, then, that this should be done only with vigorous trees that have attained size without any inclination to be fruitful. I lift half of the roots of a tree and cut back the most vigorous roots one year, and repeat the operation with the other half the next; I find this generally to have the desired effect.

Eighteen select varieties of pears for walls.

The following selection consists wholly of good varieties, and is arranged to afford a supply for as long a period as it is possible to have pears in good condition:—

Name.	Season when ripe.
Jargonelle	August.
Flemish Beauty; a fine melting rich pear	September.
Fondante d'Automne; a delicious fine-grained variety, very juicy, with a rich aromatic flavour	October.
Beurré d'Amanlis	Beginning of October.
Duchesse d'Angoulême; one of the largest	October and November.
Brown Beurré; an old pear of great excellence	October.
Beurré Diel	November.
Beurré Bosc	November.
Seckle; this is a well-known kind of great merit	Beginning of November.
Knight's Mouarch; large and good	December.
Jewess; bears a medium size fruit, melting and very juicy	December.
Passé Colmar; produces fine well-flavoured fruit grown upon a wall; when in the open quarters it is sometimes coarse grained	December.
Napoleon; requires a west wall to grow it fine	December.
Ne Plus Meuris; one of the best	January and March.
Marie Louise	March and April.
Easter Beurré; the best late variety	February and March.
Beurré du Ranco	March to May.
Prince Albert	March.

A selection of eighteen varieties for standards.

These will in ordinary seasons produce some excellent fruit, if not planted in an exposed situation.

Name.	Season when ripe.
Alexandre Bivort	December and January.
Williams's Bon Chrétien	September and October.
Jargonelle	August.
Autumn Bergamot, also known as English Bergamot and York Bergamot	October.
Vicar of Winkfield	December and January.
Beurré de Rance	March to May.
Bon Chrétien Fondante	October and November.
Chaumontel	December.
Crasanne; requires a wall in some places, but in the southern and western parts of England bears tolerably well as a standard	November and December.
Knight's Monarch	January and February.
Fondante d'Automne	October.
Gansel's Bergamot	October.
Marie Louise	October and November.
Passé Colmar	December and January.
Seckle	October.
Thompson's	November.
Winter Nelis	January.
Windsor	August.

A SOMERSET GARDENER.

THE NEW HOLLAND PITCHER PLANT.

At page 125 of our last year's volume (says the *Irish Farmer's Gazette*) will be found a notice of a remarkable and interesting specimen of this most singular little plant. The specimen then noticed was remarkable, as being an unusually fine example of a plant which many an expert, with every appliance in his favour, has been unable to grow satisfactorily. It was, moreover, specially interesting as being grown, not in the plant-house, but in the drawing-room window; not in the pure air of the country, but within the precincts of the city; not looked after by the skilled plants-man, but watched and tended by a lady amateur—Mrs. Pidgeon, of Waterloo Road. We allude to it again on the present occasion, by reason of having been to see it within the present week, and finding it in flower, the scape being very strong, from eighteen inches to two feet high, and even promising, if permitted, to ripen its seeds. The climacteric in the room-cultivation of our plant has thus been reached, demonstrating that in every stage of its development it is perfectly amenable to room treatment, and, therefore, about the most interesting thing that one who loves plants, but cannot gratify the love to any extent, can take up, or the delicate invalid look to to relieve the tedium of confinement, or the *annui* of the sick-room. As most of our readers are aware, the interest of the *Cephalotus follicularis* centres in the singular and beautifully organized ascidia or pitchers; the flowers are insignificant. The scape is smooth, somewhat downy, and towards the end the minute saxifraga-like flowers are borne in alternate and rather distant little clusters, quite close to the scape. We are glad Mrs. Pidgeon has allowed her plant to flower, and trust it may be permitted to ripen one or two capsules of seeds, merely to show how amenable it is as a house plant. But, as a rule, we would recommend the removal of the flower scape the moment it shows, as allowing it to grow, flower, and, above all, ripen seed, would necessarily tax the powers of the plant, and militate against the growth of the plant, and development of the exquisite little pitchers, which afford such unflinching objects of interest to the grower, and are the puzzle and admiration of all who look on them.

CULTIVATION OF THE POTATO.

This most valuable of roots was introduced from the colony settled in America by Sir Walter Raleigh, about the year 1586. It is a native of the continent of South America. It was first cultivated on Raleigh's estate in Ireland, but never came into general use until the commencement of the present century. It was considered as a delicacy in the time of James I., for in 1619 a small quantity is mentioned as bought for the Queen's use, at one shilling per pound. They were recommended in 1662 by the Royal Society to be more extensively planted; but even in 1718 Bradley mentions them as a root of little note. Some few years ago I made various interesting experiments upon the manner of growing this root in the kitchen garden and farm of the late P. Pusey, Esq., in Berkshire, a gentleman of great agricultural repute. I was filling the post of gardener to that gentleman, and had an opportunity of watching his mode of culture. I will content myself with giving the mode of treatment which I consider the best. The time of planting depends on the locality and nature of the soil, making allowance for the diversity of climates, &c., and although they have succeeded well from the middle of February to June, yet either very early or late planting ought to be avoided. I will detail a method which, on light soil and in a warm situation, will amply repay the trouble, either for home consumption or with a view to profit. This plan is practised in Devonshire, and many parts of Ireland; it is called the "Lazy Bed" system. It is performed as follows: Mark out the ground four feet and a half for the beds, and two feet for the alleys, then remove about four inches of the surface of the beds into the alleys; afterwards dig the beds, and if the soil is not good in heart, manure must be added under the potatoes, if at all heavy; but if very light, place it above them. By putting manure under early potatoes on strong soil, it acts as a drainage. I always choose good-sized well-ripened potatoes, and lay them in a warm dry place until the eyes sprout a little; when they have done this, cut them carefully. The crown-sets may be kept and planted by themselves; as they contain the best matured eyes, they always rise stronger and more regular than those from the sides. Sets cut from large tubers, each containing one eye, have, by numerous experiments, been proved superior to whole small potatoes. I planted half an acre of potato eyes. The eyes were scooped out of the potatoes previous to taking them into the house, and packed away in coal-ashes till the planting time, but the produce was inferior to either large or small sets. The large potato has a large eye or bud, which remains undiminished in the section composing the set; on the contrary, the small potato has a small eye or bud, from which, in the first instance, only a weak shoot proceeds, whereas the other starts vigorously, producing an early and extensive breadth of foliage, supported on a stem capable of bearing it up in the light, and hence producing better crops than either one weak stem or a quantity of such. In planting the main crops of potatoes, I don't go in for the Lazy Bed system. I choose a dry situation and a light soil in preference to heavy land. In the process of planting, open good wide drills with the spade two to three feet apart, according to the strength of the variety, and plant the sets uniformly six inches deep. Hoe frequently to keep down weeds, and draw the earth over any tubers which may be formed near the surface. There can be no doubt earthing-up diminishes the produce, and retards the ripening of the potatoes. For late planting choose kinds which do not grow very tall or produce abundance of flowers. My favourite potatoes are the following:—

1. Veitch's Prolific Ash-leaved.
2. Soden's Early Oxford.
3. Early Manby.
4. Fortyfold.
5. Bread-fruit.
6. Giles' Seedling, a prolific potato; average, 160 sacks per acre.
7. Lancashire Pink-eyed.
8. Birmingham Prize-taker.
9. Fluke.
10. York Regent.
11. Salmon Kidney.
12. Jersey Blue.

I would offer a few remarks on Veitch's Prolific Ash-leaf. It has the advantage of other kinds: it makes but small haulm, and the tubers are soon ripe and off the ground, to make way for the cabbages and winter greens.

Notting Hill.

WILLIAM GILES.

THE CHINA PEAR.

The pear even in England is generally understood to be a tardy-bearing tree, and the old couplet,

He that plants pears,
Plants for his heirs,

is an expression of this popular belief; nor is the character entirely undeserved, as, with the exception of a few varieties, ten, twelve, or even a greater number of years will oftentimes elapse after the trees are planted ere they bear fruit. Such being the case even where it has been long acclimatized, people are naturally backward in planting it here under new and untried conditions.

But my object just now is not to point out how we shall succeed with European and American varieties (experiments upon which are going on), but to endeavour to direct public attention to the China Pear.

This variety appears to have been in the neighbouring colony of New South Wales for many years. Being struck with the name, as probably denoting that it had been received from China, and knowing how thoroughly all fruits of Chinese origin appreciate our climate, I procured a tree, and, as it was late in the season, temporarily planted it between two rows of grape-vines, on the brow of a schistose slope devoted to grapes. After remaining there two years it commenced to bear, and has borne regularly and freely ever since; requiring generally a little thinning of the crop, as it has a tendency to overbear.

It has had no doctoring and very little attention, except taking out the leading branch to open the interior of the tree, that it might bear on the inside as well as on the outside of the branches. It is grafted on the common pear-stock of the nurseries, has never been root-pruned nor lifted, and occupies a space of about 6 ft. by 6 ft., or four square yards of ground. The wood is a dark gray, sprinkled with white dots, robust, long-jointed, of upright habit, and producing a profusion of fruit-spurs.

Unlike other pears, cuttings readily root, especially if shaded and watered during a dry hot spring, and I feel convinced that it will play an important part both as stock and medium for grafting and double grafting other pears that are shy fruit-producers on the common stock. I have not yet proved

its perfect adaptability to the Quince, but am experimenting with some of the best Flemish and French pears on the rooted China cuttings. The Marie Louise shows a stocky sturdy robustness on this stock that is suggestive of a hopeful future.

The fruit, when ripe, varies in shape, the breadth being sometimes as great as the length. It has a warm yellowish ground, dotted all over with russet; a good-looking and very fragrant fruit. Its flesh is crisp, juicy, and sweet, the skin having something of a musky pine-apple flavour; and as a cooking fruit—baked, stewed, or in pies—it is unsurpassed by any other pear, its flesh when cooked having nothing like lumpiness or grittiness about it—in fact, leaving nothing to be desired. I have not said anything about its keeping qualities, as it has not been tested fully—the kitchen demand is so much greater than the supply. But I kept three or four in the summer of 1865-66 for six weeks on a shelf in an ordinary room, and the inference is that if they had been put away in a dry cellar, or some cool, dry, dark place, they would have been preserved much longer.—FRUCTUS, in "Queenslander," *Australian Paper*.

ATTAR OF ROSES.

The following sketch of the method by which the attar of roses is prepared at Lahore was drawn up after an inspection of the apparatus and method of proceeding employed at one of the largest establishments in the city. It is taken from the columns of *Indian Public Opinion*.

1st. *Flowers employed*.—The petals of the ordinary country rose are generally used (*Rosa centifolia*), and occasionally those of the *Baramasa*, but these are only half the value of the first-mentioned sort; no other kind is found to produce so much or so good an essential oil.

Of these kinds of roses the native druggist believes that about 1000 maunds of flowers are used annually at Lahore and Umritsur, for the purpose of distilling, the price of each maund being from 2 to 3 rupees, according to the season and quality.

The rose petals are used as fresh as possible, and are first carefully picked to remove any dirt, and also stalks, calyx, and stamens.

The apparatus used.—1st. A large copper degchie with a wide mouth, and the body sufficiently capacious to hold 4 maunds of water.

2nd. An earthen flat gumlah employed as a lid; this is perforated with a hole to admit,

3rd. A bamboo pipe joined to the mouth at right angles, perforated throughout its whole length, and secured with a string.

4th. A long copper vessel with a narrow neck, into which the bamboo pipe is thrust and plugged with a cloth. The vessel is put into a cistern and surrounded with cold water. 5th. A degchie with a broad mouth. 6th. A bottle. 7th. A tin cup.

Quantities used.—Twenty maunds of picked rose-leaves, one maund of water, 50 tolahs of *chundun* oil of sandal wood, *Pterocarpus santalinus*.

Process.—One maund of rose-leaves and half a maund of water is put into the first degchie, and the cover and tube fixed on with clay, the other end of the bamboo pipe is inserted into the long-necked vessel, No. 3, into which 50 tolahs of sandal-wood oil is placed, and this vessel is set in the cistern full of cold water. Heat is applied to the bottom of the first degchie until ten seers of water are distilled over into the sandal-wood oil, carrying with them about three mashes of genuine attar of rose, which is dissolved by the sandal-wood oil.

The apparatus is then taken to pieces, and the rose-leaves thrown away. The mixed oil and distilled water are poured into the degchie No. 5, and allowed to stand for some time. The oil rises to the surface of the water, and is separated by a singular but rude process. The operator dips his naked hand flat on the oil, which adheres to the skin and prevents the water wetting it, he then raises his hand and scrapes it on the side of a tin vessel into which the oil falls, and is thence poured into a bottle. This process is repeated till all the oil is separated from the water. Then the process is recommenced, the oil is poured into the vessel No. 5, and the water with one maund of fresh rose-leaves into the degchie No. 1, and the distillation recommenced and carried on in the same way as before.

This process is repeated for twenty days, and though the druggist considers that 3 mashes of pure attar of rose are distilled every day, yet by the clumsy process of separating the oil and water so much is lost that, though 5 tolahs of attar are added to the 50 tolahs of sandal-wood oil, yet only 50 tolahs are produced at the end of the process; so that one part in ten is wasted.

The product sells for its weight in silver, each tolah-weight selling for one rupee.

THE IRONMASTER AND HIS GARDENERS.—The late Mr. Crawshay was exceedingly fond of gardening, and most of the operations carried on in his gardens and hothouses were under his own superintendence. It was a subject of much annoyance to him when his gardeners would not implicitly follow his directions, but preferred putting in practice some theory of their own. "They are so confoundedly conceited," he would say, "one can't get them to do as they are told." Upon one occasion, when engaging a gardener to fill the place of one who had been dismissed for not acting in accordance with his master's commands, Mr. Crawshay took the opportunity to give the new-comer a short lecture, which he concluded by observing: "There, I have told you what to do; but I don't suppose you'll stay here long; you'll be like all the rest, so confoundedly pig-headed and conceited." The man expressed his willingness to follow his master's instructions, and after he had been employed about a fortnight his professions of obedience were put to the test. Mr. Crawshay came into the garden one day in early spring, and, pointing to a row of gooseberry trees, abruptly told the gardener to take them all up, and stick the branches into the earth, leaving the roots turned upwards. "They don't seem to grow as they are," he remarked, "so I'll try my plan." Mr. Crawshay then turned away abruptly, whilst the gardener, without making any reply, immediately set to work. In a few hours the job was completed, and upon Mr. Crawshay returning and finding that his commands had been obeyed, he observed, "That's all right; put 'em back again. I only did it to try ye; you'll do: I believe I've got a sensible fellow at last." [The foregoing is cut from a newspaper, and it may be true.

But it does not, we venture to think, reflect any credit on either master or gardener, but the gardener comes best out of it of the two. The master gave an absurd order, and the man, taking note of his whim, proved himself his equal in wit by what appeared an act of implicit, unthinking, and obsequious compliance. When two people engage in an act of stupidity, it is not a nice question to determine who should have most praise.]

THE AMERICAN BLIGHT AND FOWLER'S GARDENERS' INSECTICIDE.

The various diseases to which the apple tree is subject have occupied the attention and the pens of some of our greatest naturalists, as well as many of our eminent and practical gardeners. Animals of different species prey upon our garden plants, and our endeavours therefore would be in vain if we were to attempt to avoid the blights affecting the leaves and blossoms of large trees, such as the apple weevil (*Anthrenus pomorum*), and the codlin moth (*Carpocapsa pomonella*). The female moths deposit their eggs in the flowers, one in each, which are soon hatched, and begin to feed on the softer parts of the fruit, which causes the fruit to fall off. Now, it is obvious from the habits of these insects that it is not an easy matter to destroy them. But the trunk and branches of apple trees are oftentimes injured, and sometimes destroyed, by pests of a less tangible nature, and perhaps none has done more mischief, or is so hard to be killed, as the cotton blight, a white mealy insect (*Aphis lanigera*), commonly called the "American Blight." This disease makes its appearance like little bunches of cotton wool stuck upon the trunk, and along the branches and shoots. Under this white stuff there are innumerable insects, which, if squeezed, are of the colour of blood. After it is rubbed off, little round pimples or lumps appear, which are very unsightly. This blight was first observed in the neighbourhood of London; it is supposed it was imported from France in the year 1788. It becomes winged in July and August, and spreads itself from one tree to another, and has now made its way into every county in the kingdom. Some say it attacks the roots as well as the branches; but this I never found to be the case. In the gardens that I have recently taken charge of, I found this pest had got complete possession of all the apple trees, and some were thereby rendered useless. Of course I had heard of, and had seen tried, and had tried myself, various means of destroying this pest. An Irish gentleman recommends the water that potatoes had been boiled in as a certain cure. Another says, rub green mint on the affected parts; this applied perseveringly entirely cures the worst tree of this disease. I think the cure consists more in the mechanically rubbing than the green mint. I have found Gishurst Compound, of the consistency of paint, a capital remedy when rubbed on the tree with a good stiff brush. If it does not destroy them at once in their operation, it gives them an uneasy life, and stops their ravages. So numerous are the nostrums for the cure of blight, and such high authorities speak in their praise, that if I have tried any of those remedies it has always been with caution, never forgetting what I heard Mr. Gordon once say to Mr. Spary, when he was explaining how destructive his patent fumigator was to all kinds of insects. "Ah," says Mr. Gordon, "perhaps it will kill plants as well, for the fumes of your apparatus are like the quack doctor's physic, for he gives them all the same dose; and what cured a tinker killed a tailor." So it would be in a house of mixed plants; some it would kill, and the strong it might cure. Now, without any more beating about the bush, I will speak of the new Vermin Killer. Well, I procured a jar of what Mr. Fowler calls "Gardeners' Insecticide." A very scientific name this. Ah, we gardeners like long names; we should not care whether it was insecticide or infanticide, so long as it killed all our enemies. I dissolved four ounces in a gallon of soft water made hot. When it cooled down to 85°, I took it to some dahlias the blooms of which were infested with thrip. It destroyed them instantly, without the least injury to the flower. Then, for a further proof, I immersed a tender fern, *Adiantum cucucatum*, infested with aphids. The result was satisfactory—the aphids killed, and not a frond injured. I now made the insecticide hotter and stronger—six ounces to the gallon, and the temperature 100°—and went into the orchard, and commenced trying its efficacy on the American blight. I syringed the affected parts, and I have much pleasure in saying that at the first shot I fired with the syringe these tiny vexatious enemies, keeping in ambush behind their bales of cotton, began to disperse in all directions, and the dead and dying fell to the ground never to rise again. I would recommend all my fellow gardeners to keep a constant look out for this American blight; it requires a quick eye and constant observation to detect the first colony of foes. Now that we have a cure of a comparatively inexpensive nature, let us try our best, and free ourselves from this troublesome pest. N. COLE.

AUXILIARY BOILERS.

A correspondent, H. Henry, asks if an auxiliary boiler is required in a case where cucumbers are grown through the winter, vines started at Christmas, and strawberries, French beans, &c., in January. He has eight houses to heat, one of them a peach-house adjoining the vinery, where the heat is put on in the middle of February, and other forcing houses, as above stated. Without doubt an auxiliary boiler would be a safeguard where forcing to the above extent is carried on; but increased experience in this matter convinces me that it is a mistake to put up two large boilers of the same size in places where there is not a greater range of glass than in that of our correspondent, especially when the forcing is confined to one or two houses for three or four months of the forcing season, as in the case now under consideration. Cucumbers for the winter, and vines at Christmas, in two small houses, in which are also grown strawberries and French beans from January, is not sufficient work for a large boiler, although later in the season, when the peach-house is added, there may be, as also would be the case in frosty weather, when the other houses required heat. But to have to heat, say a 4 ft. saddle or cannon boiler for two small houses for nearly four months is a great waste of fuel, because a boiler of less power, and requiring less firing, would answer quite as well. To proportion the size of the boiler to the work it is required to do, should be the first aim of those who have the management of it; and as auxiliary boilers are only put up as a safeguard against a break-down with the permanent one, I maintain it will be a great saving if we consider them both as permanent ones, only using the small one when there is the least work to do, and the larger one when the houses are all in full work. By this plan not only will the expense of firing be diminished, but there will be less chance of an accident from boiling over, as the larger the boiler the greater the body of fire; consequently there is more risk attending its use when its work is of limited extent in comparison to its size.

Against the adoption of small auxiliary boilers it may be urged, that they would not have sufficient power to be of much use should the larger one at any time fail. But against this I must demur. A 27 in. saddle or cannon boiler would keep seven or eight moderate-sized houses free from harm until another larger one was supplied, should anything happen. At all events, my advice is (what I should now practise myself), put up one sufficient to

work the whole, and a smaller one to do the work of the two small houses for cucumbers and vines from the beginning of November to the middle of February, only using the large one when the weather demands it, and, according to the price of firing within twenty miles of London, there would be a saving of from three to four pounds a year in the item of fuel.

On the subject of boilers and the heating of garden structures generally, there has been much useful discussion in these pages from time to time, in which I have been very much interested, and I am therefore sanguine that our readers will not lose sight of the subject, but continue to ventilate the question of heating until we have gained a thorough knowledge of all its features; for I am satisfied from common observations that we have much yet to learn, and the sooner we can do this the better for us and our cause, to say nothing of posterity.

J. C. CLARKE.

DALECHAMPIA ROEZLIANA, V. ROSEA.

Amongst the many meritorious novelties of the past season, none is more deserving of the attention of cultivators than this beautiful Mexican plant. It was first met with in Vera Cruz by Roezli, and, according to the absurd practice of naming plants after persons, it bears his name for a specific distinction. It is a member of the vast order Euphorbiaceæ, and belongs to that section of the order the plants of which have broad cotyledons. The genus Dalechampia is characterized by the presence of a single ovule in each compartment of the ovary, by the anthers being erect in the bud, by the segments of the calyx in the male flowers touching their margins, and by the two-leaved involucre enclosing flowers of both sexes. These involucre, or, as they will no doubt be more commonly called, "bracts," are in the plant before us of a bright pink colour; the male and female flowers which they enclose are yellow. As respects the peculiarity of its decorative features, therefore, this plant may be classed with the Bougainvillea and the Euphorbia, in both of which the most highly-coloured portions are not the true flowers, but their appendages. There are two varieties of Dalechampia Roezliana, one with green, the other with pink bracts. It is the last-named that we especially recommend to the favourable consideration of cultivators.

One of the most interesting features in the numerous admirable exhibitions of the plant by Mr. Bull, of King's Road, Chelsea, during the past season, was the perfection in respect both of leafage and richness of floral colouring of the very small specimens that were brought forward. It does not need a vast extent of space, or a great length of time, to grow this plant to perfection; indeed, it blooms freely in a small state at every period of the year, and the coloured bracts are so persistent that the plant retains its brightness of colouring for a great length of time. In habit it is an erect-growing under-shrub, with sub-cordate or spoon-shaped acuminate leaves, five to nine inches long; the stem is clothed with egg-shaped stipules; the peduncles are slender and thread-like, bearing two small green bracts and two large cordate denticulate floral leaves of a bright pink colour. Within these are the male and female flowers, of a pale yellow colour.

This is a highly ornamental plant, which may be grown to a large and grand specimen for the stove, or flowered in a small state for the decoration of the table. As it can be flowered at any season, it may be added to the list of select winter-flowering plants; for at this season of the year its gay bracts will be of far greater value than at any other time. As a winter-flowering plant it will need the stove, yet it may certainly be grown and flowered successfully with only warm greenhouse treatment, as, though a stove plant, it happens to be well adapted for what is termed cool treatment.

BATHING IN LILIES.

Once upon a time, Mr. Editor, in the spring of the year, when the spring flowers were full of glory, you kindly informed me by letter that you contemplated being from home for a few days; in fact, that you intended to go down to the New Forest to bathe in violets. I remember I wished you a safe and a pleasant journey, but I did not confess at the time that I felt you were tantalising me, for I was necessarily tied by the leg at home, being in the midst of a forcing season, and therefore could not go with you, had I wished, or had you invited me. I felt that you knew this, and I considered that you ought to have had more consideration for my position than to have broached the subject to me, knowing how much I liked such rambles as you contemplated taking. In fact, I felt that you might have gone and enjoyed yourself, and then informed me of it if you pleased, instead of filling me with longing. However, in contemplation of revenge, I pocketed your letter, determined next time I was about to enjoy a treat to apprise you of it, so

that you might have a fellow feeling, and be more discreet in the future. But, upon more mature consideration, I relinquished all ideas of tantalising you, as you had done me—in other words, I would not return evil for evil, but prefer to tell you after my joys are over, and I hope for the future you will take the hint, as far as concerns me, and do likewise.

But you will be asking, "What has all this to do with Bathing in Lilies?" Let me tell my little tale. You go some forty or fifty miles, with danger before you with every turn of the wheel, to bathe in violets, while I stop at home to bathe in lilies. Ah! and in beautiful lilies too, such as are not seen in every nobleman's garden, although a cottager may grow them. Perhaps now you may condescend to ask, "What are you driving at?" or you may be a little bit starchy, and say to yourself, "Why, the old man is a ninny to think I never saw a lily." But I do not think so, for I know you have seen many, but I question if ever you saw a whole batch of the common Guernsey lily, with about fifty spikes of bloom on them at one time, in the middle of October. Such was my lily bath lately. Many of the spikes contained five individual flowers, and some of these measured four inches over, standing boldly up about twenty inches high upon stems thicker than a man's thumb. Imagine all these making a solid mass of colour in a small space, and you have an idea of a splendid scene. It is many a long day since I saw so beautiful a sight as these lilies created.

Now, tell me if you have ever seen the like. I do not want to hear of an individual spike or two, such as is commonly seen, but from forty to fifty spikes, each with three or four flowers open at one time, standing close to the front wall of a vinery, about 30 feet long. I think you, with all your experience, will be obliged to answer no; for I have travelled a good deal, and have never seen anything like it in the way

of lilies, although I have seen many wonderful horticultural sights, but not one with such a peculiar richness as this. The term "gorgeous," in its literal sense, is not applicable to this mass of floral beauty, it was so rich and chaste; while the natural bearing of the flowers was so grand, with such a delicate touch of refinement about them, that, in a word, it was the most lovely sight that ever pleased horticultural eyes. But do not think the old man is vain because he possesses such rare treasures of Flora's empire, or that he wishes to retaliate upon you in an unseemly manner. No, no; his principal object in writing this is to let your readers know that the lovely Guernsey lily is still cherished by one who is somewhat alive to the beauties of the hardy border plants, of which this is so excellent a member. Changing back to the first person, I wish to say that I have now good grounds for asserting that I have bathed in lilies.

Now I am coming to the practical; and to show you that I am not anxious to enjoy this treat alone any longer, I will, if you like to accept of a few bulbs, send you some on an early day. All the cultivation they require is to plant them deep in a rich sandy loam close to the foot of a south wall, and leave them undisturbed for the next seven years, and you will get flowers in plenty.

P.S.—This was written a month ago, but got mislaid; all the time I was wondering why I could not see it in print. To-day I have popped upon it, and, although late, I send it on, because I dare say you have been wondering what had become of

THE MAN WITH THE BLUE APRON.

[The Guernsey Lily, *Nerine sarniensis*, deserves all the praise the "old man" has bestowed upon it, but *N. coruscans*, *N. Fothergillii*, and *N. venusta*, are equally beautiful, and perhaps even more beautiful; therefore the "old man" had best add a few clumps of these to his border. If he will send us a parcel of his, we will send him some of the other three kinds in return. Mr. Barnes, of Bicton, could tell us something about bathing in lilies, for he has some long borders filled with these *Nerines*.—Ed. G. M.]

A PROTEAN FERN (*ARTHROBOTRYA ARTICULATA*).

The vagaries of ferns are quite as strange as their mode of re-production. Since the fern mania, and more especially the mania for British ferns, has set in, the latter seem to have run riot in their anxiety to meet the craving for new varieties. In fact, so many forms crop up that to find distinctive terms for them is apparently more difficult than to find the plants, if one is to judge by the vagaries of language had recourse to, to distinguish the varieties of British ferns.

Turning from the cultivated forms of these islands to a singular and interesting species, sometimes grown in choice collections of hothouse ferns, a portion of which is lying before us, we find a curious illustration of the Protean character of these plants. We allude to the curious little Bornean creeping fern, *Arthrobotrya articulata*, or, as it was first called, *Lindsæa Lowii*, by which name it may still be known by our readers. Since we first saw it in one of our finest collections, when introduced some four or five years ago,



DALECHAMPIA ROEZLIANA.

we have regarded it with interest from its singular habit, as well as its rarity and its being considered difficult to keep. It was, however, only on occasion of a recent visit we ascertained that what we had on previous occasions looked on as an interloper in its case, in the shape of another fern as unlike as possible the normal form and appearance of our plant, was no such thing, but part and parcel of the *Arthrobotrya*. This will be better understood by our fern-loving readers from a description, though it be imperfect, of the normal appearance of this wiry little Proteus. The innumerable little creeping stems are dark, wavy, thin as finest wire, and furnished along the lower surface with a line of clasping suckers like those of the ivy, by which it fixes itself in its rambles over the tufa, or other surface upon which it grows. From these stems at right angles, and plane with the surface on which they grow, proceed neat little pinnate fronds, not unlike those of our own little *Asplenium trichomanes*, except that they are much smaller, more compact, and the diminutive pinnules more crenated. The fronds are about three inches in length by half an inch in breadth. The pinnæ are about a quarter inch long, less than that broad, and roundish.

Now for its anomalies. Some of the fronds, eschewing the original or pinnate form, have the pinnules or leaflets only on one side; others have one side fully clothed and the other side bare, except a small portion near the top. Other fronds show the dichotomous character, or tendency to fork, which appears to be the first freak when a fern is about to put on a new "make up." These, however, are trifles compared with the next jump our Bornean friend takes, when from the extremity of one or more of its living wires it sends forth apparently another fern, about as unlike itself as another fern could be. Compared with the parent, this is a giant, the fronds being like the exotic *Doodia caudata* in appearance, and almost as large, or, to take a more familiar illustration, in size and form like those of our own *Blechnum spicant*. The frond before us is more than eight inches long, by $2\frac{1}{2}$ inches wide. The pinnæ are placed alternately and rather distant from one another, oblong lanceolate in shape, perfectly simple at the edges, fully an inch and a half long by half an inch broad, the colour a much paler green than that of the normal leaflet. A good general idea of the appearance they present, and the remarkable departure from the original form, may be had if the reader call to mind what we so often see occur in the fern-leaved beech. When first introduced, if we remember rightly, Mr. Smyth, of Kew, regarded the original form as being only the imperfectly developed form of a plant which in its adult state is quite different.

We regard this as a very interesting fern for growing in a case, if it would accommodate itself to the temperature of our rooms. This difficulty might, we fancy, be overcome by a little ingenuity and thought. If so, our Kilmarnock favourite would have a rival, and the dwelling-rooms a new feature, which would have interest for all, and be one of priceless value to the confined invalid or the aged, who know no world outside it.—*Irish Farmer's Gazette*.

Calendar.

WORK FOR WEEK COMMENCING DECEMBER 7.

Kitchen Garden and Frame Ground.

CABBAGE, SCOTCH KALE, and other standing vegetable crops should be lightly hoed between when the ground is dry, and the plants earthed up; this protects their roots from frost, and supports them against wind; and the hoeing removes weeds, and by loosening the top crust prevents frost entering so deep as it does in hard ground.

CAULIFLOWERS, LETTUCES, &c., in frames and handlights must have plenty of air while this mild weather lasts, by removing the glasses entirely on fine days, and keeping them tilted during rains. If any signs of mildew, sprinkle with sulphur; the *Boite à Houppes*, sold for half-a-crown by Burgess and Key, Newgate Street, is the best sulphur duster, and should be always at hand in a dry place ready for use. It delivers lime, sulphur, or any dry powder in a regular cloud, and is very expeditious. The fine dust from the bottom of the peat-stack or the bins of the potting-shed will be found useful to strew on the surface amongst plants suffering from damp; there is nothing to equal peat-dust for the purpose.

PEAS AND BEANS just showing through the ground should be covered with a sprinkling of dry earth, and over that some dry light litter; this will check their growth and keep them hardy, and in case of frost afford considerable protection. Where sand is plentiful, use it in preference to mould, because of its drying nature.

RHUBARB AND SEAKALE.—Those who have not begun to force should do so now, either in the open ground or by potting. As a very mild heat suffices, this season's leaves and litter, if plentiful in bulk, will do as well to make up a bed for the purpose as dung. If the latter is used, it should be turned three times before making the bed, or the heat will be too fierce and too transient.

Flower Garden.

EVERGREENS are generally planted at this season, because alterations are in progress, and it is found convenient to plant all at once—deciduous and evergreen trees together. But we question the propriety of moving any evergreen shrubs from November to February. We have always advised planting hollies, aucubas, bays, &c., &c., in August and September; and if no moved then, they had best be left where they are till March. Nevertheless, it is often convenient to lift evergreens now, and almost everything except the holly will endure the process if it is performed with care. On wet days there is more likelihood of deaths occurring through removals now than on warm dry loams. We have ourselves been compelled lately to move some very large specimen evergreens, and we took care to close in the roots with a mixture of leaf-mould, fine loam, and sand, in a nearly dry state, so that the wounds of the roots will be encouraged to heal quickly, and at the first move they make they will run freely into the tempting mixture. Where it is intended to plant in spring, let the ground be deeply trenched and laid up in ridges to pulverize.

Fruit Garden and Orchard House.

PRUNING of standard trees should consist chiefly of opening out the head and regulating the growth, without severe measures of any kind. Where large boughs require removal, it is a proof of neglect of some kind in times gone by; and if many large branches are dead or dying, depend upon it the tree is in a bad state at the root: most probably the surface roots are gone altogether. In small gardens, old fruit-trees are frequently killed by raising the soil about them, and so year by year removing their roots farther and farther from the atmosphere.

ROOT PRUNING, where required, should be commenced without delay. The simplest method is to open a trench on one side of the trees, and cut back the roots to within two feet to three feet of the stems (according to the size of the trees), half round each tree. Next year open trenches and cut back the roots on the other half round, and so on year after year. This will prevent a rank growth, and increase their fruitfulness.

Greenhouse and Conseratory.

CALCEOLARIAS, ROSES, PANSIES, and other nearly hardy plants, of which cuttings were put in late, may now be potted off singly while the weather continues mild. This will relieve the pressure of work at the turn of the spring, when there is so much potting to do that other important tasks are neglected.

STOVE PLANTS THAT BEAR COOL TREATMENT.—The idea of "naturalizing" plants from the tropics has long been exploded; but, like the search of the alchemists for some principle which should transmute any and every metal into gold, this idea has unexpectedly been the means of leading us to the discovery of much of which we can make practical use. Our stove plants are no harder now than they were fifty years ago, but we have learned much better how to cultivate them; and one of the lessons we have learnt is, that at certain seasons of the year, and under certain circumstances, they will bear a much lower temperature than had been anticipated. In a word, all plants require a season of rest. Allow them to hibernate for a time, and then when you rouse them up once more they spring into existence with renewed vigour. How many plants we can recall which we at first stewed and parboiled in our stoves! soon they were moved into a warm corner of the greenhouse, and then, having overgrown the space allotted to them, they were some lucky spring morning planted in a warm corner out of doors, just to take their chance. With what result? Why, they perfectly astonished us with their wonderful growth; they had at last been treated in a manner which suited them. I could spread out this paper to any extent by giving illustrations of this. I might give instances from the plants which were introduced years and years ago, such as the *Aucuba* and the *Lycosteria*, and might bring my observations down to the present day by giving some of the results obtained this very year in the sub-tropical department at Battersea Park. One great lesson we have learnt is, that many who from not possessing a stove may have considered themselves unable to grow foliage plants, may now take heart, and compete with their more fortunate neighbours. We would simply throw out a few hints, leaving our readers to act upon them as circumstances shall allow, and hoping to hear of their success next season. Few gardens are so poor as not to possess a littleinery, which is started early in the spring; or if noinery, there is at least a good hotbed. With these appliances much may be done—many novel effects produced in summer, and much additional interest given to the garden. We shall confine our remarks to the growing of foliage plants in pots, not venturing into the wider subject of grouping them in beds out of doors. First of all, we come upon a set of genera which will bear drying off in winter; these are particularly useful in small gardens, where space (as it sometimes is in the largest gardens) is very scarce in winter. Everybody who can grow *Achimenes* and *Gloxinias* may venture upon *Caladiums* with the same kind of treatment. In either case, the roots must be kept dry, and not allowed to feel the effects of frost. How much cold they will really bear without injury is a question very difficult to answer; a small amount of cold accompanied with moisture would do far more injury than a greater degree of cold when they were quite dry and at perfect rest. This is, therefore, a point upon which we may expect differences of opinion. This one genus, *Caladium*, throws open to us at least a score of varied and most beautiful plants. All that would be necessary for them would be a good start in ainery or hotbed in the spring, and protection from cold draughts in summer. There may be—I do not say there is—an exception in the case of the lovely little *C. argyrites*. I have found that it does not absolutely require the same amount of rest as some others; most of them give unmistakable signs when they want to retire for their winter's sleep. There is no doubt but that the coloured *Begonias* enjoy a stove temperature; but may they not be coaxed into doing without it? There is good room to believe they may. Old plants—be careful to note the word "old"—old plants may safely be dried off for the winter. I recollect some years ago having a few old specimens for which no space could be found; they therefore took their place beside the dried roots in a dry and cool corner. They were watched, and from time to time the leaves which were going off were cleared away; in the spring they were pulled to pieces, and the healthy growing points selected for the formation of new specimens. The success was so great that this was made a precedent for future years, and much younger plants went safely through the ordeal. I have safely sent the dried rhizomes of these *Begonias* to friends in the colonies, both east and west. By-the-by, *B. discolor* (or as it is sometimes called, *B. Evansiana*) is a genuine greenhouse species, goes naturally to rest every winter, makes a capital edging for a hed out of doors, and may be propagated to any extent. Will nobody bring it out as a bedding plant at a trifle per hundred? Some years ago, I dare say you grew, as I did, the rice paper plant (*Aralia papyrifera*) in the stove. It was just sent home by Fortune from the island of Formosa; what further proof did we need that it required a high temperature? The plant grew well, made magnificent leaves, and flowered; but it was terribly subject to the mealy-bug—what a job it was to keep it clean! You may generally paraphrase the expression—"This plant is infested by the mealy-bug," by "This plant wants a cooler place;" or else it has been pot-bound, or ill used in some known or unknown way. We had to learn by experience, but it is dangerous work to experiment upon a plant worth four or five guineas, as that *Aralia* was then. It flowered, as I said, and next season we had scores of seedlings. One or two found their way into the bed out of doors reserved for odds and ends. They grew splendidly, and we saw no more of the mealy-bug. If you want to see how it succeeds out of doors, go to Battersea Park in the autumn and enjoy an astonishment. There can be no doubt it is nearly hardy; that the roots, at least, will escape injury, even if left unprotected. At any rate, under cool treatment, and not allowed to be starved in its pot, it will make a glorious foliage plant. There are several other species of *Aralia*, introduced by M. Linden from New Caledonia, which may help to make up a cool collection of foliage plants. That beautiful plant *Cordyline indivisa*, introduced by Messrs. Lee, from New Zealand, requires of course nothing more than the accommodation a greenhouse may afford; and the same may be said of many other allied species. When we come to look the list over, we find many foliage plants which may, with the help of a hotbed in spring, be exhibited in competition with the truly stove plants, when the advantage will not be all on the side of the latter. Let us see how our list would stand: *Caladiums*, *Begonias*, *Cordyline*, *Aralia*,

Cannas, Ricinus, Dracæna (several New Zealand species), *Cycas revoluta, Dasylyrium*, and a good many others in the *Aloe, Agave, and Bonapartea* line. Though there is much we hope and expect may be done under "cool treatment," yet there are some plants which we may expect will hardly put up with this. Among these we must class *Cissus discolor*, which cannot be grown in too hot or too moist a house, nor can it be shaded too much. If you want to see the velvet leaves of this plant in perfection, you cannot overdo either of the three things mentioned—shade, heat, and atmospheric moisture. The same thing may be said of *Alocasia metallia* and its allies, but I am almost afraid to speak about this plant, for I was on good authority told the other day of a plant which had done duty in a seedman's shop for six weeks, and then stood out of doors for ten days without being injured or looking the worse for it. We have much to learn upon this subject, and every gardener who can help us to a fact he has himself proved, will help on the good time coming which will produce another great change in the fashions of the garden world.

Stove and Orchid House.

STOVE PLANTS at rest may suffer if allowed to get too dry, especially those having porous foliage and soft stems. In giving air, take care not to expose tender plants to cold draughts; in fact, air should never be admitted in a volume at this time of year. The general collection of stove plants will be satisfied with a temperature of 60° by day and 53° by night. Orchids require a watchful eye among them; so many diverse climates are now represented in our collections, that it is no easy matter to keep all at rest together, and it may be better to remove a few that require to be kept growing to the forcing-pit rather than risk the safety of others by too high a temperature.

Forcing Pit.

CUCUMBERS that have been in bearing some time may always be restored to a youthful condition by the use of the knife. If we have a length of lights occupied with bearing vines at this time of year, we prepare for their renewal by opening a trench all round the roots, every alternate plant, at a distance of one foot from the stem. This of course shortens in the roots to that length. We then fill the trench with a mixture of chopped turf, leaf-mould, and rotten dung. There will be new roots formed in this mixture at once, and a week after the operation we cut back the vines to within a foot of the soil, and then take up new runners, and stop and train as before. As soon as these show fruit, the remainder can be dealt with in the same way. They want extra bottom-heat after cutting back.

Correspondence.

FLOWERS FOR CHRISTMAS TIDE.—Shortly the whole world will run riot as it were in the decorative art; lovers of flowers will vie with each other in their best efforts in taste to commemorate that most endearing mystery of our faith, the birth of the Incarnate Word. In this country, for three long centuries, roast beef, turkey, and plum-pudding have had more than a fair share of attention at this holy season. However, matters have taken a turn for the better. No one can have a doubt of the fact that church decoration is on the increase, and that it is receiving that attention which it is so well worthy of. What more beautiful and proper occasion can there be than the coming great festival to bring into use all the beautiful in flowers, arranged in appropriate designs, to typify the devotion of our hearts on the way, by faith, to Bethlehem? Material for this purpose can be produced abundantly and cheaply. Equal effect can be produced with Everlastings as with fresh flowers. How easy it is to grow them! He who loves to cultivate flowers can have no more desirable end for their use. These Everlastings produce in such abundance that a few plants will yield thousands of flowers. Gathering them whilst young to have the colours bright, drying them, and arranging them to fancy, with taste, is a delightful occupation. I send you this day, by rail, two small boxes, carriage paid, to London; one box (the flat one) containing two wreaths, and the other box a small bouquet. Though not ecclesiastical in design, they are appropriate for church-work. The flowers are all natural Everlastings, and the varieties of grass either cultivated or wild. I hope they will be as pleasing to your eye as your excellent Magazine is amusing and instructive to my mind. You will see a difference in the style of the wreaths, one being jewelled, that is, the flowers tastefully mixed, and the other with the flowers and grasses grouped. The hands that made these and the bouquet are no doubt capable of improvement, both as to the arrangement and mechanical mountings, and would be pleased to have your independent opinion and critical remarks thereon recorded in your excellent GARDENER'S MAGAZINE. The flowers and grass are all home-grown or wild. My love for flowers, and their use in tasteful decoration, is my apology for intruding this upon you.

Paignton, Devon.

VIVIAN OSWALD WALMESLEY.

[The bouquet and two wreaths forwarded by Mr. Walmsley are the best examples of grouping everlastings and grasses we have ever seen. They are extravagantly beautiful, and they justify all he says about their suitability for Christmas decorations, and their immense value as beautiful objects, considering how easily they may be gathered or grown. The perfection of our friend's work leaves us but small room for suggestion, but it has occurred to us that several varieties of British ferns, if carefully dried when in their most brilliant tones of green and without blemish by wind, would be very useful to intermix with the flowers, the mere points of the fronds being allowed to peep out amongst them. Then all our native species of heath retain their colour perfectly when dried, and have all the elegance of outline that is desirable for this purpose. And why should we not use any of the greenhouse heaths we can get hold of, especially such as *E. hyemalis*, and others that have small flowers? There is a vast field for the selection of subjects when we have made the most of the everlastings and the grasses.]

THE HEALTH OF GARDENERS.—I read with some concern your statement that there must be something wrong in the atmosphere of the plant-houses at Kew—that those whose duty it is to be much in them were one by one overtaken by illness. It is not at Kew only that cultivators of hothouse plants suffer. I think a simple view of the case is, that the houses are so very hot, and the air outside so very cold, that the lungs cannot bear the daily or hourly transition from the one to the other. Now the season which greatly increases this danger has returned, and I hope a word or two may be useful. I myself have frequently suffered from colds caught in this way, having to turn out late on a cold winter night, and run a couple of hundred yards to attend to the fire and return. But, of course, the danger is indefinitely in-

creased when it must be borne at any or all times of the day or night, and, of course, no weak constitution can bear it. Now why do not the gardeners so exposed wear some sort of respirator, which they can put on whenever they go out? I am sure that nearly all the evil consequences would be thus avoided. Almost any sort of a thing will do, provided it be large, thick, porous, and light, all which conditions are easily attained in a kind of respirator which I only heard of for keeping London fogs out. It is simply a little apron, about six inches square (if it is larger it will do no harm), the material to be good stout baize. It is, of course, tied round the head, so as to cover the mouth, which is generally sufficient, but there will be no trouble, if need be, to tie it over the nose also. Besides this, if you do not feel it worth while to make such a contrivance for use, you may just hold your coat-sleeve to your mouth and face, which will answer nearly as well for the time, and I am sure that the benefit would be worth any amount to those who are thus susceptible. I hope these few words of mine may be of use, and I feel sure that no one who tries the thing will fail of a great benefit. It is especially important that cultivators of orchids should be careful of their health, for they are exposed to great risk at this time of year.

Chiswick, W.

A. DAWSON.

SUGAR PEAS.—Referring to the GARDENER'S MAGAZINE p. 492, I notice that you boiled the varieties of *Sugar Pea*. In this neighbourhood we pickle them, just in the same way as French beans, and think them excellent. The best are the tall-growing large-podded varieties.

THOMAS PIERPOINT.

Warrington.

Literature.

The Floral World for December contains articles on the Chrysanthemum in 1867, the management of the villa kitchen garden, the varieties of raspberry and blackberry, the preservation of greenhouse plants during winter, the cultivation of cacti, the preservation of fruit, the centigrade thermometer, and other matters of immediate interest and importance.

The Intellectual Observer for December contains an elaborate paper on the eggs of insects, by Mr. Jabez Hogg; a most valuable and interesting paper on rain, by Mr. R. A. Proctor; a continuation of Mr. Jewitt's gatherings from the grave-mounds of Derbyshire; some biographical memoranda of Sir Isaac Newton, by Mr. Joseph Newton, of the Mint; and shorter papers on the white ants of India, fur-bearing foxes, the structure of annelids, &c.

Replies to Queries.

Physiology of the Tulip.—C. J. H.—The changes that take place in bulbs during the time they are apparently dormant are pretty well known as to their leading features, but have certainly not been studied with the care and earnestness they deserve. In all the literature of horticulture, we remember nothing pertaining to the subject equal in interest and value to what is said in Mr. John Slater's "Amateur Florist's Guide;" yet the subject should be attractive alike to the botanist, horticulturist, and the man of universal science, who cares nothing for specialities, for it promises to unfold to us some of the mysteries of life. The following is Mr. Slater's article on the subject: "The tulip has been cultivated for upwards of two centuries, and notwithstanding its peculiarities none have ventured to analyse it; and although the *why* and the *wherefore* is known respecting nearly all varieties of plants in cultivation, yet in the tulip all is dark and obscure. It replenishes itself every year by making a new bulb, and contains its increase within the folds of skin, as well as occasionally on the outer cuticle, and it is wonderful to watch its onward progress. It is found, upon examination, that the bulb of the tulip does not remain dormant when taken up, but is gradually making progress; and the assertion that the flower bud is made before the foliage lies down is proved by ocular demonstration to be false. Cut a tulip bulb in July, and you will not perceive the slightest appearance of either the new bulb or the flower bud, but about the second week in August some progress will have been made. The germ is then small, only one-eighth of an inch in circumference and three-sixteenth parts of an inch long. In September (the 20) the germ will then be nearly three-fourths of an inch long, and three-eighths in circumference, and the flower bud perfectly formed, and one quarter of an inch long. The appearance of the skin next the germ is quite white and of a woolly appearance, caused, no doubt, by the juices of the skin next the young bulb having been absorbed in nourishing the new growth, and contains scarcely any moisture, and is like the pith of a branch of elder or a rush when cut up the centre. In October the whole of the petals, stamens, and flower stems are formed, and measure one inch long. From this period to March very little progress can be seen, but at the latter end of the month the two outer skins of the bulb will be decayed, and the germ of the new one at the base of the flower stem will have increased to about one-twentieth part of the size of a blooming root, and no stamens as yet perceived. In fourteen days, from this period, not only will the stamens be seen, but also a streak of black up the centre of the anthers, which no doubt is the formation and concentration of the colouring matter for them; after this the stamens gradually increase from one-sixteenth part of an inch to nearly their full size. In thirteen days from (April 13 to 26) the beam in flamed flowers shows itself, and the anthers have then assumed their natural colour; yet the stamens are only one-eighth part of an inch long, whilst the anthers have been from October their natural length, and perfectly white; and the new bulb is one inch and an eighth long, and two inches in circumference. The bulb grows rapidly when in bloom, and still more so after the flower has been cut for exhibition, or when decayed and cut off, and the whole of the five circles of skin have become totally decayed, and the flower stem which was in the very centre of the bulb is now outside. I have now given the progress of the tulip bulb, flower, &c., but the most important and most mysterious operation which nature performs, by the transfusion of colouring matter into the petals, is what we all feel much curiosity to ascertain. I have never read of any botanical writer who has ventured an opinion on the tulip, and it is highly necessary that all should endeavour to ascertain, by actual experiments, how, and in what manner, and when, this colouring matter is infused into the petals. For this purpose a powerful microscope is necessary, and a number of bulbs planted, and at stated seasons examined. It is rather singular that the stamens should not be seen for many months, whilst the anthers are of their natural size in October, and, as I previously observed, a streak of black is seen up the centre of the stamens. As soon as nature has performed this operation, the stamens grow rapidly, and it is very

probable that the colouring matter has been thrown into various portions of the flower whilst the stamens were not perceivable, and after this act, then the communication is immediately cut off, and the stamens elongate. The tulip petal consists of two skins and a fleshy substance between them, and in a byblomen is quite white, so that the outer and inner skins must be perfectly independent of each other, and each have its separate vessels containing colour, or else why should the outside of the petal of the flamed flower be much more correct in its distribution of colour than in the inside. It will often be seen that the inside has a much greater mass of colour than on the outside. The ground on the outside will be seen in beautiful stripes in the feathering, whilst in the inside one it will be nearly a self colour, and very little ground. The same will be observed in a feathered flower. A question that wants solving is, how does the colouring matter get to the edge? Is it by veins and arteries, similar to those in our own bodies, all united and serving as conduits to conduct the colouring matter to its proper place, or is it conducted by little cells of colouring matter all connected together? This last appears probable, from blotches of colour being in the centre of the petal, which the rays of the sun has caused to flow similar to sap in trees, and a cold night coming on has completely stagnated this colour, and consequently it has become a blotch by the communication being cut off. I once observed in my offset bed a singular thing which may serve to elucidate this suggestion. One frosty night the foliage was discoloured by the action of cold, and on the rays of the sun shining upon them, the foliage assumed the appearance of hemp with its numerous fibres in a state of decomposition. This arose from the sap having been frozen, and upon thawing, it burst, thus cutting off the very means of conveying nourishment into the foliage. There is some analogy in this to what I have before suggested as to colour, the vessels containing colour having been frozen, no warmth will cause it again to become fluid. We all know that if the beds are kept at night warm by covering, so as to exclude frost, the marking of flowers is much more correct. Another very important suggestion arises,—is the colouring matter in the petals in October, or at what period does it get into them, and from what source? It is a singular fact that a bud of a tulip was partially cased in the foliage until the latter end of April, and when the foliage was disengaged nothing unusual could be seen, yet, strange to say, the foliage which had touched the bud coloured as the bud coloured, and eventually was as dark as the bloom, only on a green ground instead of a white one, and as perfect a *fac-simile* as if an impression had been taken from an engraved copper-plate. Now it is evident that the colour must have exuded from the skin of the petals, or else it could not have left an impression, only so far as it had come into contact. A carnation petal will, upon examination, be found to be similar to the tulip, a white fleshy substance being between two skins; and as a proof that the colouring matter must be very slightly protected, the colours will run in wet weather if not covered with something to prevent the rain falling on them. It is extremely probable that the colouring matter rises from the root and flows up the flower stem to the bud, and there divides into two channels, one to supply the outer portion of the bud, and the other the inside one. If this were not the case, how does it happen that there is generally more colour in the inside than on the outside? Again, if there are veins in the fleshy intervening substance, it would naturally be supposed that the colour would be equally distributed instead of being so unequally. In some flowers large masses of colour are found on the centre of the inside petal, as in *Catafalque Supérieure*, *alias* Rising Sun, which, after a few days, nearly become a self colour. I once noticed a very curious circumstance in a San Joe, *alias* Captain White, which opened almost a self, but in a few days it was pretty generally feathered. This must have arisen from the colour not having flown into the receptacles at the proper period, perhaps from the coldness of the atmosphere. That the stamens are not conductors of colour, is evident from their being the same colour throughout—if in a bizarre, yellow—a rose or byblomen, white,—and the tinge which is sometimes seen on the top of them is only slightly or thinly spread on them. Take a knife or other sharp instrument and scrape one, and you will soon come to a pure white or yellow, which is a convincing proof that in a majority of cases it arises from the pollen running down upon them, which, taking a portion of colouring matter with it, discolours the stamens to a certain extent, the same as perspiration in running down a person's face, not over clean, shows a channel which gradually assumes its natural colour as the moisture decreases; the same in the tulip, the colouring is heaviest at the top and gradually shades away."

Orchids in Wardian Case.—J. M.—The best orchids for a Wardian case are *Lycaste Skinneri*, which produces large flowers finely flaked with crimson; *Barkeria elegans*, elegant spikes of lilac flowers; *Sophronites grandiflora*, pretty deep red flowers; *Epidendrum vitellinum*, brilliant orange-red flowers; *Goodyera discolor*, the leaves of which are extremely ornamental; *Huntleya marginata*, pinkish purple and white; and *Cypripedium insigne*. Many more may be found, but we should give these the first place in the list of desirable species. We think your plan worth a trial, if the case is kept in a warm room all the winter.

W. R. H.—Your plan will answer admirably. A B C D being on a lower level than the span is an advantage; the tank being above the general level is another advantage.

Amaryllis.—Anxious may start these at any time after they have had some amount of rest. The routine cultivation is of the simplest character. Shake all the old soil from their roots, and repot in the best mellow loam you can procure, with an equal bulk of rotten manure, but without sand or peat, both of which are useless to the roots of *Amaryllis*. Complete drainage is most essential. When the potting is completed water moderately, and place them in a warm house in the fullest light; thereafter treat them generously until the leaves begin to turn yellow, and then gradually dry them off.

Asters for Exhibition.—S. E. A.—The best are the French, the German, and the cockade asters.

Azalea Propagation.—M. E. H.—Very many of the choice varieties are propagated by grafting, for which purpose seedling stocks are grown in quantity. To increase them by cuttings, take the young shoots when they have just finished their growth but have not begun to get hard; cut them into lengths of 2½ inches each, remove a few of the lowest leaves and insert them firmly in sand, and cover with bell-glasses; keep them moist enough to be always fresh and no more, and on a gentle but steady bottom heat, and every one will root. The only matter of importance is to take the cuttings at the right moment; if too hard or too soft, they will not strike.

P. S.—What you refer to is of no consequence to the sense at all; it is a whim of the writer; those who can read it enjoy it, and those who cannot are none the worse off.

The Fall.—R. W., of Birkenhead, asks what is to be understood by the phrase "late in the fall of the year," and presses for a reply on the ground that the meaning of the phrase is a matter of dispute. Well, it is not without interest, perhaps, to some besides the disputants. As a rule, the term

"fall" is not used in this country. It is an Americanism, and the equivalent there of the word 'autumn' here. Supposing the Americans borrowed it from us (as many of their phrases are borrowed without our knowing it), we refer to Bailey's dictionary and find no entry of it there. Hence we conclude that "fall," as the equivalent of autumn, is not an old English phrase. None of the modern English dictionaries have it, but it may be in Webster, which we have not at hand to refer to. It has no place in Todd's Johnson, nor in Richardson's dictionary. We are compelled, therefore, to receive it precisely as used by the Americans, and with them it implies the season when the leaves fall, when the sun declines, when the temperature decreases, when the year is wearing out. But, so far as we understand it, the winter is never designated "the fall;" therefore late in the fall must be just that period of the year when autumn is ending and winter is to be expected. If the term is used here, we should expect it to be applied to the latter part of November, as the leaves are then down, and we usually have frost and snow, and other signs of the real commencement of the winter. If understood as applying to the end of the year, the term is ridiculous; for why say "fall" when "year" would be more expressive? The last week in November we consider to be late in the fall, and the first week of December beyond the fall, and never to be understood by such an expression. Since the foregoing was written, we have been favoured with the following references, for which we have to thank the printer: "AUTUMNUS . . . Autumn, the time from the 6th of August to the 6th of November; *the fall of the leaf*; the season of the year opposite to spring; the time of harvest and vintage" (*Littleton's Eng.-Lat. and Lat.-Eng. Dict., circa 1736*).—"Fall . . . automne" (*Cassell's French Dict., 1st edition*).

Maiden soil.—W. D.—It matters not whether the soil be clay, sand, loam, or what else. If it has not been under tillage before, it is called maiden soil. So when land is taken for gardening purposes that has never been so used before, it is generally termed maiden soil, in the sense that the spade now enters it for the first time. To say that land has never been cultivated before is of course nonsense, no one can say that even of a bog. No one can say absolutely what is and what is not maiden soil.

Propagation of Heaths.—Ernest.—To propagate *Ericas* is a slow and rather tedious business, but there is nothing difficult about it. The most important point being the exercise of constant watchfulness and care. Procure some pots and bell-glasses to fit. Those made by Paskell, of West Kent Potteries, Chislehurst, are admirable, and the most convenient size is 12 inches diameter. Put in a third depth of drainage consisting of broken flower-pots. Over the drainage spread chopped sphagnum one inch deep, and then fill up to within two inches of the brim with a mixture of peat and silver sand equal parts, and lastly one inch (or more, even to the brim) of clear silver sand. The next thing is to carefully wet the soil all through, and the best way to do it is to stand the pots in water, which is far better than pouring water on them. The grand point of all is to take the cuttings at the right moment, and that is when the wood is about half-ripe, or in other words when it is beginning to turn brown. Of course this does not take place with every variety at the same season; therefore if you propagate heaths you must be always at it. Never mind; you may get good cuttings from almost every kind of heath in June, July, August, and September; and those are the months to be busy with them. Let the cuttings be from one to two inches long; the bark must not be bruised, the leaves nearest the base must be removed, and they must be inserted in the sand so that they will stand firm. As to distances, put them as close as possible. Take off the bell-glass occasionally and wipe it dry, and when water is needed dip them.

VENTILATION OF ROOMS.—Let us consider the condition of one of our sitting-rooms in winter. The fire burns brightly, and, as a consequence several thousand cubic feet of air, are hourly drawn up the chimney. Whence comes the air to replace this loss? The chinks in the door and windows are constantly admitting a stream of cold air, and thus ventilation is effected at the expense of draughts, which produce chilled feet, catarrhs, and so forth. Still, ventilation takes place. We are now supposing that the lamps have not been lighted; and we think everyone's experience will show that most rooms in which a fire burns well are tolerably well ventilated (*quoad* the amount of air) till, say, the gas is lit. The moment the chandelier comes into operation (supposing it to contain five ordinary fish-tail burners), the state of things is changed, and in the course of half-an-hour or so this change becomes distressingly perceptible. Why?—People never ask themselves this question. Because twenty-five additional pairs of lungs have begun to use up the air, each burner in use being equivalent to about five persons. This is the great defect of our modern dwellings. In olden times ventilation must have been far better than it is nowadays, when our demand for light is followed by so large a consumption of our breathing air. And why, again, is there this distinction between the fire and the gas? The fire uses up air, but it also acts on the *vacuum* principle, and produces a draught of fresh air in the room; but the gas does not. What, then, is the remedy? Convert the gas into a fire, provide it with a chimney to convey out the products of combustion, and compel it thus to ventilate the room as thoroughly as the fire does. Many methods of doing this have been suggested, but the one which has been found most satisfactory in operation, and of which we ourselves can speak in high terms of praise, is that which is known as the Ventilating Globe Light. Here, again, arises the question, Can ventilation be effected more easily in a small room than in a large one? This is a problem of some gravity; and, in our opinion, its only correct solution is that given by a mathematician, Professor Donkin, F.R.S. On this point we differ from both Dr. Smith and Professor Parkes. The former would, of course, allege that the smaller space is more convenient. The latter contends that a larger apartment is more easily ventilated. According as we view the matter from different stand-points, each is right, though both, in our opinion, are in some respects in error. In a small room, with a very powerful out-draught, the quantity of air demanded per minute might be smaller than that demanded for a larger one. Again, in a large room we have the advantage of a large supply of air to dilute the poisonous gas. A little reflection, however, will show that in both cases, unless the increasing impurity be kept under, the rooms will, at a certain period, become uninhabitable. This, we think, is a point which has been overlooked by Dr. Parkes. Those who read Professor Donkin's observations on the subject can decide whether we are right or not; but we confess that we cannot see what the size of the room has to do with the quantity of air to be supplied per hour. It is a matter for arithmetical calculation, but it seems to us by no means difficult to show that whether the room be large or small (assuming it to be constantly in use) the quantity of air introduced must be the same in order to reduce its atmosphere to the standard demanded by hygiene.—DR. LAWSON, in *Popular Science Review*, October.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1867.				M. Imp. avg of 43 yrs.	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D
			Flas.	Sets.	rises.	sets.	Barometer.	Thermometer.			Rain.	Growth					
1867			h. m.	h. m.	h. m.	h. m.	mx.	mn.	mx.	mn.	mf.						
15	S	3rd Sunday in Advent.	8 2	3 49	9 8	10 55 a.m.	29 45	29 37	51 38	44.5	13	40 3	Lycaste Skinnerii, m	Guatemala.	15		
16	M	Length of twilight, 2h. 1m.	8 3	3 49	10 24	11 28	29 89	29 66	50 25	37.5	00	40 1	"	alba, m	16		
17	T	Length of night, 16h. 14m.	8 4	3 49	11 38	11 56	30 18	30 14	52 42	47 0	01	39 9	"	ronoa, m	17		
18	W	Samuel Rogers, poet, died, 1855.	8 5	3 50	a.m.	0 p.m.	30 21	30 12	53 40	46 5	00	39 5	"	superba, m.	18		
19	Th	Day breaks at 6h.	8 5	3 50	0 49 a.m.	0 50 p.m.	30 28	30 21	56 20	38 0	00	39 0	Leptotes bicolor, m	Brazil	19		
20	F	Twilight ends, 5h. 57m.	8 6	3 50	1 58	1 15	30 43	30 36	39 29	34 0	01	38 8	Zygopetalon brachypetalum, m	"	20		
21	S	Napoleon III. elected President, 1848.	8 6	3 51	3 7	1 41	30 28	30 27	40 26	33 0	00	37 9	"	crinetum cæruleum, m	"	21	

The Gardener's Magazine.

SATURDAY, DECEMBER 14, 1867.

THE FRUIT AND VEGETABLE MARKETS OF LONDON are things of which no one can be proud. The enormous trade in these articles is perpetually burlesqued by the wretched character of the places in which it is carried on, and it is almost a marvel that the trade is carried on at all, or that a single inhabitant of the metropolis can ever be sure of purchasing a potato. What is Covent Garden market but a miserable sham? It is, in fact, not a market, but a rough rendezvous. At Spitalfields we are reminded of the times when there were market gardens a stone's-throw distance from Hoxton; for since that time the market has scarcely changed, except perhaps to become dirtier and darker, and more and more busy. Farringdon market would be a credit to the city were it covered in, and its northern side were galvanized into life; but it is anything but what it might and should be. At the Borough market a great trade is carried on, but the place is inconveniently situated, and is in no respect a credit to the district which is principally benefited by it. As for Bloomsbury, Clare, and Fitzroy markets, we need not mention them, for they exist more in name than in fact, and are not much better (in some respects worse) than the extemporized markets of the industrious costers, whom the police still graciously permit to occupy sundry bits of roadside waste in various parts of the metropolis. Take the four principal markets in which vegetables and fruits are sold, consider the extent and purchasing power of the metropolis, and say, have we any reason to be proud of these markets,—these dog-holes for chaffering, these make-believe shelters for honest people who come together to sell and to buy? Those who have travelled can best answer the question. Some amongst our readers have seen in provincial towns of small extent spacious, cleanly, well-ordered markets, with lofty roofs of glass to screen the people and their goods from the weather, and with beautiful exteriors that constitute important embellishments of the towns and cities that have taken such good care of themselves in this respect. Who has ever been startled or enraptured with the façade of Covent Garden market? Indeed, we do not know if it has a façade, unless we may call the semi-frontage that looks towards Drury Lane by such a name.

The other three markets are still less ornamental, and in respect of outside show contribute in no degree to the adornment of the metropolis. But we might be careless of appearances were the traders and their wares cared for as they should be. The central avenue in Covent Garden is always stored with the most sumptuous fruits and flowers that the skill of man can produce in these climates; and there is a footway of about ten feet in width for pedestrians who desire to see them and make purchases. It is simply absurd. The real market is in the open air, and in such bitter weather as we have had lately carters, agents, porters, salesmen, buyers, have all been coughing together, and contracting for catarrh and consumption while bargaining about celery and potatoes. You shall see any day just now great batches of delicate stove and greenhouse plants set out on cold pavements, in a killing draught of wind, perishing at a much more rapid rate than they have been grown, and those that remain long unsold are soon past the possibility of being sold, for the cold kills them and there's an end. We have seen dozens of poinsettias lately melted down by frost into tufts of woolly-looking rags; and if these are beneath notice as furnishing an argument for a better market, it may not be amiss to reflect upon the bodily sufferings of persons whose avocations compel them to frequent the market, and endure exposure to the weather at all times and seasons. The rental of Covent Garden market is sufficient to insure for the whole of the trade carried on there decent shelter and convenience; and if the frequenters of the market were to combine their forces, they might effect a great saving to themselves by constructing elsewhere a market of their own, in which to follow their business in some degree of comfort.

It is with great pleasure we hear that the Society of Arts has directed its attention to this important subject, and, on the recommendation of the Food Committee, has begun to collect information with a view to promote the establishment of

additional markets. On every occasion that we have made remarks upon the metropolitan markets, we have pointed out the necessity that exists for a few suburban markets, to serve as centres of trade for the principal districts at a distance of from two to three miles from the heart of the City. It would be far better to divide than to concentrate the trade. London has become too vast for any central spot to be of service to the whole, and Covent Garden may well be left to serve for a reduced trade, rather than for any enlargement to take place now that half a dozen districts are in need of markets of their own. We would point to such spots as Dalston Junction and Camden Station on the north; Stepney Green on the east; Kensington Station on the west; and the Bricklayer's Arms Station on the south of London, as representing very nearly the centres of populous localities in need of markets. Now that the City of London is pushing forward the splendid new meat market on the site of Old Smithfield, and is about to construct another new market expressly for the sale of foreign cattle, it is time the producers of market fruits and vegetables made a stir in their own behalf for increased and improved market accommodation. How it is that they endure such rough usage as they are subjected to, is one of the mysteries of the nineteenth century.

Mrs. PINCE'S BLACK MUSCAT GRAPE has more than justified the high praises that have been bestowed upon it. We have received, a few weeks back, from Messrs. Pince and Lucombe, of the Exeter Nurseries, a handsome bunch which was cut before the colouring process was completed. The berries, though unfinished as respects colour, have a superb flavour, highly charged with the peculiar muscat tone for which especially this grape is valued. We are informed by Messrs. Pince and Lucombe that they have been compelled to cut all the fruit earlier than they wished to do in consequence of the complete exhaustion of their stock of young canes, and the necessity, therefore, of immediately propagating for the next season's supply.

CONTINENTAL HONOURS.—We shall endeavour shortly to enumerate all the winners, amongst English exhibitors, of prizes at the Paris Exhibition. For the present, we can only announce that Messrs. Veitch and Son have gained one of the large gold medals; Messrs. Sutton and Sons, a silver medal; Messrs. Downie, Laird, and Laing, a bronze medal for pansies; Messrs. Shanks and Son, the only medal awarded for lawn mowers.

NEW PARK AT PORTSMOUTH.—The *City Press* mentions that, through the liberality of the Queen, an area (which is Crown property) of about fifty acres of meadow land, dotted with fine elm-trees, at Portsmouth, is to be given over to the people, who will now have a Victoria Park, "on payment," as the Treasury missive has it, "of a rent consistent with precedent in similar cases."

UTILIZATION OF LONDON SEWAGE.—Mr. J. C. Morton has informed the *Times* that the preliminary experiments with sewage applied to the Maplin Sands have quite fulfilled all reasonable expectations. He is satisfied—and few men are better qualified to pronounce an opinion on such matters—that the sewage will enable very large crops of Italian rye-grass to be taken off Maplin Sands, and already the application of sewage to poor light sandy and gravelly soil has resulted in excellent crops of corn, roots, and rye-grass. Mr. Morton's experience is highly encouraging, as it gives some reasonable hope that the Essex sandy wastes will by-and-by supply milk and meat to London in abundance, as a return for that which threatened to convert the Thames into a pestilential sewer. This is good news, far better than even of a battle gained in a just cause, and full of promise of ameliorating the physical evil with which we are called upon to keep up so stern a struggle.

AN INK FOR GLASS.—M. Kessler, of France, has, by means of hydro-fluoride of ammonia and hydrochloric acid, properly thickened, made an ink by which, with any pen, ineffaceable characters can be traced on glass. This ink will be of service to the chemist and apothecary in labelling bottles and marking gradations on glass, and no doubt will also be of great service in museums, and possibly in gardens also.

ABYSSINIAN EXPEDITION.—We learn from *The Lancet* that considerable quantities of lime-juice will be forwarded to Abyssinia for the use of the troops, and that, on the recommendation of a medical officer of the Guards, a supply of the extract of wild lettuce will also be sent. This drug is a valuable sedative and anodyne, which has less effect on the nervous system than opium. It is prepared from the milky juice of *Lactuca virosa* chiefly, but sometimes also from *L. elongata* and *L. scariosa*, all of which are more powerfully narcotic than *L. sativa* and its garden varieties.

LONDON CEMETERIES.—Twenty-one cemeteries within the metropolitan district supply 577 acres appropriated to the burial of the dead. There have been already about half a million interments in these cemeteries, and at least 40,000 burials are added to them every year. Some of the cemeteries are getting much fuller than others. In the 33 acres provided by the City of London and Tower Hamlets Cemetery Company 113,173 burials had taken place at the close of the year 1865; the interments there are at the rate of about 10,000 a year—one-seventh of the whole number of the deaths in the metropolis in a year. In the Abney-park Cemetery of 33 acres there had been 38,639 burials at the end of 1866; and in the 27 acres of the St. Marylebone Cemetery, at East-end, Finchley, only opened in 1865, there had been, in the middle of the present year, 28,092 interments. In another cemetery at Finchley, belonging to St. Mary's, Isling-

ton, burials are proceeding at the rate of 100 per acre every year. The drainage of the metropolitan cemeteries is generally into the public sewer, but not always. There are instances of drainage into an open stream, a brook, the Wandale, the Brent, the Thames. In St. Marylebone cemetery, Finchley, drain-pipes are laid at the bottom of every grave, discharging into a ditch which runs into a small stream; but little or no water passes out of the cemetery, in consequence of nearly every grave having planted on it a tree or shrub. Graves reopened show roots of trees more than 16 feet deep. Several kinds of willow and poplar trees planted on graves have this year made from four feet to six feet of wood.

A DISPUTED JUDGMENT.—As judges at horticultural shows are known not to be immaculate (and usually do not profess to be), and questions are frequently raised about the validity and legality of their decisions, the following report of an action tried at the Manchester County Court, on the 8th of November last, may prove interesting to many of our readers. It is true this action related to a judgment at an agricultural show; nevertheless, it illustrates the law and equity of judging in general, and ought not to pass into forgetfulness. This action was brought by Mr. Howarth Ashton, of Prestwich, against the Worsley and Swinton Agricultural Society, to recover £3, the amount of a prize offered by the society, at its show in August, for the best cob mare or gelding not exceeding 14 hands 2 inches in height. Mr. R. B. B. Cobbett appeared for the plaintiff, and Mr. Edwards for the defendant. The judges at the show in question awarded the first prize of £3 to the plaintiff; but on a protest subsequently being made by another exhibitor that the mare was above the prescribed height, the matter was referred to Mr. Greaves, of Altrincham, who was described in the prize list as the "veterinary referee." The mare was measured by him, and found to be 14 hands 2½ inches in height, but the plaintiff then required that the animal's shoes might be taken off, and this being done, its height appeared to be 14 hands 1½ inches. Mr. Greaves decided against Mr. Ashton, but the plaintiff insisted that he was entitled to the prize, and hence this action. The real questions which were submitted to the Judge (Mr. Owens) were: 1, Whether the mare came within the class in which she was shown; 2, whether, if she was above 14 hands 2 inches with the shoes on, the plaintiff was justified in requiring that the measurement should be taken with the shoes off, or, in other words, whether the height of a horse was to be taken with or without its shoes; and 3, whether the decision of the veterinary referee was binding on all parties under the rules of the society. After hearing the evidence on both sides, the Judge said that, as to whether the mare came within the class, he decided in the affirmative; because, in the same way as the height of a man was to be taken without his shoes, so the height of a horse, on such words as the society's rules contained, was to be taken without its shoes. If it had been proved to him that the contrary was the regular custom, that would have altered his decision. The other question was whether Mr. Greaves having decided that it did not come within the class was to be conclusive against the plaintiff; and it had not been proved satisfactorily that Mr. Greaves was to give a final and binding decision upon a matter of this kind. It was stated in the prize list that he was the veterinary referee, but it was difficult to ascertain what the real meaning of that was. There was another question, whether, supposing the referee's decision was to be final, the question of the height of the horse would come within his office; and it seemed that this was by no means clear. Mr. Ashton's mare had been decided by the judges to be the best animal; but it had been set up that the veterinary referee had given his decision the other way. He (the Judge) could not hold in favour of the latter contention, unless it had been clearly made known before the show that the veterinary referee was the man who gave the final decision, even after and independent of the judges; and this was a point which had not been proved before him. He therefore decided in favour of the plaintiff.

IPSWICH HORTICULTURAL SOCIETY.

The Annual General Meeting of this Society was held on Thursday, December 5th. The Chairman (Mr. A. Porter) opened the proceedings by reading an abstract of the receipts and expenditure of the past year, which were as follows:—

1867.		RECEIPTS.	£	s.	d.
To balance in hand last year	71	13	10
Subscriptions received	136	0	6
Cash taken for admission (1st show), May 24,	1	4	0
ditto ditto (2nd show), July 4,	51	10	3
ditto ditto (3rd show), Sept. 5,	14	17	0
Cash received for letting marquees	14	17	0
Ditto received for letting refreshment stalls	4	0	0
Interest received for money invested	3	6	0
Donation from East Suffolk Militia Band	1	0	0
Ditto from 1st Suffolk Rifles' Band	1	0	0
			£299	13	7
1867.		EXPENDITURE.	£	s.	d.
Paid in prizes	108	14	6
Remuneration to Judges	10	8	0
Expense of bands	44	6	2
Advertising and printing	21	8	0
Hire of marquees	6	0	0
Hire of storeroom and committee room	4	12	0
Preparing and fitting up shows	29	10	11
Postage and stationery	1	11	7
New marquee for Secretary, and repairing marquees	10	6	9
Insurance of stock to Christmas, 1867	0	18	0
Hire of Arboretum (1st show)	1	10	0
Secretary's salary	10	10	0
Collector's commission on subscriptions	13	12	0
Ditto ditto upon letting marquees	0	18	9
Balance in hand	35	6	11
			£299	13	7

Mr. W. SMITH proposed, and Mr. OLIVER seconded, the adoption of the report, which was carried unanimously.

The CHAIRMAN said that the results of the year's operations had indicated that the greatest economy had been used, and, considering they had had a succession of inauspicious show-days, it was a subject for congratulation that

they had such a balance as £35 (hear, hear). The first show of the season was held in May, and although Nature usually smiled at that period, however, on this occasion the day was wet and boisterous, and the drenching rains prevented the society getting a good beginning for the year. Gardeners were not to be daunted by weather, and frequently lost a night's rest to secure the objects they sought; but when their show-days came in wet, they must all succumb to the consequences. The forthcoming year promised to be one of great importance, inasmuch as the Suffolk Agricultural Society's meeting was to be held in Ipswich. This show would bring a dense influx of visitors, as cattle would again be permitted to be exhibited; thus an opportunity would be given for the Horticultural Society to hold a show of a distinguished character. In order to do this, it would be necessary to enlarge their prize-list, so as to give such prizes as would attract the great horticulturists and floriculturists from a distance, and must practically constrain people to visit the show by the excellent character of their exhibition. But if they have a grand show of this description, the burden must not fall upon the society's finances, which were not sufficient for such an undertaking; but as their prize-list was (unavoidably) a meagre one, he would suggest that they seek assistance from outside. Considering the long standing of the society, its position, and the good which it had accomplished, he believed there would be no difficulty in getting a number of local gentlemen to put down their names as guarantors for the payment of any extra expense they might be put to in offering further important prizes, although they might not be called upon to pay anything; for, apart from the number of visitors to the town, there was the fact that the show would probably be continued for two days. It would be well also to invite eminent horticultural and floricultural exhibitors from a distance; but they would not be expected to come unless the prizes were sufficiently large. If they were favoured with fine weather, there was no doubt that the finances of the society would be improved considerably. If they did give a show concurrently with the Suffolk Agricultural Meeting, they were bound to make it one that visitors really could not resist seeing, and such as would satisfy their minds that they had done justice to themselves and to the public. The committee had never desponded, it was unpropitious weather only which had caused them to be left with so limited a balance.

The Vice-Presidents were re-elected, with the exception of the ex-mayor, who withdrew, but continued as a member.

Mr. PORTER proposed that Mr. W. Groom, an ardent horticulturist and floriculturist, should be appointed honorary secretary for the ensuing year.

Mr. OLIVER seconded the motion, which was carried with applause.

Mr. GROOM, in acknowledging the compliment, said he had to thank them for the honour in appointing him Honorary Secretary, trusting his humble assistance coupled with his limited experience in horticulture might prove beneficial in promoting the interests of the society. He regretted to find that the balance in hand was considerably less than it had been since he had known the society, but hoped next year to be able to congratulate them on being again one of the most flourishing societies in the kingdom. It is generally admitted that horticultural exhibitions contribute some benefit to most branches of commerce, more especially in an improving town like Ipswich, and trusted they might meet with more liberal support than they had done during the last few shows. There was one thing he should like to see better encouraged, that was Cottage Gardening. Nothing enlivened the appearance of the cottage more than a neatly kept garden, or a few clean and healthy window plants, the cultivation of which tended to promote happiness to the labourer, and improved him morally and physically. He should therefore feel much pleasure in offering prizes of 7s. 6d. and 5s. for the best collection of window-plants grown and exhibited by cottagers. This being favourably received, six other similar prizes were offered by the Secretary, Mr. LONG, and Messrs. REA and PACK.

A vote of thanks being moved to the Chairman, the proceedings terminated.

A NEW MODE OF PRODUCING ICE.—Ice has passed from the list of luxuries to that of necessities in all great towns, and an enormous traffic, carried on in large ships which go long voyages, supplies even the tropics with the crystallized winters of the North. But when ice cannot thus be obtained, a good way of making it is most valuable both for medicinal and domestic reasons. Of course, every chemist knows a dozen methods of freezing water. The fault of the ordinary recipes is that freezing powders can never produce more than a thin film or crust of ice. Recently, however, a most efficient and satisfactory process has been patented by Mr. Edward Welch, of Harrow—one of the many able students turned out by the engineering department of King's College. It consists of an air-pump with double action, communicating to a cylinder, with concentric chambers surrounding the receptacle of the water to be frozen. The water occupies the central space; next is a circular chamber, containing ether; then a third, filled with powdered charcoal; then a fourth, called the condensing chamber; and, finally, a coil of small tubing inside a larger pipe wound round the last space. The arrangement is of necessity hard to comprehend without a diagram, but the action is so simple that it will go far to explain the nature of this most ingenious machine. The pump, when set in motion, produces a vacuum in the ether chamber; the ether rises in vapour towards the pump through one of the union pipes, producing a great degree of cold; a compression pipe from the pump forces it back to the condensing chamber, and also through the small tubing around this; and while the compression reduces it again to the liquid form, a stream of water through the outer pipe of the condensing coil carries off the heat thus engendered. Meantime the partition of powdered charcoal most effectually cuts off all possible communication of the disengaged heat to the ether chamber or the water which is to be frozen. There is a receptacle fitted with a float-valve which takes the ether, now reliquified, and discharges it back again into the vacuum chamber, so that, once set in motion, not a particle of the costly spirit escapes from the machine. It rises in vapour, freezing the water; is compressed back again; reliquified; its caloric abstracted; that caloric taken away altogether by the outflow of water; and the transformed vapour then restored to its original duty, with an unbroken and most unfulfilling succession. The principle is perfect, and the practice so good that in about a quarter of an hour a cylinder of solid ice is produced; nor is there any limit to the manufacture except labour; for the ether never diminishes. The inventor proposes to simplify his pump and work it by an ordinary head of water, when the kitchen tap of a dwelling-house would accomplish every step of the process except lifting the ice out and putting it on table. As a method of supplying real block ice—especially for hospitals, foreign stations, and out-of-the-way places—the machine is as useful an application of high scientific knowledge as could be seen.—*Daily Telegraph.*

SOME PLANTS AND FLOWERS FOR CHRISTMAS DECORATIONS.

There is no lack of subjects which can be brought into use at this festive season, if we take the trouble to examine the lists of flowering plants and berry-bearing shrubs. Some amount of convenience and skill and patience to grow them are, of course, required, but nevertheless it is matter for regret that we seldom see these seasonable plants and flowers grown in sufficient quantities to make a display of any importance. Many of the plants which I shall name in the course of these remarks are well known and justly admired for the ordinary purpose of decoration, but still I have seen but few attempts to grow them specially for the purpose for which they are so admirably adapted at this Christmas time. I therefore propose to name the best of the plants and flowers which can be had at this season of the year, stating some of the uses to which they are adapted, with some account of their cultivation.

I shall place first on the list the berry-bearing *Solanums*, such as *S. capsicastrum* and *S. pseudocapsicum*. These may be said to be everybody's flowers, as they are as easy to grow as geraniums. The only cultivation they require is to pick off all the berries in the spring, and then harden them off prior to being planted out in a rich moist piece of ground towards the end of May. After this water occasionally in dry weather, and keep them free from weeds. Towards the end of the next September carefully lift them, and pot them in as small pots as possible, using sandy soil; then place them in a cold frame or pit for a fortnight, keeping them rather close and shaded during bright sunshine. Afterwards remove them to an airy shelf in the greenhouse, where they may remain for the winter. The result of this treatment should be plants in full vigour and loaded with bright large berries at Christmas. The purposes for which they can be used in the way of decorations are various. A well-grown nicely-furnished plant makes an admirable subject for dinner-table decoration, and cheerfulness may be promoted by placing a few plants in conspicuous positions about the house, and especially in the reception rooms. If a plant or two can be spared, they cut up admirably for filling flower-stands and vases. I once saw a few sprigs used in filling a vase, in conjunction with some fronds of ferns; the effect was very pleasing. But, to my mind, the *Solanums* are never more effective than when grown as standards about two feet high. To do this, training must commence with a young plant, and all the side-shoots be nipped off from time to time. About the third year they begin to form nice round heads. As they get age they make very telling objects, as the habit is much more graceful than when grown as bushy plants. Many complain of the frequent attacks of green-fly upon these plants. This is generally the result of a starved condition of the plants, and an insufficiency of fresh air.

The next subject I shall deal with is the *Poinsettia pulcherrima*. This is, without doubt, the greatest gem of the season, for, besides being a beautiful plant for the dinner-table in its entirety, it is also a lovely subject for cutting up for the filling of vases, &c. The most beautiful effect that ever I saw made with this plant was by a lady of rare taste in these matters. It was in this way: two pans of close-growing *Lycopodiums*, about twenty inches over, were selected from the fernery. They were well furnished, as no part of the pan was visible. In the centre of each pan was placed a *Roman Narcissus* in full flower. This was encircled by a broad band of the *Poinsettias* from cut flowers, the centre being the highest, and the following rows decreasing in height towards the outside; and round the edge of the pan was placed a ring of the *Helleborus niger*, or Christmas rose, fully expanded. The effect was rich and beautiful in the extreme; the contrast between the flowers and the mass of green beneath them was very striking. The narcissus was the only subject which interfered in any way with the *Lycopodium*, as that was inserted with its bulb and roots attached. But the others were used as cut flowers, and were easily fixed in the soil of the pan without interfering seriously with its occupants. The *Narcissus* and *Helleborus* were the first to require renewing; the *Poinsettia* kept fresh and beautiful for more than a fortnight; the only attention it required was to have just the base of each spike cut off every other day, to allow them to imbibe moisture more freely, and again inserted in the soil, giving only as much water as was required to keep the *Lycopodium* alive.

The *Lycopodiums* of course suffered considerably from the constant interference attending the changing of the subjects, as well as from the dry air of the room. But they soon recovered when transferred to their old quarters. The position of the pans when dressed was on each side of a camellia in full flower, upon a sideboard in the front hall, which was heated by a coil of hot-water pipes. I must leave the reader to guess what the effect was; my own conviction is, that I never under any circumstances have seen the *Poinsettia* used so effectively as

in this instance, impossible as it is to place them where they would not please even an indifferent observer. I have given the above manner of using them for indoor decorations because it is likely it may be the means of suggesting to the minds of some of our fair readers, if not exactly the same, some similar means of using them for their own homes. A similar effect might be made without the *Lycopodium*, by using wet silver sand and some nice green moss from the woods or banks instead; and in the place of the *Helleborus* and *Narcissus*, white tulips may be had: many have such varieties as Queen Victoria forced for Christmas. The *Poinsettias* may be also grouped in pots, or placed singly in any conspicuous warm place about the house, for whosoever they can be seen they are sure to win admiration. They are properly stove plants; they therefore require warmth, and to be excluded from cold draughts. I shall not detain the reader with any cultural remarks, as our respected coadjutor, Mr. McElroy, lately gave full details on the subject.

Perhaps the most telling object for pot culture, and which our Editor does so well, of the berry-bearing shrubs is the *Crataegus pyracantha*; but few people take the trouble to do it well in pots. It is nevertheless a fine subject for Christmas decorations. Its beautiful coral-like berries are usually produced in such masses as makes it desirable to have this plant largely grown by those who wish to promote variety and good taste in indoor decorations.

Next to this should be placed the varieties of *Skimmias*, especially such sorts as *S. Reevesii* and *S. oblata*: these are nice-habited plants when well grown, and may be had with a goodly number of berries upon plants eight to ten inches high; but the larger the plant the better the effect. They are easily grown in a greenhouse temperature during winter. This does not exhaust the list of berry-bearing plants, for we have the pretty *Rivina humilis* with its bright red berries, as well as the *Aucuba Japonica*; and those well up in stove plants may also have *Ardisia crenulata*; while the shrubberies ought to furnish the common *Euonymus Europaeus*. For more seasonable flowers we have the *Chinese Primulas*, *Mignonette*, *Chrysanthemums*, *Winter-flowering Carnations*; as well as *Camellias*, *Cyclamens*, and those gems of gems, *Euphorbia Jacquiniflora* and *Thyrscanthus rutilans*.

C. C.

A WORD ABOUT 'CAMELLIAS.

I know very well there's nothing new to be said about camellias; everybody almost who can handle a pen has written about them. I hope nobody will expect anything new from me, for I go on in the old way, like a horse in a mill-track; and I've only got to say about the old way, that it's a very good way, and a way that pays me well enough to grow camellias,—that I shall not soon be tempted to experiments. Why write, then? you will ask. Well, I have been pressed hard to tell some certain folks how I manage to fill my boxes with white camellias for the market, from the beginning of October until the end of February, from a very small house and a very few plants. Well, these folks want to know, and I'll tell them in a word. It's done by good management. My trees are all in tubs, and they are now so loaded with buds that they look as if a heavy shower of buds had fallen upon them. I can truthfully say that they have no particular treatment; there is really no secret to tell, and I begin to wonder now what I have to write about. However, I have made a beginning, and I must make an end. Two years ago I shifted my trees out of starving pots into tubs, by what would be called a large shift. I wanted big trees and flowers by thousands; things you can cover with an umbrella are no use to me. The soil I used was good turfy loam only. When they were tubbed, I put a ring of clay on the soil round the stem of each tree, in order to restrict the watering to the old ball, and keep the new soil dry, or nearly so, for a time. By pouring the water within this circle of clay the actual roots were nourished, and the new soil was not made sour. By degrees the roots pushed into the new soil; I could tell how the roots were pushing by the growth of the shoots: the head of a tree will always tell you what the roots are doing. I kept the rings of clay on for at least a year, and then removed them, and watered the whole of the soil in the tubs. Now as to watering: in the first place, I never use pure water at all; in fact, haven't any. All the water in the nursery is tainted with sewer; in other words, it is weak liquid manure—very weak, but it always contains something for plants to feed upon. What stuff it is to talk of giving one dose of strong manure water and so many doses of pure water, as some writers who shall be nameless do! If once you begin with manure water, go on with it all the while your plants are growing or flowering, but have it so weak that it will not force the growth into rankness, or cause

the flowers to burst, or show impure colour; have it so weak that if you had to drink half a pint of it you would not throw up your heart directly afterwards, or swear that you were poisoned, and must call in the coroner. When watering is going on in the houses here there is a perceptible odour afloat; that to me is pleasant, for I know that inodorous manures are of little value. Now I don't mean to say that wherever camellias are grown the house should be rendered unsavoury to the nose at every watering of the plants. It is not for me to say what ought to be in any case; I am just complying with the request made, that I would say something about my camellias, and in respect of watering I have said my say.

Well, now about thinning and buds falling. I cannot afford to thin; I cannot afford to let a bud fall. Every flower is worth to me—so much; I am not seeking trade, and shall not name a price. I say I never thin. No; for me to do so would be absurd, and for anybody to do so is in my opinion a rather unwise proceeding. But the trees make more buds than they can open, you say. Nonsense; it is your business to play the part of doctor, and assist at the birth of all these flowers, not destroying any. I dare say the perpetual supply of extremely weak manure water has something to do with the enormous production of flowers which render my camellias the most profitable things I grow. People say, don't part with the secrets of your trade. Bah! am I to set my trade against the march of knowledge, and meanly keep to myself what may benefit thousands? No. I say, then, I never thin the buds, and never have any fall; but, mind you, I must have trees in perfect health if all the buds are to be allowed to open. In my camellia house now there is a small tree that I bought a year ago in a rather poor state of health. Give me another year with it, and health shall shine upon its dark green leaves, but for the present I must not allow it to open out all its buds; in fact, I did thin this one two months ago. I shall be content with about two hundred flowers from it, but I must have five hundred next year, and the year following a few more.

The falling of the buds. Ah! a few evenings ago I was turning over the pages of the Magazine, and I lighted on an article from the pen of our Editor, in which he gives a category of causes of buds falling, and a small cyclopædia of remedies. Read that article, all growers of camellias, and it may do you good. You will find it in the number for Dec. 15th, 1862; it is profound in its analysis of physiology and astonishingly practical in pointing out remedies for ills the camellia is heir to. I can't do anything like that. I can only say in my rough way that good management is the secret of success, and I suppose every body knows as much as that. But, I will tell you that with a large and increasing business, with many cares and labours, I make it a rule to look after the camellias myself. What heat, think you, are we keeping them at now to fill our boxes with flowers for the market twice a week? Well, just enough heat to keep out frost and no more. Perhaps if I pushed up the heat smartly the buds might come down like a shower of rain; they look at present as if a shower of buds had fallen and just stopped where they are. Well, we shall not, I dare say, push up the heat, but be content to take it easy and have a long supply of flowers, and get every bud open in due time.

I know how it is that horticultural writers are compelled to harp ever on this much-worn string. People put their camellias out of doors in a well-selected spot, and forget them. The roots get dry, the bark gets hard—for, you know, that must happen with dry roots—but the plants, being capable of bearing bad treatment, still live and look very well. By and by they are housed, and being dry at the root they get an extra dose of water. For a time the water runs away next the sides of the pot and does no good; but oft-repeated doses tell at last, and the roots get moistened through. Thereupon there is a general swelling of all the joints and a softening of the bark, and in this process the buds are pushed off. I knew a case just like it in the human subject. A lady had a splendid head of hair—wonderful hair; equal no doubt to the tresses of Lady Godiva. She had an attack of dropsy, and was for a time much swollen. She was cured, but as she got well all her lovely hair came off. When I heard of it, I thought how like it was to the falling of camellia buds; there was a change in the mechanical texture of the skin, and what would hold in the first case would not hold in the second. To be sure, the order of phenomena producing analogous results was opposite: in the plant there was first a shrinking, in the lady there was first a swelling, but in both cases the foundations were loosened, and the fall was the consequence. I hope I am understood. I am not used to this sort of thing, and am glad here to make an end of it.

ROBERT OUBRIDGE.

Church Road Nursery, Stoke Newington.

GLADIOLI FOR CLUMPING.

From time to time it has been our endeavour to simplify the cultivation of this glorious plant, and it is to be hoped that our readers have derived some benefit from our endeavours. The subject acquired peculiar interest a few years ago by the sudden expansion of the Gladiolus in the sunshine of popularity, and the almost simultaneous outbreak of what was called at the time the "Gladiolus disease." Truly, this flower well deserved to be a favourite, and to have a place in every garden. One of our most important tasks has been to show that this bulb may be grown in common soils, and may be assisted with common manures. Once upon a time, it was loudly proclaimed that manure of any kind would be death to it. No doubt some cultivators poisoned their bulbs by over-doing them with strong manures; but carefully conducted experiments prove that it will benefit by moderate manuring to the same extent as the crocus. Experiments have also proved that peat is wholly unnecessary, though in peat districts the bulb may be grown to perfection, and that any ordinarily good garden soil is sufficient for all its wants, if aided by judicious and quite moderate manuring. The Gladiolus is a plant for everybody, and therefore needs not any peculiar treatment; in fact, the simpler and more commonplace the treatment the better. Let me give you an example. In the early part of the year, I had potted all the stock of our home-grown bulbs I told you of last year. They were rather retarded than encouraged in growth, and were really very backward in the early part of May, when I had them planted out from pots into the open borders. The "grass" was not more than three inches high in any case at that time, therefore they literally had to "make themselves" in the borders. Now those borders consist of a stiff loam, deeply and frequently dug, and abundantly manured. In no case was it possible to put a clump of bulbs over a bed of recent manure, and therefore there was no reason to fear disease; but the soil was (and is) rich with annual dressings of hotbed dung, and these borders form the front lines of the rose quarters, and are treated just as if to be planted with roses. I remember giving instructions that they were to be turned out of their pots without the disturbance of a single crock, and that this was done faithfully I had proof enough on the 26th of November last, when I took them all up myself, and found the crocks underlying the bulbs, and the bulbs in the most perfect condition of ripeness.

It is quite certain that it is not advisable to leave these bulbs in the ground all the winter, though it may be done at a risk, and turn out well. Nor is it advisable to leave them in the ground later than about the middle of November, because, although the leaves may still be green, the bulbs will be perfect by that time (if ever), and in the event of mild weather in December they are pretty sure to begin growing again, to their injury. I have known the new crop of bulbs, instead of resting and ripening, to begin growing as soon as formed in the autumn, and afterwards to be caught by severe frost and completely destroyed; whereas, had they been taken up, the second growth, and the subsequent destruction, would have been both avoided. Those, like many other corms (for bulbs they are not, though that matters but little), will bear both damp and cold better if perfectly dormant than when growing; but the wise man will not expose them to either of those influences, but will house them in good time, and take proper care of them afterwards.

All our Gladioli for 1867 were potted in the first instance. The potting took place in January and February, most of them being potted in 48-size, three bulbs in a pot, in a rich light mixture, in which there was not a particle of peat, but chiefly mellow turfy loam and thoroughly decayed hotbed manure. After potting, they had no better quarters than common cold pits and frames, and when turned out three potsful of bulbs were employed for each clump, making an average of nine bulbs to a group; and, as remarked above, they were turned out with such care that not a root was disturbed. The bloom in the past season was glorious and long-lasting, for, on the 26th of November, when I lifted them myself, there were many spikes of flowers, not yet expanded, that would have opened had the bulbs bearing them been potted and housed. But the whole stock was treated in the rough and ready manner; they were grouped in sorts with all their leaves attached, and were laid in bunches on the floor of a greenhouse to finish off slowly; and they lie there still, as fine a lot of brown, hard, perfect bulbs as I ever expect to see in the trade. The usual rate of increase here is 100 per cent., that is to say, for every one hundred bulbs planted we look for two hundred the next season. The varieties differ very much in respect of productiveness; some scarcely give twenty bulbs for fifteen planted, unless cut expressly to compel them to increase; but the useful sorts that are planted in quantity, such as M. Blouet and Bronchloyensis, increase at a good

steady pace, and usually double their number every year in fine market bulbs, and give a lot of spawn besides, which the wise man will turn to account and obtain flowers from the next season. On many of the bulbs now lying on the floor of the house there are broods of spawn; or, in other words, clusters of minute bulbs of the size of peas, amounting to as many as thirty or forty, all of which may be expected to yield flowers late next season, and afford saleable bulbs next winter. If properly managed, therefore, the *Gladiolus* will pay English growers, and really deserves all the attention that can be reasonably given it, both by trade and private cultivators.

There can be no doubt at all now that the "*Gladiolus* disease" was the result of injudicious treatment. The flower acquired popularity rather suddenly, there was a "rush" to secure stocks of the best varieties and to increase them rapidly, and excessive manuring induced a morbid state of the plant, that continued through two or three generations, and was at last purged away by the cry that manure was poison to it. Starvation is oftentimes a curative proceeding, but it is an evil to be avoided, for individual strength and abundant progeny are to be expected only of organisms that are well nourished. But now that the disease is gone, and we have acquired numerous experiences, we may manage to hit the happy medium between too rich and too poor a diet; and I am quite satisfied that if we lay down a bed of half-rotten dung nine to twelve inches below the surface, for the roots of the *Gladiolus* to riot in, we shall poison the stock, and rue the day of our extravagance. But any good, sweet, friable soil will grow this plant to perfection; it will adapt itself to as many soils almost as a cabbage, certainly does well in peat, and any good loam that is enriched with quite rotten manure and leaf-mould, and in all good sandy soils of a nourishing nature, it flowers finely and multiplies freely. I am quite sure that mixtures of peat and loam are less to be desired than turfy loam without peat, but with a fair proportion of powdery manure and leaf-mould to enrich and mellow it.

Three years ago I speculated on a set of gladioli for the plunging system. The most showy and distinct varieties in the several sections were chosen, and we obtained picked bulbs of the sorts selected through Messrs. Barr and Sugden. Nothing could be more satisfactory than their behaviour. They were potted in what might be called fuchsia compost, consisting of about equal parts of turfy yellow loam and three-year-old hotbed dung, with some sharp grit added. But the frequent watering they required, the space of reserve ground they occupied, and the comparatively meagre show they made when in bloom, determined me to strike the gladiolus out of the list of plants most to be desired for this system. The two very showy sorts just now named are undoubtedly the best for any who are determined to grow them for plunging; and certainly a bed of *Brenchleyensis* presents a very beautiful appearance when well done. But the bloom is too soon over for the cost of getting up a display of pot plants, and there are so many other good things available at the same season, that the verdict must go forth that for the plunging system the gladiolus is not well adapted. But for bedding out and for clumps in mixed borders it is grand and so distinct in style of growth and range of colours, that every amateur should make a pet of it. For the front lines of a rosarium, for admixture with phloxes, pentstemons, cannas, and lilies, it is unequalled, and as a bedding plant, without the aid of other subjects, it is well worthy of the renown to which it has attained. But there is a certain leanness about it as a pot plant that should "give us pause" when we contemplate employing it in quantity for any special purpose, and particularly where plunging is practised.

These several points disposed of, we may approach the subject of cultivation in a more general and perhaps more useful manner. I will suppose that the manager of a large place desires to have a long-continued supply of flower spikes, whether for cutting or for keeping up the beauty and interest of the garden. His best plan will be to have his beds well broken up and liberally manured with leaf-mould and dung, taking care not to have the manure in a rank state, or in excessive quantities. He should pot his first batch in January, and keep them dry and cool, but safe from frost, until the leaves are an inch long, and then give them small doses of water, and so promote a slow healthy growth until the end of March or middle of April (as latitude and season may determine), when they may be planted out. A second batch should be potted in February, and be treated in the same way. In March a lot of bulbs should be planted out, and thereafter every month, until the middle or even the end of July, bulbs should be planted. The result will be an abundance of flowers from the end of June till some time far into the next year! Yes, all through the Christmas-tide gladioli

may be cut in plenty, and I make the market growers a free gift of this hint, and what follows as to the way to carry it out. "Carry it out!" Well, it is as simple a matter as the flowering of *Schizostylis coccinea*, which it is said nobody can do, just because nobody knows how, but the way to do which, in common with late-flowering gladioli, may be told in a word. In November lift all the gladioli that present undeveloped flower spikes; pot them with care, putting as many into a pot as can be crammed in without injury to the roots, and never mind if in the operation the mould is shaken off some of them entirely. Take care of the roots—that is to say, the actual feeding fibres. As to the bulbs, they will be as yet but half grown, and the check will influence them but little. When potted put them into snug quarters, but not in a hot place; a light airy greenhouse, where there is a little heat whenever the thermometer goes below freezing, is the place for them, but a peach-house or vinery will do very well, as they need no help from heat, if really safe from frost, to open out all their flowers. Consider how very much our home displays of chrysanthemums would be improved by intermixing these splendid flowers with them, and how conservatories everywhere, and even flower markets, would be benefited by this system of flowering gladioli in the depth of winter. This is just the way to do the *Schizostylis*. Plant it out in a rich, mellow, sandy loam, and let it remain out one winter. The next season the plant will form a large stool. Leave it alone until the end of October or middle of November, and then lift it carefully and pot it, and place it in any light cool house, and all its fine scarlet flowers will open perfectly. As a rule, the flowers of this plant are lost because just as they are opening there comes a killing frost, and they fall over like rags and are lost for the season.

It is commonly supposed that the "spawn" of the gladiolus requires one full season's growth before being capable of flowering; this is a mistake. I have just detached from one bulb of *Brenchleyensis* twenty-two little things of the size of peas, every one of which, I will engage, shall flower next season. If you observe the growth of this bulb, the flowering of the spawn is quite understandable; for at the very first start of the leaves into growth a new bulb (I mean corm of course, but the other word is more generally understood) forms on the summit of the one planted, and the flowers actually issue from the new, and not from the old, bulb. Hence it is that the sizes of the bulbs is a matter of very small importance. *The condition of ripeness* is what we should most look to in purchasing, to have them nicely finished, quite hard, and with not a sign of second growth about them. I remember that in 1866 we left a lot out of doors in pots till nearly Christmas, and then shook them out, and the pots were full of new roots. These were rubbed off the bulbs, and they were stored as usual, but several out of that particular lot died this year, whereas of our well-ripened and properly-harvested bulbs we scarcely lose one per cent. In planting, it is I think very objectionable to mix the spawn and the full-grown bulbs in the same bed, for an uneven growth and patchy bloom is the result. Plant them separately, and you will have uniformity, and the small stuff will flower later than the large bulbs, and so help to prolong the season.

The best of all the kinds for clumping is *Brenchleyensis*. It is the most rich and decisive in colour; it is the least particular about the quality of the soil; it is very uniform in growth, so that a bed of it shows fewest blanks and breaks of any, and it has the great advantage of opening nearly all its flowers at one time, thus presenting a full rich spike of its brilliant vermilion-coloured flowers. There has been much said about *Monsieur Blouet* of late, and it is certainly a fine variety, but *Brenchleyensis* beats it in effect, and is to be preferred where colour is a matter of prime importance. The last-named is really a rosy carmine, not scarlet, as usually described in the catalogues; and, as compared with *Brenchleyensis*, is the weaker of the two, and has not the merit of opening all its flowers at one time, so that when the spike is at its best there are always two or three dead flowers at the base to mar its beauty, unless removed. I find if I cut a lot of each of these, I must nip off the shabby flowers from *M. Blouet*, while there is no occasion to remove any from *Brenchleyensis*. At one pound per 100 *Brenchleyensis* is a cheap bedding plant, and at that price it can be purchased I am sure, for I bought a thousand a week since, and had some change out of a ten-pound note.

But scarlet flowers are not alone sufficient. There is a fine clumping variety called *John Bull*, which produces bold spikes of pure white flowers, which show superbly if bedded with some of the dark-leaved cannas. This may be obtained at about three pounds ten shillings per 100, or a trifle beyond that; and those who cannot afford to buy it by the hundred may do very well with a dozen at ten shillings, and wait for an increase. Another good one for clumps is *Fanny Rouget*, a

charming rosy flower, with shades of carmine to give it life without spoiling its softness of colour. This can be obtained at the same price as *Brenchleyensis*, though it is far less plentiful, its merits as a bedding plant being as yet but little known. As for *Monsieur Blouet*, which has been referred to so frequently, it is certainly a very desirable variety for bedding, the colours being rosy carmine in the early part of the season, but salmon-pink when it flowers late in cool weather. This is worth in the market more than *Brenchleyensis*, but ought to be obtainable at the same figure, for the simple reason that it is in some degree inferior.

After this selection there are hundreds that may be used for beds and clumps, but the following may be relied upon most surely where a rich and varied display is a matter of greater importance than any special excellence of individual flowers:—

Achille.—Bright currant red with white stripes, the flower small but showy. This is an expensive sort, being worth about £1 per dozen. It does not increase fast, but, with a dozen to begin with, a few years would make a hundred of them, and in some seasons there is so much spawn produced that the increase is enormous.

Aglæ.—A fine large flower of a bright salmon-rose colour. It is worth £2 per 100, and at that rate is cheap.

Aristote.—A beautiful rosy flower with red and purple shades; about the same price as the last.

Canari.—Yellow with rosy stripes; worth ninepence each in quantity.

Don Juan.—Fiery red with yellow spots, extremely showy and fine, and one of the cheapest.

Fulgens aurea-picta.—A splendid fiery red and yellow variety, of dwarf habit; well adapted for the front of a bed of cannas. This is worth about double the price of *Brenchleyensis*.

Madame Coudet.—Rose shaded with carmine; a very fine spike. Rather cheap—say, 30s. to 40s. per 100.

Napoleon III.—A brilliant scarlet with regular white stripes; one of the best varieties in cultivation. It is at present dear—say, worth a shilling each in quantity.

Floribunda.—White with pink and purple shades; one of the cheapest, but not one of the best.

Penelope.—Pale flesh with yellow and crimson stains; rather dear.

Triomphe d'Enghien.—Carmine with yellow stains. First-rate and cheap, being obtainable at a small advance on the rate of *Brenchleyensis*.

To make a long list would be far easier than to make a short one. For downright bedding effects, I should never care for the hybrids of the *Ramosus* section; but for small groups the *Ramosus* breed are useful, and it is not generally known that they may be left in the ground for three or four years, like crocuses; and, consequently, are well adapted for large places where there are borders that must be in great part furnished with plants that will take care of themselves. So also they are well suited for the amateur who loves hardy plants, as they suit to mix with herbaceous flowers. As to intrinsic merit, I would as soon have a spike of *Ramosus Queen Victoria* in a vase on the table as a spike of any other variety in cultivation, for its pretty flowers, deep scarlet with sharp white stripes, are unique. For cutting this is one of the most useful things that can be planted. So, again, *Ramosus Ne Plus Ultra* and *Ramosus Rose* are charming; and all these are cheapest of the cheap, and will become cheaper yet, when people learn to treat them in the same way as crocuses.

To find *Gladioli* of the *Gandavensis* breed suitable for clumps is easy enough. What I have been looking for to-day are the cheap kinds, such as men who are not made of money may venture to buy without fear of being accused in the bankruptcy court of having wasted their substance in riotous gardening. But as there are uses for the more expensive kinds beyond the rather superficial consideration of colour, we shall have to look them over presently, and so next week we shall probably have this subject before us again. S. II.

ROOTS, ETC., AT THE ISLINGTON CATTLE SHOW.

There is a grand opportunity for something new in the horticultural or floricultural way in connexion with the annual Cattle Show of the Smithfield Club. There is so much gallery space, and it is generally pretty well occupied with implements and collections of roots and seeds. But we see the same thing, or nearly so, every year; and in the vast round of rural affairs it would seem that by seedsmen, florists, and others who stand for the defence and advancement of the rural arts, some new and attractive features might be devised to give a more decidedly horticultural aspect to the galleries. Mr. Alinutt, of Fleet Street, offers barometers, thermometers, surveying tapes, and horticultural and agricultural books, and in that way does some good—much good, we hope, for he sells fairly and his instruments are good. There are also many displays of articles that are useful in every household, and country life is pretty well represented in every department except just that one in which we are chiefly concerned. But, taking things as they are, we must express our complete satisfaction with the displays of roots and seeds on several stands of well known firms. It is astonishing how truly ornamental mere turnips and mangolds become when skilfully grouped in quantities, but the grasses are badly shown, and such things as everlasting, which the seedsmen should encourage, are not to be seen at all. On our way round, the first display we noticed was that by Messrs. Sutton and Sons, of Reading. Here were piles of fine roots, with names and weights attached. Of turnips, *Purple-top Mammoth*, a round solid bulb, of a dull greyish purple colour, grows quickly, and produces a great weight per acre; weights, 9lb. to 13½lb. Sutton's *Champion Swede*, a globular purple-topped bulb; weights, 10lb. to 15lb. *Pomeranian White*, a handsome round bulb, well adapted for early

feed; weights, 9lb. to 14lb. *Imperial Green Glohe*; this is a better turnip than the common *Green Glohe*, and one of the best to sow after an early harvested corn-crop; weights, 7lb. to 12lb. *Mottled Glohe*, or *Grey Stone*, the best of the stone turnips; colour, purple and green in streaks; weights, 10lb. to 16lb. *Lincolnshire Red Páragon*, a handsome reddish purple bulb, quite round; weights, 9lb. to 11lb. *Orange Jelly*, a good turnip for late sowing; a very pretty lot, grown by Colonel Lloyd Lindsay, M.P.; this is a good turnip for the table as well as for the cattle shed; it never attains a great size. *White Tankard*, and *Red Tankard*, of great size and perfect symmetry; these are white-fleshed turnips of great value for early feed. Of mangolds, *Long White* and *Long Red*, 20lb. to 25lb.; *Intermediates*, 14lb. to 20lb. A fine heap of *Purple* and *Green Kohl Rabi*, a most valuable feed root, both for weight of crop and its general immunity from insect plagues; weights, 9lb. to 15lb. *Robinson's Drumhead Cabbage*, the best cattle cabbage extant, was shown here on a gigantic scale; one head alone must have weighed about 60 or more pounds. *Hamilton's British Volunteer Cucumber* had a good place in the centre of the stand, and deserved it, being of great size without coarseness, and of most perfect shape. A long *Chinese Yam* also attracted some attention. There were also samples of the following varieties of potatoes:—*Birmingham Prize-taker*, *Early Handsworth*, *Red Regent*, *Early Oxford*, *Sutton's Racchorse*, a handsome useful-sized white *Kidney*; *Wellington*, a blotched potato; *True Fluke*, *Sutton's Berkshire Kidney*, *Early Shaw*, *Skerry Blue*, *Pink Rock Dalmahoy*, *York Regent*, *Courtenhall Seedling*, *Red Ashleaf*, *Myatt's Ashleaf*, *Taylor's Second Early*, a fine large angular tuber. Many other interesting subjects might be found here, but these are all we made note of.

The display next in order is that by Messrs. Carter and Co., of High Holborn. This is rather rough, but consists of useful subjects. Of turnips the principal are—*Bronze Swede*, a small green and purple bulb, especially valuable for its hardiness. *Champion Swede*, a large purple-top variety; a heavy cropper, and keeps well in store. *Hertfordshire Round*, a handsome compressed white bulb. *Lincolnshire Red Glohe*, very showy and fine. *Devonshire Greystone*, a sombre purple and green variety of the *Mottled Glohe* class. *Green-top Yellow* is a handsome quick-growing sort, which takes the same place in the south that the *Yellow Scotch* does in the north. Of mangolds the true *Velvetham* was shown well, and also the *Warden*, a round yellow mangold. The *Metropolis Sewage Company* exhibited on Messrs. Carter's stand samples of long red mangold, grown on their sewage system of cultivation; they were of great size, solid, smooth, and in every respect good. Amongst Potatoes here we noticed *Thornton's Seedling*, an irregular kidney, like *Dawe's Matchless*, and if as good as that without being so subject to disease, valuable. The *Ash-top Fluke* looks well and eats well; it was one of the best in this collection. The samples of *St. Osyth Beet* were admirable for size, shape, and smoothness. Messrs. G. Gibbs and Co., of 25, Down Street, Piccadilly, made a grand display of roots and seeds. At the time of our visit none of the samples were labelled, and we only noted the fact that, in tasteful disposition and variety, this was one of the best root shows in the place.

Messrs. Thomas Gibbs and Co., corner of Half-moon Street, Piccadilly, had a fine spread of roots and seeds, the samples admirably selected. Here were some fine turnips, grown on the late Prince Consort's Royal Shaw Farm, Windsor, and growing samples of the new feed-grass, *Bromus Schræderi*.

Messrs. Wheeler and Sons, of Gloucester, made an interesting display of roots, grasses, and seeds. Here we made note of the following varieties of Potatoes: *Gloucester Kidney*, one of the best for mealiness and flavour; not a heavy cropper. *Fryer's Fluke*, good. *Milky White*, one of the very best. *Oxford Kidney*, a very neat red variety; the skin pale tawny pink; the form quite regular. *Alstone Kidney*, a very scarce potato, often recommended in these pages, and said by some to have gone out of cultivation. *Dalmahoy*, a capital early round. Two seedlings of the *Fluke* promise well, especially the one marked No. 2.

THE VARIETIES OF BEET.

During several years past collections of beets have been grown at Stoke Newington, and records have been kept of their characters and relative values, with a view to the ultimate selection from them of a few that are most distinct and deserving of general cultivation. It is intended now to transcribe from the Records of the Experimental Garden such particulars as appear likely to be of interest to our readers. To facilitate reference to the notes which follow, we have arranged the varieties alphabetically, according to the names by which we recognise them, appending the names of the traders by whom the samples were supplied in those cases where records of their names have been made.

BAILEY'S FINE RED, the same as *Cattell's Purple Top*.

CARTER'S ST. OSYTH (Carter and Co.).—A rather unequal sample; several gaps in the rows. The growth is very robust; the leaves are triangular, much wrinkled, bronzy purple with a crimson tint. The roots are of medium size, somewhat angular, irregularly tapering; the flesh brilliant carmine purple. When cooked, tender and delicious. This is one of the best beets for colour and flavour, but it is scarcely handsome.

CATTELL'S DWARF RED (Carter and Co.).—Leaves long and narrow, and peculiarly erect, purple and blackish green. Root large, spindle-shaped, symmetrical, but occasionally forked. When cooked, coarse-textured, somewhat earthy, and showing objectionable rings of a paler colour in the centre. Quite second-rate.

CATTELL'S DWARF PURPLE TOP (Sutton and Sons).—There are several distinct stocks of beets under this name. The one now under notice is of neat compact growth; the leaves oblong, wrinkled, bronzy purple with a blackish tint. The roots are extremely neat, very long and tapering, 2 to 2½ inches in diameter near the crown; the colour of the flesh blackish purple. When cooked, tender and sweet, and presenting a fine appearance when dished with green saladings.

COMMON RED.—There are several rather distinct stocks of the common red beet, but their distinguishing peculiarities may all be merged in one general description. The leaves are large and spoon-shaped, deep bronzy purple colour, glistening and almost metallic in appearance; decidedly coarse. The roots are various in size and shape, but mostly large, 3 to 5 inches in diameter next the crown, more or less forked, tapering, and irregular; the flesh is a fine dark carmine colour, and when cooked is tender and well flavoured. Where it is desired to produce a large bulk of useful beet-root for culinary purposes, this variety will be found profitable and good, but for any but rough utilitarian uses it is quite unfit, being ugly, coarse, and too large for ordinary purposes.

DEWEY'S IMPROVED SHORT TOP (Stuart and Mein).—Remarkably uniform in growth, scarcely a difference observable amongst hundreds of plants; leaves in a symmetrical tuft, oblong and smaller than the average, dark purplish red. Roots of the largest size allowable for a beet, yet by no means coarse; in form regularly tapering from the crown, very smooth and uniform; flesh bright crimson. When cooked, tender and sweet. This is one of the best beets in cultivation, though it is a shade lighter in colour than some may consider desirable.

JOSLING'S SCARLET is the same as *Cattell's Dwarf Red*.

LINDSEY'S SUPERB RED (Stuart and Mein).—This variety produces a loose bunch of leaves, which are narrow and of a dark purplish red colour. The roots are long and narrow, and somewhat irregular. The flesh, when cooked, is fine-grained, a rich deep colour, and an agreeable flavour, but less sweet than some other varieties. We must consider this second-rate in quality.

NUTTING'S SELECTED DWARF RED (Nutting and Sons).—Leaves 12 inches long, neat and tapering, and inclined to spoon-shape, crimson-purple colour. Roots medium size, tapering, neat; a fine crimson-purple colour. When cooked, of a fine close texture, sweet and good. This is one of the best of beets when true. We have had some samples very mixed; that from Messrs. Nutting and Sons was perfect.

PERKINS'S BLACK, the same as *Whyte's Black*.

PINE-APPLE SHORT TOP (Barr and Sugden).—Leaves small, dark purple, the stems tinged with orange; roots small, neat, slightly furrowed. When cooked, the flesh is of a deep crimson colour, tender, sweet, and good, and finely textured. True samples of this variety produce the most uniform roots of any; it is certainly one of the best varieties in cultivation, but does not make a large return in aggregate bulk of roots.

RUBY CASTLE (Wood and Son).—Leaves broad, wrinkled, and a fine blood-colour; roots medium size, symmetrical. When cooked, a fine deep crimson colour, fine-textured, sweet, and agreeable. One of the best.

ROUGE DE CASTELNAUDARY, a mixed stock of *Cattell's Red*.

SANG'S DWARF CRIMSON (Wood and Son).—Of the same strain as Nutting's, but inferior to it.

SEA KALE, or SILVER BEET (Sutton and Sons).—This is a Brazilian beet, producing large, oblong, bright green leaves, which are borne on long thick white stalks, which are glossy and like alabaster. The midrib and principal veins of the leaves are of the same character as the stalks. The root consists of a few stout whitish cord-like divisions, which are of no value. A few rows of this variety in the kitchen garden have a very elegant appearance; but unfortunately there appears to be no good reason for giving it a place in the garden, for it is as nearly useless as possible. If turned to account, all the white stalks and midribs of the leaves are to be boiled and served up with melted butter in the same way as seekale. It is possible to eat it when so prepared; but it usually acquires a dark colour in the process of cooking, and is not so good in flavour as to compensate for its ill appearance. Nothing can be more tempting when growing, or more disappointing when cooked. We have tried earthing up the stalks, but without any appreciable improvement for the table.

SPINACH BEET, or PERPETUAL SPINACH (Sutton and Sons).—This, like the last, produces an insignificant root, and is grown for the leaves only. These are of a bright grass-green colour, elongate triangular, on short stalks, and are very abundantly produced. When selected so as to avoid both the youngest and oldest, and cooked in the same way as spinach, this forms an excellent dish, in praise of which it would be difficult to say too much. On hot dry soils, and in the hottest part of the summer, when spinach cannot be prevented running to flower and becoming tough, this continues to supply an abundance of its tender beautifully coloured leaves, which have that peculiar combination of buttery and bitter flavours for which spinach is so much prized. We gathered good dishes of this spinach as late as the 30th of November last, the October frost not having had the least effect upon it.

SUFFOLK RED (Wheeler and Sons).—Dwarf and compact in growth; leaves elongate triangular, on long stalks, wrinkled and glossy; a fine bronzy purple colour with bright crimson tint. Roots medium size, very neat, in form approaching to elliptical, the thickness increasing downwards from the crown and then tapering off regularly. When cooked, the colour is a brilliant deep carmine; flavour excellent. This is the most distinct and brilliant in leafage, and if beets are grown as bedding plants, Suffolk Red will produce a better effect than any other variety.

WHEELER'S EXTRA FINE (Wheeler and Sons).—Growth irregular and decidedly ugly, the leaves being in a loose tuft and the crown spread out in an objectionable manner; root medium size, looking as if shrunk, being much contracted below the crown and more or less forked. When cooked, this is a tender, delicately-flavoured, and richly-coloured beet. Its want of symmetry is a great defect.

WHYTE'S BLACK (Sutton and Son).—Leaves large and broad, dark dull green. Roots very large, slightly bulging below the crown. When cooked, darker in colour than any other variety, fine-textured, and very good flavour. A good variety for market, but not suitable for garden cultivation.

The following are the best: *Cattell's Purple Topped*, *Dewey's Short Topped*, *Pine Apple*, and *Nutting's Selected Dwarf*. For market purposes: *Common Red*, *Whyte's Black*, and *Suffolk Red*. S. H.

ON THE PRACTICE OF UNNAILING WALL-TREES.

In remarks on the practice of unnauling wall-trees in your issue of Nov. 30, in so far as they refer to peaches and nectarines, or, in fact, any other kind of stone-fruit trees, Mr. McElroy gives his opinion founded on experience. Being one of the advocates of the unnauling system, I am induced to offer a few fragmentary remarks in favour of it; and as your able correspondent has called attention to the subject, it may be advisable to ventilate the so-called theory a little further, and bring before the readers of the Magazine a number of other reasons why trees should be unnailed annually. Nevertheless, others may be induced to carry both sides of the question into practice, and, for the sake of experiment, take two trees side by side. And first, I would say, for the tree to be treated on the unnauling principle, I would most emphatically decry the use of shreds altogether. It must be commonly observed by every one having anything to do with trees where the use of shreds is still adhered to, that under every shred the shoot looks pale and sickly for want of light and air. Another reason, and a very important one, is that shreds mostly consist of woollen materials, and those generally of a very dark colour, and attract more heat when it is hot; they also attract and retain an undue portion of moisture to the shoot at the point of contact; consequently the tree and all its branches are for many weeks in winter bound, as it were, with as many ligatures of ice. I would ask Mr. McElroy, does this practice

benefit the tree or otherwise? I argue that it is not only essential, but absolutely necessary, that they be not only stripped of the major portion of their shreds, but that the shreds be consigned to the flames, to be no more seen or heard of. I would unnaul all peaches and nectarines on open walls from three to four months, beginning from first of December, tying the shoots in convenient bundles to stout stakes stuck in the ground eighteen inches from bottom of wall, stopping toward the top, so as to have all fruitful wood at least one foot clear of wall, and cover the wall immediately behind the trees with a coat of spruce-branches to prevent radiation, laying two or three at the same time on the ground just over the collar roots, to prevent evaporation. The neglect of this I hold to be one of the most productive sources of curl and green-fly in both peaches and nectarines. The spring shoots are invariably much crippled, consequently the midsummer shoots are all that are to be depended on for the following year, and those are often very imperfectly ripened. A good plan is to nip off the points of the shoots about the end of August. It will be seen I prefer renauling the trees about the end of March, when on most days a man may do three times the amount of nailing he can in either December or January; and as peaches and nectarines are nearly always worth a "groat a piece," the little extra time required in renauling ought to be given freely; and instead of using shreds, I recommend small string; and instead of cast-iron nails I would use round wrought-iron clout nails dipped in oil. I have often renailed peach-trees at even a later period than the above, when so full in flower that the pollen flew all round as if under a shower of gold-dust, followed by a splendid crop of fruit to boot. Now, with regard to the supposed objections Mr. McElroy has to the annually unnauling of the lesser shoots and branches, as affording a means for insect secretions in the vacant holes the withdrawn nails have left, the following mixture most effectually gets over that difficulty, viz., lime, soot, and cowdung in equal parts, with a little lamp-black and sulphur added, and applied in rather a thick state, filling every crevice; this mixture when dry is of a dull lead colour, and attracts but little, either heat or cold, radiation is intercepted, and of necessity the trees bloom later. Unwise or not, I think the careful cultivator ought to concentrate all the artificial means in his power to retard the blooming season. This is not to imply the crippling of the flowers, but that the more advanced period is more congenial to their healthful development.

Oulton Park, Dec. 5, 1867.

W. MUIR.

FORCING FRENCH BEANS.

Though this delicious vegetable can be forced about as easily as any operation connected with gardening affairs can be conducted, it will be found next to useless to attempt it unless proper means and a moderate supply of fire-heat are provided for that purpose; for the French bean, being a native of India, requires a genial temperature to bring it to perfection. In the north of England, in cold wet seasons, it is a difficult matter to produce good crops even in the middle of summer; therefore, unless a sufficient degree of warmth is provided, very little success can be expected; in fact, it had better be left alone, for it will only end in disappointment. Very few people build houses expressly for the purpose of growing this vegetable, so that the most suitable structure there is upon the place has to be devoted to it. For the earliest work, such as the first two or three successional crops, the pine-stove is the most suitable, and afterwards the vinery will do, if there is room and the plants can be placed so as to get an abundance of light as well as warmth. Generally speaking, a vinery is too much shaded for plants that require plenty of light to prevent their drawing up weak and leggy. I have seen the peach-house recommended for growing French beans in, but my opinion is that it is as ill adapted for that purpose as anything well can be. In the first place, there is not sufficient heat to produce a profitable crop until the end of the season, and on the other hand the beans are so liable to the red-spider that the farther they are kept from the peach-trees the better, for it requires the utmost amount of a gardener's skill to keep peach-trees from spider without bringing plants in contact with them that harbour it in every conceivable manner. So, again, where first-rate crops are expected they should be kept out of the vineries; but of course, where a little of everything has to be grown, and every available space has to be made the best of, the most suitable place of any is undoubtedly a nice little span-roof house about ten or twelve feet wide, with a walk down the centre. A brick pit with a southern aspect (if heated) is very well, but not so good as the house; for the plants cannot be examined so readily, and receive proper attention in all weathers, as they can in the house. I have grown very good crops planted out in pits where melons have been grown the previous summer. But, after all, I prefer pots; for during the earlier stages of development the beans can be grown in small pots or pans in one-third the space they occupy when they attain the full size. The most simple method, and one which will not fail to repay the cultivator for his trouble, is to sow the beans in forty-eight sized pots, say seven in each pot, and then one or two of the weakest can be drawn out; for five good strong plants are much better than a large number, and quite as many as a twenty-four sized pot will carry comfortably. When the beans are sown the pots should be placed as close to the glass as is convenient, to prevent their running up with long stems before they push out the rough leaf; and as soon as the pots are full of roots they should be transferred to

twenty-four size, which is the most convenient and suitable. The advantage of sowing in small pots and repotting into larger, consists in enabling the long stem to be lowered in the soil, which of course prevents the plants from falling about, and at the same time materially strengthens them. The soil is required both light and rich to grow them well. I find equal parts of fresh loam and rotten dung from an old hotbed to suit as well as anything; and to be used lumpy, of course. The pots will not require to be crooked, like pots used for potting hard-wooded plants; a few rough pieces, with a layer of rotten dung over them to keep the soil from mixing with them, is all that is required. In all stages of growth plenty of water at the roots will do no harm, and as soon as the plants are in a bearing state manure water twice a week will be highly advantageous to them; and they should be syringed once or twice a day, to keep red-spider and thrip down. But if these pests get hold of the plants, smoking with tobacco paper must be resorted to. If the thrip does not disappear through smoking, the best way will be to throw the whole lot away; and it may perhaps be as well to observe that the pots which the old crop has come out of should be washed thoroughly clean before the next lot is put in them, or else the new crop will be eaten up at once with spider, for it is next to impossible to keep the old plants towards the last entirely free from insects. As soon as the pods attain to the proper size for picking, they should be removed at once, for by remaining on the plants they only injure the younger ones. Where houses are employed solely for growing beans, the temperature should be kept at 70° to 75° by day, and about 60° at night, varying a few degrees according to the state of the weather; and on all favourable occasions air should be admitted, but it should be done cautiously, so as not to chill them. I have found *Sion House* or *Wilmot's Forcing* do best with me; *Newington Wonder* is also very good. A large collection is not required for forcing; one good kind is sufficient for anybody. Market growers appear to pay too little attention to the forcing of French beans; I should think they would pay as well as anything ever attempted.

GEORGE GORDON.

BEDDING PLANTS FOR A DISPLAY IN SPRING.

Flower gardening for the summer months, during the past quarter of a century, may be said to have attained very rapid strides towards perfection in relation to striking or glowing effect. So far is the application of its rules understood in connexion with the massing of the various plants that are adapted for the several purposes, and also the harmony of colours, that there is scarce an individual that has any interest whatever in the pursuit of horticulture but does to some extent understand its fundamental laws. This cannot create surprise when we remember the facility for obtaining the requisite knowledge, which the taste displayed in our public gardens and parks now affords in the way of first-class illustration of the art of bedding.

Having said thus much, may I ask, have we not ample room, where there is the space at our command, for improvement, by making the flower-beds more interesting and gay during the spring months, somewhat anterior to the period for summer bedding? It is true there are resources enough to be found among the lists of bulbous roots for the purpose; but I fear there are very few private establishments the proprietors of which would feel inclined to compete with the managers of our public grounds, in the expending of a sum sufficient to plant all their beds. Therefore it is expedient that the gardener should endeavour to make himself acquainted with hardy herbaceous plants that are useful for furnishing the beds with flowers during the spring months. As yet it is not too late to plant the beds where the requisite plants can be obtained. This paper has in some degree suggested itself by observing the preparation which my brother gardeners in proximity to me make for supplying the beds with flowers in the spring. One reason perhaps for their efforts may be, that their employers and families are absent some portion of the autumn and winter months, and therefore on their return they are anxious, in the earlier months of vegetation, to make the grounds as inviting as possible. Following in their footsteps (for they say example is better than precept), I am striving to be on a par with them; but I fear that we shall be somewhat in the rear next spring, owing to the remodelling of our flower garden, which has prevented me from transferring them so early as I should wish from their nursery beds. They say, better late than never, and it may be so with the few gleanings that I am about to submit. From it I hope materials may be collected for augmenting our future stores.

The most famous garden extant for variety of spring flowers is Cliveden, in Buckinghamshire, the seat of the Dowager Duchess of Sutherland, the formation and arrangement of which are due to Mr. Fleming, the head-gardener, and who has already published a work on the subject, the pages of which I cannot trespass on as I have never perused them. I will now draw on my own experience for a few practical notes.

Nemophila insignis.—If seed is sown now, it will bloom late in the spring. The drier the situation the better it will do during the winter months; damp is the greatest enemy it has to contend with in the winter. My plan formerly was to sow it in drills in November, the distance between which would enable me to plant out my summer bedding plants, if the *Nemophila* should not at planting time have completed its blooming season.

In a place where there are plenty of spare lights, a lot of beds might be sown with seeds of this plant, and early in spring they could be transplanted. There are a great many more varieties of annuals that are rich in colour and exceedingly attractive, which, if they are sown in the autumn, and afterwards potted singly into thumb-pots, and kept in cold frames or pits during the winter, and then early in the ensuing season transferred into the flower-beds, will produce a brilliant display late in the spring. The following species and their varieties are exceedingly well adapted for the purpose, viz., *Collinsia bicolor*, *Clarkia pulchella*, and the annual white variety of *Candydust*,

Gilia tricolor, &c. Perhaps one of the obstacles in the way of their general use, is that some of them may not complete their flowering season by the period the plants for summer and autumn decoration are required to be planted in their final quarters. The practice of double cropping has been adopted with success in the kitchen garden. Why should there not, then, be the same attempt in the flower garden, where opportunities may be presented by admitting sufficient width in the rows at the time of planting or sowing, so as to allow of the usual bedding stuff being planted betwixt them?

The *Yellow-flowering Pansy* must be considered as the most valuable dwarf plant we have for spring or summer blooming. For several months past, during the present year, I have been very much interested with the never-failing succession of flowers which has been produced by a border of this pansy, which was planted as an edging to a large bed in a garden cultivated by my neighbour, Mr. Burley, the respected nurseryman. Although the bed is situated several yards distance from the spot where I can view it, yet it forms a very bright spot in my prospect. For general culture it cannot be too strongly recommended. In addition to this we have also the *Blue Pansy*, a very beautiful variety for spring decoration. Then, again, there is the *Purple-flowering Pansy*; but for general usefulness the two former have my choice.

Pink and White double-flowering Daisies.—These delightful harbingers of spring vegetation were to be found cultivated in most of our gardens when I was a lad, but something seems to have almost drifted them from us. Perhaps the cause may be attributed to the rage which has existed within the last few years for an increase of summer and autumn flowering bedding plants. But of late I have been somewhat pleased to renew my acquaintance with them in my present locality, and I hope that in the future I shall be enabled to give them that encouragement which they deserve. Although they are easily propagated by division, yet during the summer months they require liberal treatment, a moist or shady situation being desirable, as the direct rays of a hot sun will burn them up.

The *Double Yellow* and *Dark Wallflowers*.—These, like the preceding plants, seem to be quite overlooked by the present generation of young gardeners, in the desire to increase their stock of summer bedding plants. What is more useful for cut blooms than the double yellow? And it is remarkably showy. They are not so well adapted for the bed as the border, for unless the plants are well established they will not bloom so abundantly. The weather, if very severe, is apt to injure them, so that it is advisable to shelter them in pots in a cold pit or frame during the winter months.

Some of our hardy early spring-flowering plants of dwarf growth make excellent edgings round those beds that are planted with bulbs, as the perennial *Yellow Alyssum saxatile*, the Evergreen White Candytuft, *Iberis Sempervirens*. But they require to be prepared for the purpose as soon as they have done flowering, by division of the Candytuft, and the layering of the *Yellow Alyssum*.

Nor should we forget the lovely, snowy, white-flowered *Arabis alba*, of which too much cannot be grown where there is space available. This, with the former, can be readily increased by division of the roots. Perhaps the Candytuft is better propagated from cuttings. To get good plants for bedding in the autumn, they should be grown in nursery-beds throughout the summer months.*

Silene pendula.—This deservedly favorite plant still continues to be cultivated in abundance wherever spring flowers out of doors are in request; its dwarf habit and free-blooming qualities, combined with its bright pink flowers, constitute it an exceedingly effective bedding plant. The seed can be sown as soon as it is ripe. With this, as with similar plants grown for the same purpose, new seed is a boon. When the seedlings are strong enough, let them be pricked out on to any spare plot of ground a few inches apart, so that they can be afterwards removed with a trowel.

Myosotis sylvatica, or "Forget-me-not."—This beautiful and interesting hardy plant is worthy of all the care you can bestow on its culture for decorating the flower garden in the spring. It is a native of Switzerland. The British variety, *Myosotis palustris*, requires plenty of moisture. It is to be found growing in abundance along the banks of our streams and ditches in some localities, especially in the neighbourhood of Walthamstow, and the banks of the River Lea, in Essex. The treatment for garden culture is the same as that advised for the *Silene*.

Chieranthus Marshalli.—This is an admirable free-blooming plant. Its colour (yellow) makes it very attractive, and its flowers are very useful for bouquets or decorating the dinner table. It requires to be propagated early, that you may get your plants well established in pots for planting out at the required season.

Honesty, or *Lunaria biennis*.—As a tall plant for the flower garden in spring, its purple flowers, which are borne in clusters, are exceedingly effective. It is only fit for large beds or back rows, as it grows nearly three feet in height. It should be sown in the summer, and be treated similar to the Forget-me-not and *Silene*. It may be considered as a hardy biennial.

Nepeta violacea.—For planting either on slopes, beds, or rockwork, this hardy plant is in every way adapted; its myriads of lavender-coloured flowers make it very conspicuous during the spring and early summer months. As an herbaceous plant it is readily increased by division.

Hepaticas and their Varieties.—This is another class of plants whose presence is fast fading from our sight, and which in days gone by were wont to glad the heart of the beholder ere the first dawn of spring witnessed their unique red, white, and blue flowers emerging just above the earth's surface. The culture of both the double and single varieties of this plant, in my remembrance, was the pride of many of our fraternity whose days are now fast ebbing away. Large clumps of them might be seen growing in the flower border in various parts of the garden, or else in long lines as edgings, undisturbed, remaining in the same spot year after year; thus each clump would keep on increasing in bulk. Perhaps that, with a dry situation, was the secret of the success that followed its cultivation, as in its natural state it is to be found in the uncultivated woodlands of Switzerland. It is to be hoped that, in our desire to increase the number of early hardy flowering plants, many of the almost forgotten gems of horticulture will be restored to their proper sphere.

Polygonus.—For several years past I have annually purchased a packet of seed and sown them in April, and when up and sufficiently strong, have pricked them carefully into a nursery bed; by this means they have grown large and strong, and flowered very freely in the ensuing spring.

In bringing my notes to a close, I may have omitted many plants that are equally as valuable for spring gardening as those already mentioned; but my motive has been to promote the reaction that is taking place in the direction of spring gardening, and not to afford a complete list of plants adapted

* The best way to multiply the Candytuft and the *Yellow Alyssum* is by cuttings of the young growth soon after the flowering is over. We have a large stock at the present time raised from cuttings, and they are much stronger than seedlings.—Ed.

for the purpose. But I shall endeavour to collect material as opportunity affords for extending the interest of this most desirable branch of our profession. Perhaps my paper might have been more acceptable had it appeared in the latter part of October, as there can be no question that the sooner we get the spring flowers planted after the summer bedding plants have done their part, so much the stronger will they be in the ensuing season. However, to those who have not yet begun, if they only succeed in part next spring, the probability is that a newly-awakened zeal may induce them to accomplish great things in the future. Jno. F. McELROY.

Calendar.

WORK FOR WEEK COMMENCING DECEMBER 14.

Flower Garden.

FLOWER-STICKS are important items of garden furniture, and this quiet season may be well spent indoors, or in company with the furnace fire, in preparing a plentiful supply for next season. For ordinary purposes, the best flower-sticks are made by splitting what are known as four-foot double selected laths, which the bricklayer or lath-render will supply. These should be split and cut to proper lengths, the edges rounded off and the ends pointed, and then the whole should have two coats of paint. They will last longer if the pointed ends are dipped in hot pitch, which prevents their rotting in the soil. Flower-sticks of this sort are generally painted green, but they should be separated into two or three lots in sizes, and be painted two or three different colours, such as reddish-brown, green, and dark amber. These three colours will match nearly all the various kinds of stems of plants which the sticks may be used to support. The strong shoots of fuchsias that have been cut down in the open ground make excellent flower-sticks, and need no painting, because of their natural colour; the hardy fuchsia called *Riccartoni* makes first-rate flower-sticks, and the common Snowberry may be cut down for the same purpose—the stout rods trimmed for sticks, and the light ones put aside for use as pegs, for which purpose they are very tough and trustworthy.

Fruit Garden and Orchard House.

BUSH FRUITS to be propagated by cuttings of ripe stout shoots of last year, and the buds to be removed from the bottom of the cutting to within four inches of the top, so as to form a clear stem and prevent suckers. Lay on a thick coating of half-rotten dung between gooseberry and currant bushes, and in dry weather prick it in with a fork, so as to avoid injury to the roots. Raspberries to have a heavy mulch, which is not to be pricked in; any disturbance of their roots is a great injury. In small gardens, the best crop of currants will be obtained from standards, which are easily grown, and have a very handsome appearance when loaded with fruit.

FRUIT TREES to be planted with all speed; if delayed much longer, the next year's crop may be lost. Always trim away by a clean cut all bruised and jagged portions of the roots; place the original collar at the level of the soil, so that the tree is no deeper than it was before, and fill in with soil in a friable condition. No tree will prosper if the roots are puddled in with wet pasty earth.

TREATMENT OF UNFRUITFUL TREES.—Generally young fruit-trees on walls, especially pears and plums, and not infrequently peaches and nectarines, after being planted two or three years, get into such a vigorous and gross state of growth that their wood more resembles willows grown for basket-making than the firm and short-jointed wood which we look upon as the precursor of a plentiful supply of fruit. Then to depend on the pruning-knife, as usually applied to the branches of such trees for subduing their unruly luxuriance, is a fallacy; for whilst their roots riot in the full enjoyment of a fresh-made border, without check or hindrance, so long will they continue to renew their gross and unfruitful growths, as they penetrate deeper year after year, getting further from the influence of the sun and air, and if the soil is wet, the cultivator looks in vain for produce other than canes for staking his flowers with, and even on a dry well-drained soil they often are several years in outgrowing this over-luxuriance; but apply the knife to the root, in conjunction with the spade and digging-fork, carefully removing the soil from their roots, lifting one by one all the fibrous roots towards the surface, and those that take a decided downward direction into the subsoil get up if possible, and place them horizontally, or, if that cannot be done, cut them entirely through. If, however, the tree be not too large, say not more than four years planted, they will often be benefited by being entirely lifted, placing them again in the hole after the bottom is levelled, but if the soil is stiff or wet, fill up the hole, mixing a portion of porous soil or charred refuse during the process, and then place the tree on the surface raising a small hillock of soil over the roots, and upon that place a mulching of litter, in order to protect them from winter's cold and summer's heat. Now is the very best time of the year for proceeding with the operation, as the trees have yet sufficient vital force left to re-establish themselves before they shed their leaves, and the sap becomes inactive. If performed skilfully, this will generally have the desired effect of throwing the tree into a moderate state of growth, which will result in well-ripened fruit-bearing wood, but if unskilfully or carelessly done, the result may be the loss of the tree. Remember, a tree can no more bear to be ruthlessly torn up than a man can bear to have his feet torn off. Watering will be required both at root and over the branches, and they must not be forgotten in that respect in the following summer. It is a very common complaint that pear-trees in buildings produce no fruit, save a few at the extremity of their branches; the cause of this may most generally be traced to the want of sun and air to the root: either their roots are paved over, and by that means kept in a damp and cold soil, or they are got deep into a wet subsoil, from which they draw a too free supply of crude watery sap for the tree to properly digest and assimilate. Much might be done for such trees by raising the pavement, if any, and getting up some of the roots towards the surface, cutting through tap-roots, that is, those that proceed immediately from the tree in a downward direction. Replace the earth removed in so doing by fresh, and if it must be so, lay down the pavement again; but such trees are generally badly furnished with small fibrous roots. Care must be taken not to cut too many of the large roots through at one time, lest the balance between demand and supply, being too much interfered with, result in the loss of the tree. I reiterate this caution, lest the inexperienced in such matters, being too ardent in their desire to rectify one evil, should fall into another. In cases where very old or large trees are to be dealt with, it is best to take two years to the work, and do one half at a time, or, in the first instance, to dig a hole, three feet square and three feet deep, directly in front

of the stem of the tree, and at about three yards from it. Then proceed to dig at the same width and depth towards the tree, taking care of all roots met with in so doing. By this means the very large roots that proceed from under the stem downwards may be got at and cut, whilst those that spread on either hand, in a more horizontal direction, will be preserved to cater for the tree. If after a year the excessive vigour be not sufficiently restrained, it may be proceeded against on either side in the same manner. On again filling the holes, a portion of fresh soil should be used, and such as is dug by roadsides, being gritty and porous, makes an excellent material for the purpose; but as unfruitfulness sometimes proceeds from debility and weakness, let me say that in such cases rich soil and thoroughly decayed manure should be lightly dug in among the roots with a fork, mulchings of horse-dung laid over them, and in spring and summer waterings of warm liquid manure should be given, until sufficient vigour is obtained.

Greenhouse and Conservatory.

GREENHOUSE to have as little fire-heat as will be safe, and to be kept as dry as possible. On the occasion of a sudden frost, there is a tendency to get up a brisk heat at night, and much harm is inflicted on plants by running the temperature up to 60° or more, and then leaving the fire to go out, so that by the morning they are exposed to a temperature of 35° or less. The amateur must endeavour to avoid such extremes. By a little watchfulness it may generally be known when frost is to be expected; the fire should then be lighted early in the day, and allowed to go very low at night, and be banked up the last thing, so as to burn slowly till morning.

CONSERVATORY.—It is undoubtedly desirable to keep the conservatory gay, yet chambers and other permanent occupants must not be forced into growth prematurely. Heat enough must be maintained to prevent mildew, and to allow of giving air freely; but the cultivator must endeavour to hit the golden maxim of keeping things safe and in order without pushing anything into growth before its time. If mildew occurs on valuable subjects, apply sulphur directly, but any nearly worn-out subjects that are becoming mouldy had better be got rid of altogether. Be very cautious in giving water; give enough, and not a drop to spare. A good time for a general watering is on those bright mornings when a west wind blows, and it seems as if spring had suddenly set in. Another time when watering must be generally attended to is when fires are going to keep out frost, for then it is that plants are likely to be dried up and irreparably injured.

HEATHS.—At this time of year, hard-wooded plants require a little extra care to protect them from injury by damp, undue fire-heat, and frost. A correspondent offers a few notes on the management of heaths, which appear to be well suited to this department. He says: Success with *Ericas* greatly depends upon three points, viz., air, water, and shifting, respecting each of which I will give the result of my experience in the cultivation of this very interesting tribe of flowers. It is a practice with many to nurse them too much, or, as the gardener would say, "coddle them," which is quite opposed to their nature, for they love air and light, and have little liking for artificial heat. I will commence upon their treatment at the present time and henceforth. Plants should now all be comfortably housed, and in such a way that they may have free ventilation. Watering must be performed with caution; always endeavour to give them rain-water, and take great care that they do not flag too much. On the other hand, never let them get soddened. The best time to water is early in the day, so that the damp will dry up before closing the house. If this is not attended to, mildew will appear, which is a very destructive agent, and must be checked by dusting with sulphur the parts affected. This is often produced by placing the plants too thick together, thus preventing a proper circulation of air through and between them. During the winter months care must be taken in giving air that they do not have too much when they are likely to catch easterly winds. At such times give it on the opposite side, if a span-roof house. Where a house is entirely devoted to *Ericas*, the frost just kept out is sufficient. When they have done blooming cut them back; if free-growing kinds, do not spare the knife. Where gardeners use the garden-shears they are termed barbarians, but not justly when used in moderation; when they have made their new growth gradually harden them off. It is a good plan where there is a pit vacant to put them in while they are breaking; after which shifting must be attended to. Plants that are in a growing condition at the roots require a good shift; see that the pots are clean, allowing a free drainage of broken crocks; on the top of the drainage put screenings of peat in a rough and lumpy state; fill up with a mixture of good peat passed through a half-inch sieve, with about one-fourth of silver-sand, and a moderate amount of fine pebbly grit; in this mixture they will root freely. In shifting do not allow the stem of the plant to be lower than what it has been previously, as they are apt to die off at that particular part. Fill the pot about one third with the compost; then with a round stick, about an inch thick, ram the mould quite hard, and so continue till finished. It is not requisite to keep them under glass after shifting, as it is seldom that drenching rains are prevalent then, but the more tender kinds will do best in a cold frame. As it may be useful to some, I would recommend a few good free-blooming kinds as follows: *Rogerminans*, *Gracilis*, *Vernalis*, *Autumnalis*, *Cavendishii*, *Hymalis*, *Sindryana*, *Lambertiana rosea*, *Colorans nana*, *Willmoreana*, *Persuluta alba*, *Propendens*, *Tubiflora*, and *Diosmæ capitata*. I find July a very good time for potting. Independent of what others may adopt, I feel persuaded that success will result from the adoption of the practice I have recommended above. It is a very bad plan to begin housing *Ericas* (in fact, any plants) too soon, for the nights during the early part of autumn are exceedingly beneficial towards promoting their vigour. The middle of October is a very good time to put them in their winter quarters; see that the surface of the mould is free from moss, &c. If this is not attended to, symptoms of ill-health will appear, as you cannot tell whether the plant is in want of water without riving the pot, which is no proof when the pot is small.

CAMELLIAS.—Extremes of temperature, moisture, or drought, will cause the buds to fall; and it will be as well now to see that all *Camellias* are really moist at the root, for sometimes after the root gets dry the water passes away on the outside of the ball, without any benefit to the roots whatever. A dry heat is very injurious to *Camellias* now.

ROSES must now be protected where they are much exposed to north-east winds. This is especially necessary in the case of standard tea roses, which in hard weather are often killed back to the work. If it is not thought advisable to take them up and pack their roots in earth in a shed, tie some haybands in and out among the shoots which form the head, so as to protect all the lower parts of the main branches, leaving the tops unpruned, to bear the full severity of the weather. The ends of the shoots may be killed back some inches, but the ripe and stout wood of the head will escape through being protected, and at the March pruning all the frosted parts will be cut

away. Dwarfs on their own roots are easiest protected by putting fern or straw loosely about them, and then laying a few heavy tiles or bricks over the roots; these keep the litter from blowing away, and preserve the roots from the effects of frost.

LESCHENAUZIA SPLENDENS.—The *Leschenauzias* take their family name from an eminent French botanist. They are evergreen shrubs from Australia, and belong to the natural order Goodeniads, and to the Linnæan, Pentandria Monogynia. They are greenhouse evergreens of very distinct and delicate growth, and the best of them are *biloba*, *areolata*, *formosa*, *oblata*, and *splendens*. Of these, *splendens* is the most showy, and the best habit; *biloba* is the next best, but more rambling in its growth. When making new growth the points of the young shoots strike readily in sand under a bell-glass in a moist bottom-heat. When struck, they should be potted in turfy peat, kept open with fine siftings of potsherds and silver-sand, but with no admixture of loam or manure. Use the smallest pots at first, and shift only as the roots require it, being at all times careful not to over-pot them. In winter they require an average temperature of 45°, with plenty of air, and when of good size will bear a temperature as low as 35° or 33° without injury. In summer they require to be partially shaded, and to have very free ventilation. The most important point in growing them is to stop frequently. If left to themselves, they ramble into very weedy shapes, therefore pinch out the points of the shoots of the young plants, and, after blooming, cut old plants back regularly, so as to induce a bushy growth for the next blooms. The stopping of young plants should be continued until they are quite bushy and symmetrical, and they should then be allowed to push into bloom. *Splendens* produces an abundance of its pretty scarlet blooms under the above course of treatment; but *biloba*, which has blue flowers, should be stopped before it is two inches high, and every shoot stopped again at the same length, as it is more inclined to ramble than the other.

STYPHELIA TUBIFLORA.—A useful member of the popular family of *Epacris*, which takes its name from *stypheos*, referring to the hardness of its wood. It is a greenhouse evergreen from Australia, and there are four good species in gardens, namely, *epacrioides*, *triflora*, *latifolia*, and *tubiflora*. The first and the last are the two best. They are propagated by inserting young shoots, taken off with a heel, in sand, in March and April; to be potted into small pots in sandy peat four parts, sandy loam one part, and charred turf one part. They must be stopped early, and again and again stopped, as the side branches push, till the plants are dense, bushy, and symmetrical. *Tubiflora* blooms in May, and produces a profusion of scarlet epacris-like blossoms at every joint, holding on in good condition till July. Whether in bloom or out of bloom, it is one of the most beautiful of greenhouse shrubs, and as easily managed as the commonest *Erica*.

LAGERSTREEMIA INDICA.—A greenhouse evergreen shrub from China, named after Herr Lagerström, a German. It belongs to the natural order Lythraceæ, or Loosestrifes. Propagated by inserting cuttings of small firm side shoots in sand under a bell-glass in spring, with a brisk bottom-heat. Soil, equal parts of turfy peat and turfy loam, and requires plenty of water at the roots and overhead, except when in flower, when the roots alone should be liberally watered. It has hitherto been usually grown in the stove, but its proper place is a cold greenhouse, where, under proper treatment, it produces abundance of its white or rose blossoms in August and September. There are two varieties, *Indica alba* and *Indica rosea*, and both are desirable. Success in management turns very much on the treatment after flowering, when it requires to be pruned, and allowed a season to rest, and to be kept then rather dry. It may be wintered in ordinary greenhouse temperature, and started in spring with a brisk heat to ensure plenty of bloom in the autumn. Managed as above, it flowers in great perfection at Kew.

CINERARIAS should be coming on nicely now to bloom. Those selected for the first bloom to be near the glass and in a warm place; those to be grown on must have a shift, and be kept as cool as possible. Green-fly must be kept down, and the cineraria grower has enough to do generally in this business. Plenty of air will be required by all alike, and regular supplies of water.

PELARGONIUMS must be as quiet as possible to be safe. A rapid fogging of the leaves will indicate that the house is too damp and cold; the formation of long delicate shoots indicates too much heat. The plants should be healthy, yet not growing; and in case of damp, a brisk fire in the middays hours will do immense good.

Stove and Orchid House.

ORCHID HOUSE.—The completest rest possible should be secured now to all orchids that ought to rest. There are a few orchids that never rest in a decisive manner, and many others are properly active at this time of year. But the golden rule for the orchid grower now is to keep things quiet till February, heat and moisture being reduced to the lowest possible minimum.

Forcing Pit.

MUSHROOM BEDS should be kept covered during bad weather with dry straw, and over that reed or straw hurdles, to throw off the wet and prevent entrance of frost. During mild bright days take off all the coverings, expose the beds to the air, and cover up again with fresh dry straw. This management will keep the beds in bearing, and without deterioration of the produce. Mushrooms frequently fail at this time of year owing to the cooling-down of the beds. It is impossible to maintain them in a bearing state at a temperature below 60°, and an additional 10° is an advantage. The safest order of procedure is to make up a fresh bed every month.

Replies to Queries.

Roses.—I have about fourteen new roses in pots, which I bought this autumn, and put into an ordinary cold frame, sunk them in cocoa-nut fibre, and put the glass over them. Will you kindly tell me, through THE GARDENER'S MAGAZINE, of which I am a constant reader, whether they ought to be watered at all during the winter, and how often? Also what is the best time to prune them? J. L.—[No doubt there are hundreds of readers, possessing new roses in pots under similar circumstances, equally anxious to know how to keep them. They require through the winter two sorts of attentions, one as to air-giving, the other as to giving water. We sincerely hope J. L. does not keep his constantly close shut up. In such weather as came on Tuesday and Wednesday last after a sharp frost, it would do them good to take off the glasses entirely for an hour or two, and then to leave a

slight gap for admitting air. In frosty weather they need not have air, and if the frost exceeds ten degrees it would be well to put a few mats or some dry litter over the lights. As to watering, they should never be dry at the roots; but how often water will be required it is impossible to say. Water them when they want it; and to learn the state of the soil in the pots, press a finger into it occasionally. When rather dry water freely, and give no more till rather dry again. This will be perhaps about once a fortnight for the next three months. At the end of February will be the proper time to prune these roses. It will be sufficient then to cut away a few inches from the weakest of the shoots, and to remove any shoots or parts of shoots that spoil the contour of the plants. Any extra long shoots cut back freely to range with the rest.]

Anxious.—Your stove plants that have not been well ripened should be kept for some time rather dry, and without pruning, in the fullest light you can place them in. Do not prune until they have had a long rest; then prune and start them.

Tacsonia Buchananii.—W. C.—This is a quite new species, a native of Panama, named in honour of its discoverer, Mr. Buchanan, horticulturist, of New York. It requires to be grown in the stove, is of vigorous habit, and flowers freely during the whole of the summer and autumn. The leaves three to five lobed, the lobes serrated; the flowers are three to four inches in diameter, consisting of ten petals of a bright vermilion colour; the corona has three divisions of the same colour as the petals. It was figured in the "Illustration Horticole" of June, 1867.

British Iris.—A correspondent points out an error in Mr. Chitty's paper on "Wayside Delights." The author speaks of *Iris fetidissima* as the only British species, whereas we have two, namely, this and *I. pseudacorus*. Any error is worth the trouble of correcting, but this is but a slight one, and it is a rare occurrence for Mr. Chitty to make a slip in any reference to British plants.

Gas-light.—R. H. G.—We know of no way to protect plants from injury by gas; that is to say, there is no specific to render the plants invulnerable; but perhaps it is an easy matter to remove them when the gas is lighted, and that is what we advise you to do.

Steam.—The feeding box had best be inside, but it need not be an eyesore. You have, no doubt, too much furnace power for the extent of pipes heated; it is in the reduction of the furnace power your remedy must be found, or in an extension of the pipes.

CATALOGUES.

W. CHATER, SAFFRON WALDEN. *Catalogue of Hollyhocks and Roses for 1868.*—No grower of hollyhocks can very well do without this list, so the announcement of it will perhaps be sufficient. The list of roses comprises the best of the perpetuals only. By the way, here are hollyhocks and roses side by side in a catalogue; it is not at all bad taste to put them side by side in the garden; the hollyhocks for a background to the roses. Try it.

E. B. SPENCE, DARLINGTON. *Catalogue of Flowers, Roots, &c.*—Contains good lists of bulbs; to which are added lists of new *Fuchsias*, new *Geraniums*, new *Verbenas*, select fruits, &c. Amongst the novelties is *Lobelia coronopifolia*, one of the finest of recently-introduced plants.

DOWNIE, LAIRD, AND LAING, FREDERICK STREET, EDINBURGH, and FOREST HILL, LONDON. *Descriptive List of Hybrid Gladioli.*—A well-arranged and very complete list, including the newest, the oldest, and the best in all the several sections, and a separate list of varieties suitable for beds and clumps.

J. HOUSE, EASTGATE NURSERY, PETERBOROUGH. *Autumn Catalogue, 1867.*—In this we have lists of bulbs, roses, fruit-trees, and other useful subjects in demand at this time of year, and a special notice of the new apple, Lord Burghley, which we have described in the "Garden Oracle," and can recommend to all who prize hardy dessert fruits of the very first quality.

HORTICULTURE AT THE PARIS EXHIBITION.—The visitor will derive a higher idea of horticulture in France from a visit to the Reserved Garden than he could get from days of travel along the poplar-lined *chaussée* and monotonous railroads; and "Capability Brown" could not do better than some of the French "layers out," who exhibit their plans of public and private grounds. The variety of shape in the hothouses and conservatories is not remarkable, and the Pavilion of the Empress is externally little short of the extremity of hideousness. What it may be inside is not given to many to say, as the *gardiens* is seldom there, and the door is locked. There are shows of roses, now fast falling, orchids, water-plants, azaleas, ferns, cactuses, aroids, gigantic pears, monster apples, rare and common fruits and vegetables, curious and vulgar trees and plants, exotic and indigenous; a restaurant, of course, and a platform for a band, all set in fresh greenward. A great artist, who calls himself an "undertaker of rocks," has constructed the most original aquarium, where the fishes are swimming over your head or resting on the transparent glass roof. You may observe, if you are resolute, strong, and patient, the manners and customs of many kinds of fish in the subterranean compartments devised by the clever gentleman, who will make you a roaring cascade, a trout stream, a lake, and any extent of caves and grottoes like those "shell strewn and consecrate of old to some Undine's love," in which Dido or Haidee sheltered of old, on most reasonable terms. It is just such a place as Parisians like, and the contemptuous critic, who might call it cockney, if he pleased, ought to pass a winter in an Alpine valley in order that he might appreciate the advantage of enjoying savage nature in a pleasant place not far from the Boulevards and the restaurants. The Reserved Garden is guarded by a dragon in the form of a 50c. toll, but it is nevertheless a most popular resort. Valuable dissertations are held over the fruit by rustic groups in blouse and mob-caps. The Grape Show is always in the hands of the country party, who discuss the merits of the bunches and the justice of the awards with an earnestness of conviction which is the more wonderful because it is founded on the evidence of a sense which, authoritative in many other respects, would not to the ignorant appear an infallible guide where touch and taste are not available to aid its conclusions.—*Times Special Correspondent.*

SUBSCRIBERS TO THE GARDENER'S MAGAZINE who desire to extend its sphere of usefulness, and are willing to interest themselves in promoting its still wider circulation, can materially further this object by sending to the publisher the names and addresses of persons they think are likely to become subscribers, who will forward to each a specimen copy free. A stamp must accompany each name and address sent, to cover the postage of the specimen copy.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun				Moon				WEATHER NEAR LONDON, 1866.					M. Imp. avg. of 43 yrs. Grassh.	Orchids that may be in bloom. 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D
			rises.	sets.	phases.	subl.	Barometer.	Thermometer.	Rain.	Max.	Min.	Max.	Min.	Min.				
1867			h. m.	h. m.	h. m.	h. m.	MX.	MIN.	MX.	MIN.	ME.							
22	S	4th Sunday in Advent.	8 6	3 51	4 13 a.m.	2 19 p.m.	30.34	30.30	42	32	37.0	.01	37.4	Brassavola Digbyana, 1	.....	W. Indies.	22
23	M	W. M. Thackeray died, 1863.	8 7	3 51	5 16	2 43	30.23	30.31	45	31	38.0	.00	37.0	Cattleya Warscewiczii, 1	.....	Brazil.	23
24	T	Length of day, 7h. 47m.	8 7	3 52	6 16	3 18	30.21	30.22	43	28	35.5	.01	36.5	Codogyne Gardneriana, 1	.....	India	24
25	W	Christmas Day.	8 8	3 53	7 12	4 1	30.19	30.07	43	34	38.5	.00	36.4	Cunningghii, 1	Singapore	25
26	Th	New moon, 25th, 11h. 39m. p.m.	8 8	3 53	8 1	4 49	29.98	29.91	53	37	45.0	.10	36.5	Cymbidium giganteum, 1	.....	Nepaul.	26
27	F	Great Fast of Mohammedans begins.	8 9	3 54	8 45	5 42	29.83	29.74	54	40	47.0	.00	37.0	Marstonii, 1	India	27
28	S	Lord Macaulay died, 1859.	8 9	3 55	9 23	6 39	29.50	29.86	55	40	47.5	.00	37.3	Dendrobilium glumaceum, 1	.....	.....	28

The Gardener's Magazine.

SATURDAY, DECEMBER 21, 1867.

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY is altogether a separate institution from the "United Horticultural Society;" the first may live when the second has ceased to be. It is some time since we had occasion to say anything respecting either of these bodies, and we now make occasion because we fear a good thing stands in jeopardy through keeping bad company, and we wish to direct the attention of our readers, and especially of gardeners, to the first-named of these societies as worthy of their support, and as calculated to be eminently beneficial to its supporters. One of the principal objects of the promoters of the United Horticultural Society was the establishment of a self-supporting provident fund especially adapted to the requirements and circumstances of gardeners. This part of its work is accomplished, and the Provident Society is thriving, and none of the differences that have unhappily arisen in the other society are at all likely to injure it, though they may for a time deter many from participating in its advantages, who, except for such dissensions, would ere now have associated themselves with it, to add to its strength, while properly seeking to benefit themselves. It will be remembered that the Horticultural meetings and exhibitions were highly successful up to a certain point, namely, the second Guildhall show in 1866. Then it was that, unfortunately, the society parted with its independence, compelled its best friends to feel ashamed of it, and entered upon a downward path. Even at that juncture, the mistake of associating the exhibition with a fancy fair might have been blotted out by united action and spirited enterprise in the cause of horticultural science. But it was not to be so. Things fell out in such a manner that some few who had rendered trifling services were compelled to leave in justice to themselves, and this disruption pretty well made an end of the affair. We repeat that the Horticultural Society has served its purpose: it first formed the connexion and drew the men together who were to lay the foundations of the Benefit Fund. Then it earned the means to pay the expenses of the foundation, and to start the society with money in hand. Then it became what it now is, or is not,—a thing or nothing, a shadow, a miserable remembrance; but it matters not if those who still call themselves the United Horticultural Society would take measures to extinguish the very name, and so leave a movement that is sound and good to make its way free from all these disagreeable associations. That is all we are aiming at in referring to past events. We wish to forget them, and wish them to be forgotten; that can only be accomplished by making a formal end of a society which virtually has come to an end already.

Now we say to gardeners of all ranks and classes, the UNITED BENEFIT AND PROVIDENT FUND is established on the surest foundations: the law protects it; its provisions are equitable and liberal; its financial scheme is, according to the highest authorities in such matters, perfect; it is for you, then, to make it a glorious institution and call it YOUR OWN. We forbear to enumerate the benefits it offers, as the rules are obtainable on easy terms, and in these columns the whole subject has been treated of at length. But it is due to you, we think, as to ourselves, that we should point out that the two societies are distinct from each other, and that the Benefit Fund is as self-supporting as a life assurance company, to which it bears a close likeness. Let not the miserable state of the once promising and flourishing U. H. S. deter any one who might otherwise be disposed to become a member of the Benefit society; for in the management of this there is no room for dissensions, the rules provide for all contingencies, and common sense and probity are the only requirements for its good management. It has the benefits of these good qualities in its committee of management, and we earnestly commend it to the gardening fraternity as admirably calculated to assist them in preparing against the day when sickness or disability may render a self-provided store a greater blessing than the most benign of charities.

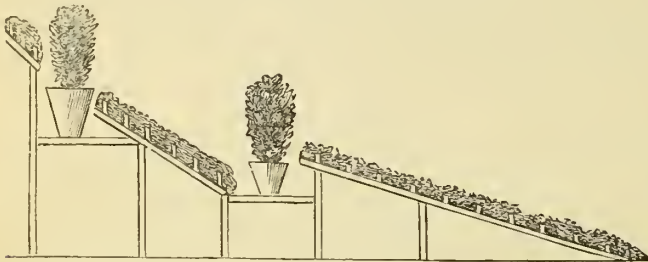
To the employers of gardeners we have to say, that as the time has come when generous-hearted people loosen their

purse-strings, and bestow according to their means for the good of fellow-creatures less happily situated than themselves, this society is deserving of some help, for it not only secures the thrifty on the principle of assurance, but offers aid to the unthrifty and the unfortunate on the principle of Benevolence; for the unthrifty are not without virtues sometimes, and the unfortunate have ever a claim upon us. Patrons and honorary members pay to the benevolent fund of this society one guinea per annum, or ten guineas in one sum; the society numbers a few such already, and we shall hope that ere the "festive season" is over it will count many more; for assuredly the disabled, or, as we usually say, the "decayed" gardener is as well entitled to help as the decayed follower of any other craft. It may not be irrelevant or unseasonable to remind employers that gardeners, as a rule, are far in advance of the average intelligence and character of the industrial classes, and that their wages do not as a rule fairly balance their responsibilities and many trying labours. In plain truth, the gardener is not so well paid as he deserves to be, and this fact intensifies a claim that may be established on altogether different grounds. Apart from the wages question, there is so much of misery and mishap shared by all ranks and classes of the community, and every class has some special care for its own poor. Let us therefore consider, at this inclement season, the case of gardeners in want, and, through the United Horticultural Benevolent Fund, send our messages of kindness to them with a generous hand. To the young members especially of the horticultural community we say, Make provision at once for a rainy day, for youth and strength will pass away. To all who enjoy any share of the comforts of life we make an appeal in behalf of age, infirmity, sickness, and misfortune, reminding them that Christmas is at hand.

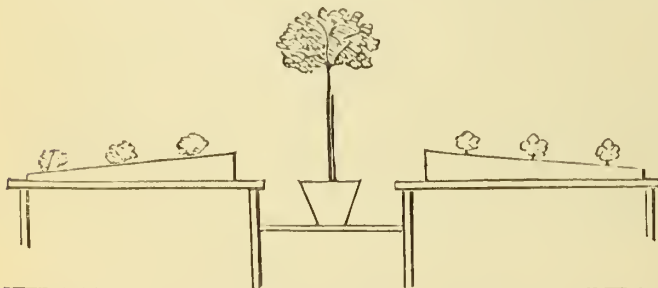
THE TASTEFUL ARRANGEMENT OF A FLOWER SHOW is one of the first essentials to its success. It is not enough for the general public, and it ought not to be enough for the professional visitors, to see well-grown plants, flowers, and fruits; a tasteful and effective grouping of the whole is imperatively required, and is not difficult of attainment. The grass banks and winding walks that contribute so largely to the perfection of the exhibitions of the Royal Botanic Society are too costly for any except a few wealthy societies, and are not to be thought of when we consider the possibility of improving flower shows generally. At Regent's Park, at the International Exhibition at Kensington, and at the last national gathering at Manchester, grass banks and mounds have vindicated themselves so effectually, that it is quite needless to say anything in their praise, and we only refer to them now in order that, in the attempt to improve exhibitions where such costly means cannot be employed, they may nevertheless be kept in mind as the sort of thing most desirable. To be strictly practical in these remarks, we must say first of all that as a rule the staging, the grouping, and the whole of the arrangements of provincial societies are objectionable, on the ground that as a rule they are ugly, and when not ugly, tame even to insipidity. Sometimes the plants are perched up so high that the visitor sees more of the pots than their occupants, and more of the timber supports than of anything else. The "line of beauty," which gardeners are expected to know something of, finds no development in the scheme of an exhibition; there is a tall stage in the centre of the tent, and some sort of table all round, and between them a walk for the visitors. Why it should be so angular and formal an affair we cannot imagine, unless it be to prove that man is a fallible creature, and apt sometimes to give to the line and rule the reverence he should reserve for beauty. It is not so much that one show is exactly like every other, that we make objections to the prevailing system, for the visitors do not all travel about and take an interest in exhibitions everywhere, but are chiefly concerned that their own should be a credit to the district, and a real help to the advancement of art and science there. Let us just imagine that we have a tent of a certain size to deal with. Mayhap, in the district may be a gardener or a carpenter of a designing (beneficently designing) turn of mind, and we go to him and ask him to design a set of tables and stages, not exactly of the stereotyped formal cut, but such as will

break up a mass of visitors into several streams, divided by variously shaped masses of plants and flowers, the grass banks and winding walks affording the basis of the scheme. We are rash enough to believe that in every town of this happy realm a man might be found without help of the crier who could accomplish this sort of thing, and in such a way, too, that, with the same timbers, the scheme could be varied every year *ad infinitum*, so as to be ever fresh and new, and afford an extinguisher to that particular (and rather large) class of superficial sight-seers who say, "If you see it once that's enough," and who actually believe that the same plants and flowers go every year to a flower show, and the same cattle and sheep to a cattle show. Of course these people are amongst the mistakes of nature, and ought never to have been born; but treasurers of horticultural societies profess to want their shillings, and the only way to get them is to give them something new every year. To turn the plants upside down and show the bottoms of the pots might do, but we rather incline to the plan suggested above of calling in the carpenter, and instructing him to plan a scheme which may be varied, and which shall not consist wholly of rectangular lines and figures.

But these hard straight lines that we complain of might be tolerated if we could but see the plants to advantage. It would be better in many cases if the stages were dispensed with, and the plants were placed on the ground in groups, and the visitors were allowed to circulate about them. If woodwork must be used, it should be very slightly raised above the ground-line, for, as a rule, we see a plant best when looking down upon it, and effective grouping cannot well be accomplished if the pots are on a level with the eye or above it. The next desideratum is to hide the timber, and give a seemly finish to all the mechanical details. How is this to be done? In the issue of the Magazine for July 7, 1866, we gave a sketch of a scheme for the imitation in carpenter's work of grass mounds and banks, and we here repeat it for the consideration of our exhibition friends during the quiet season.



Here is a very simple arrangement of staging, which conceals the pots and displays the plants to advantage. The sloping boards are covered with clean grass mowings, and the plants appear as if growing naturally on banks. It is with some gratification we call to mind that the proposal has been carried into effect in several instances, and in some cases (as our reports will show) the mere strowing of the stages commonly in use with short grass has very greatly improved the appearance of exhibitions. The best illustration of the proposal was that carried out by Mr. Crute, at the Guildhall shew last year, consisting of a raised circular bed in the centre of the hall, filled with chrysanthemums, primulas, and other cheerful flowering plants, with a groundwork of grass. Apart from certain fine specimen plants that compelled admiration, in spite of the pink calico that ruined that exhibition, Mr. Crute's



rich bed, formed on a framework after the scheme of the foregoing figure, and filled in with grass mowings, was the only distinct and pleasing feature of the whole exhibition. We were greatly pleased to observe at the splendid exhibition of chrysanthemums held lately in the Artillery Hall, Stratford, that our suggestion was in part carried out by the formation of a central table in two levels, as in the accompanying figure, where the pot-plants forming the centre line, with flowers on either side, were so placed that the plants were seen in their entirety and the pots were wholly hidden. Grass mowings are

scarcely available in the middle of November, and so as respects chrysanthemum shows our proposals must necessarily be modified. It is very strange that gardeners as a rule should forget the best part of their knowledge of pictorial effect and harmony of colours as soon as they set about getting up an exhibition of plants, and labour rather to render it an exhibition of unplanned deal and flower-pots. Perhaps, if we have patience, things will mend, and so for the present we will say no more about it.

CALIFORNIAN WINE.—In California grape-vines are planted about one thousand to the acre. In four years each vine yields half a gallon of wine, or five hundred gallons to the acre. In 1865, 40,000,000 vines were planted in California. The yield in 1866 was 8,000,000 gallons, and the value about 6,000,000 dollars.

MEAT BISCUITS.—The *Melbourne Argus* of September 26th says: "Mr. M'Cubbin, baker, King Street, who supplied meat biscuits for the Burke and Willis expedition, has sent us samples (which are very good) of such biscuits, both plain and sugared, made by a new process which he has patented. The matter is important at present, seeing how very large a number of sheep are likely to be boiled down this season for their fat alone. Mr. M'Cubbin informs us that he only requires the substance of the meat without the fat. He finds that he can, with a boiling-down establishment or a slaughtering company, make bread containing equal proportions of animal and bread stuffs, at a small cost over that of common cabin and navy bread. He has made samples that contained no less than six parts of meat to one of flour, and has flavoured them with vegetables and spice necessary to make any kind of soup. He can also make this biscuit with such a proportion of meat as to keep for years." It is one of the great problems of the time, how to convert surplus meat in Australia and South America into a saleable article in England. The manufacture of Leibig's Extract is already accomplishing one part; surely, the manufacture of meat biscuits would complete the solution of the problem.

EXHIBITIONS ANNOUNCED for 1868. The following are the dates of the intended exhibitions of the Royal Horticultural Society, and the Royal Botanic Society:—

- March 14, R.H.S. Hyacinths and other spring flowers.
- " 21 to 28, R.B.S. Hyacinths and other spring flowers.
- April 18, R.H.S. Forced roses and other spring flowers.
- May 9, R.H.S. Azaleas and other spring flowers.
- " 27 and 28, R.B.S. First great exhibition.
- June 1 to 13, R.B.S. American plants.
- " 2 to 5, R.H.S. First great show.
- " 16 and 17, R.H.S. Special prize and pelargonium show.
- " 17 and 18, R.B.S. Second great exhibition.
- " 30, R.H.S. Rose show.
- July 1 and 2, R.B.S. Third great show.
- " 16 to 21, R.H.S. Provincial show at Leicester.

TUESDAY MEETINGS of R.H.S., 1868.—Jan. 21; Feb. 18; March 4 and 18; April 1 and 15; May 6 and 20; June 3 and 17; July 1 and 15; August 5 and 19, Sept. 2 and 16; Oct. 7 and 21; Nov. 17; Dec. 15.

LECTURES at the ROYAL BOTANIC GARDENS, 1868.—May 15, 22, 29; June 5, 12, 19, 26; July 3.

UTILIZATION OF SEWAGE.—After a careful consideration (says the *Journal of English Agricultural Society*), the following practical conclusions may safely be deduced from these experiments: 1. That by the use of sewage a very great increase (varying from two to threefold according to the season) may be obtained in food, milk, or value of the milk. 2. That a yet larger increase may be anticipated from the application of sewage systematically over large tracts of average or sandy land, than was obtained from these pastures of naturally good feeding quality, and consequent higher natural yield. It is estimated that with 5,000 tons of sewage judiciously applied to Italian rye-grass or meadow land properly laid down to receive it, an average grass produce of not less, and perhaps more, than 1,000 gallons of milk per acre per annum might be anticipated, which, at 8d. per gallon, would represent a gross money return of £33 6s. 8d. Or, to put the result in another way, it required, according to circumstances, the consumption of between 5 and 6 tons of grass for the production of 1 ton of milk; and if we reckon 6 parts of grass for one of milk, and 30 tons of grass per acre, this would give a gross return in value of milk at 8d. per gallon something over £37 per acre, or of about 25s. per ton of grass consumed.

AGRICULTURISTS AND THE CO-OPERATIVE PRINCIPLE.—A meeting of agriculturists was held in the theatre of the Islington Literary and Scientific Society, on Wednesday, for the purpose of discussing the propriety of introducing the principle of co-operation into agricultural business affairs. The meeting was convened by the Agricultural and Horticultural Association (Limited), an organization whose main object is the establishment and spread of agricultural co-operation. Mr. T. Hughes, M.P., presided, and advocated the principle of co-operation. An interesting discussion followed.

A FERN-LEAF wreath, with imitative coral appendages, is brought out by Mr. Goodman, of the Strand, as a Christmas household decoration. The effect is good.

CATALOGUES.

LAIRD AND SINCLAIR, DUNDEE. *Descriptive List of Gladioli.*—In this excellent catalogue the varieties are classified according to their predominating colours, which increases its usefulness. It is a full list, and includes the newest kinds.—*Select Catalogue of Roses.* A choice but not a meagre list, for it comprises all the classes, and the best varieties in each.

SUTTON AND SONS, READING. *Amateur's Guide for 1868.*—This increases in bulk and goodness every year. It is crammed full of useful information; and in the lists of various kitchen garden and flower seeds many matters of interest crop up to render the book everywhere something better than a trade circular.

THE RONDELETIA.

I am unable to say whether the scent sold as *Rondeletia* at our shops is obtainable from this shrub or not, but certain it is that some of the kinds emit a most delicious and grateful perfume. In point of beauty, as regards its flowers and its desirability for making a handsome specimen, it can successfully compete with any stove plant with which I am acquainted. But it is so often seen in such a neglected manner—poor straggling plants, instead of large, handsome, well-shaped specimens—that I am induced to offer a few remarks upon its management. In doing this, I shall dwell as briefly as I can upon the cultural directions, with a due deference to its intelligibility. Most of the species are naturally of a straggling habit; therefore, when the plants are intended to be grown into large specimens, they will require careful culture and training in the young state, for it is well known to plant growers that unless hard-wooded plants are taken in hand from the commencement of their existence, which we will suppose begins on their leaving the cutting-pots, it is a matter of the greatest difficulty, to say nothing about impossibilities, to get large handsome plants such as those which were properly trained from the beginning. The propagation is not a matter of very great difficulty, for the young half-ripened shoots will strike readily enough if inserted in sand and peat, covered with bell-glasses, and the pots plunged in a mild bottom heat of about 75°. They must, of course, receive proper treatment as regards shading, watering, and other little matters well known to everyone who has any knowledge at all of plants and plant-growing, and which will be entirely unnecessary for me to dwell at length upon. We will suppose the plants to be well rooted and ready for potting off. Sixty-sized pots will be found to be the most suitable to put them in, and fibry peat and sand the best soil to use for that operation. As soon as the plants are established in these small pots, their tops must be nipped off about three or four joints from the base. As soon as these eyes are started and the young shoots grown a couple of inches in length, the pots will generally speaking be found to be full of roots, when the plants must be shifted into forty-eight or thirty-two sized pots, according to the strength and vigour of each individual plant. In this shift use a little loam in addition to the peat and sand, in the proportion of one part loam to three of peat. As the plants progress they must be stopped and trained, so as to get a good foundation as it were to build the plant upon. After they are shifted into twenty-fours, which will most likely be the following spring, they will require training neatly. A globular shape is preferable, and it is good practice to top only those shoots which are too luxuriant, and are likely to rob the weaker ones. After they are out of the forty-eights, a larger proportion of loam should be added—say one-third part to two of peat will be a good mixture—and plenty of clean crocks broken to the size of small hazel nuts, in addition to a good sprinkling of sharp silver sand. A little charcoal broken finely is advantageous in assisting to keep the soil open and porous; but at the same time I do not attach so much importance to the charcoal as to advise going to a lot of trouble and expense to obtain it; but if it can be got at easily, it is as well to use it. Both peat and loam must be lumpy, for finely-sifted stuff, or soil deficient in fibre, is of no use whatever if fine healthy plants are expected; for the roots are rather delicate, and unable to run in close soil, or that which soon gets sour. As some kinds of peat are apt to acquire a degree of sourness ere the pots are filled with roots, it may perhaps be as well to remark that at all stages of growth the pots used should be thoroughly clean and well drained with rather small crocks, so as to carry the water away readily. In the middle of summer when they are growing vigorously, they will take a pretty liberal supply of water at the roots; but even then, as well as when the plants are at rest through the winter, the greatest caution is necessary; for if the roots are over-watered, it will be impossible to keep them healthy, and, on the other hand, if the roots suffer from drought, some of the kinds will soon shed their leaves, thus destroying the beauty of the plant for a long time. In giving this caution, I do not for a moment say that this plant is more susceptible to injury from excessive watering or drought than others of its class; for all hard-wooded plants, more particularly large specimens, have to be watched narrowly to keep them going on favourably.

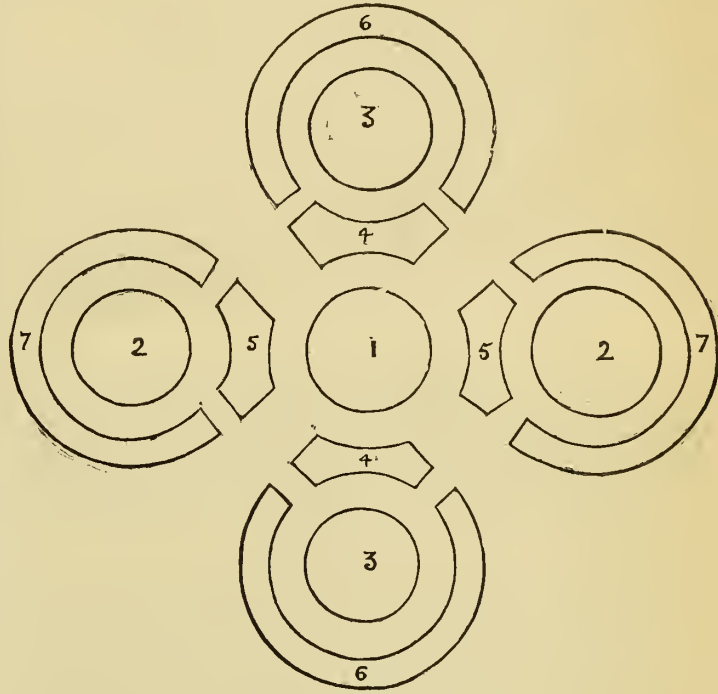
Like other stove plants, the *Rondeletia* requires syringing occasionally to keep the pests which usually infest it in subjection. They must also be kept free from scale by hand-washing when necessary, for the syringe has very little power over the scale. Nothing betrays so quickly a want of skill and attention as to see plants eaten up with insects. As regards the best kinds, I shall name three only, and those are the most popular: *R. speciosa* and *R. speciosa major*, both flowering in April, with nice trusses of bright orange-scarlet

flowers, which are abundantly produced. *R. versicolor* is also a very fine kind; it blooms in February and March, with large trusses of a light pinkish colour. This is fine for bouquets, and is very sweetly scented. GEORGE GORDON.

THE BEDDING OUT AT "THE LAURELS," TAUNTON, 1867.

In the spring of the year, when my friend Mr. Hibberd was on his western tour, he favoured me with a visit. I promised to communicate to the readers of the Magazine some details of the planting of the geometrical and other beds in my flower garden, a sketch of which will be found in the Magazine of the 1st of June last. I now gladly redeem my promise, with a hope that my brother amateurs may find in my plans something worthy of a trial in their arrangements for next year. If the reader who is really interested in this subject will turn back to page 232 of the Magazine for the 1st of June, 1867, he will find the sketch just referred to. It is drawn to a scale of 1-18th of an inch to 1 foot, and is therefore too small to be reproduced for the illustration of the particulars now to be given. I have therefore supplied some rough (but I hope useful) diagrams, which will be best understood by comparing them with the sketch at page 232. It should be here remarked, however, that since that drawing was made I have carried out a few alterations, there being now a conservatory attached to the dwelling-house, and a series of three beds on the small lawn adjoining the house, the position of which is near the rockery and trees, marked G on the plan referred to.

The border on the left of the large design (which, by the way, has for a background a dwarf wall covered with ivy) was planted as follows: Line of *Cineraria maritima*, line of *Iresine Herbstii* (which only looked well very late in the season, and will not be used again); next a row of *Cloth-of-Gold Geranium*, followed by a band of *Lobelia speciosa Indigo Blue*, and edged with *Cerastium tomentosum*, next to a narrow strip of turf, which separates the border from the walk. I consider this arrangement would be much improved by substituting *Amaranthus melancholicus* for the *Iresine*, and *Arabis variegata* for the *Cerastium*. The colouring was certainly chaste, and was much admired.



Group of Flower Beds, A.

Star-shaped Bed, F on the plan (see page 232).—A centre of *Centaurea ragusina* (syn. *eandidissima*), one large plant, from which radiated lines of *Amaranthus melancholicus* (kept in bounds by frequent pinching). The spaces were filled in with *Geranium Mrs. Pollock*, a band all round of *Lobelia speciosa*, edged next the grass with *Cerastium tomentosum*. I was so much pleased with this, and the numerous visitors praised the arrangement so highly, that I have determined to repeat it next year, and to plant the bed marked E precisely the same, with the exception of Mrs. Pollock, for which will be substituted *Variegated Geranium Flower of Spring*, and I may even be tempted to give *Iresine Herbstii* "one more trial," using it in place of the *Amaranthus*. I should here add a few words to those who cannot grow Mrs. Pollock. It failed with me until I deeply trenched the soil in early winter, and gave it a good dressing of stable manure, and in the spring, as soon as the winter bedders had been removed to their summer quarters, it was again dressed, but this time with well-rotted manure and a little leaf-mould. No geranium could have grown more vigorously, and the markings of the foliage were beautiful in the extreme; indeed, it grew so well that I was enabled to secure upwards of a thousand strong cuttings from this one bed. The old plants were, of course, taken up and potted off for the winter, from each of which I hope in the spring to take three or four more cuttings.

Circular Bed, D.—This was filled with *Coleus Verschaffeltii* edged with *Centaurea gymnocarpa*, as described in my paper on "Bedders" which appeared in the Magazine of 23rd Nov. last. We recommend those with whom the *Coleus* has failed to try the plan which we succeeded so admirably. It will amply repay the trouble taken. I should also add that as soon as the plants have taken hold of the soil and begun to grow, the discoloured leaves, of which there will sure to be a few, must be carefully removed.

Circular Bed, C.—In this the centre was formed of *Amaranthus melancholicus* surrounded by a broad band of *Calceolaria aurea floribunda*, followed by one of a similar width of *Viola cornuta*, and edged with *Stachys lanata*, kept

within bounds by frequent stopping. This would be improved by substituting for the outer edging either *Dactylis glomerata* var. or *Arabis alpina* var. I would also for *Viola cornuta*, which is both uncertain and the bloom weak in colour, substitute either *Purple King Verbena* or *Lobelia speciosa*.

Star Bed, E.—Centre of *Flower of the Day Geranium*, followed by *Geranium Brilliant*, edged with *Purple King Verbena*, and a band next the grass of *Cerastium tomentosum*. This was in every respect good.

Geometrical arrangement, A.—I have supplied a sketch of this; the scale is 1-8th of an inch to 1 foot. The centre circular bed (1) was filled with eight or nine strong plants of *Variegated Japanese Maize*: this was so highly spoken of in the spring catalogues, that I had great care taken to secure good and well-variegated plants, but I was even more disappointed with this than with the *Viola*. The plants grew strongly enough, but never looked even decent. The leaves became ragged and unsightly, and the whole were eventually removed and replaced with a specimen of *Dracaena Australis*. I have seen this (the *Maize*) growing in several places in this neighbourhood with much the same result: it certainly is not a "bedder." Circular beds (2, 2), *Ageratum Prince Alfred*, and (3, 3), *Viola cornuta*, which served me so badly, and so went to the rubbish heap. (4, 4), *Geranium Cybister*, and the pair beds (5, 5), *Geranium Christine*. The horseshoe beds (6, 6), *Geranium Lady Middleton*, which,

filled with *Lobelia Indigo Blue*, edged with *Echeveria secunda glauca*. The arrangement of this, though simple, was greatly admired.

I must now refer to the beds that have been formed since the plan at page 232 was drawn. These are on the small lawn adjoining the dwelling-house, and in form and arrangement are represented in the annexed diagram. The circular beds (letters J, J) were planted with *Geranium Lord Palmerston*, edged with *Geranium Bijou*. The large oblong bed (K) had for centre *Dactylis glomerata* var; on each side of it rows of *Amaranthus melancholicus*; next, on each side of the last, *Golden Chain Geranium*, followed by a band all round of *Lobelia Indigo Blue*, and finally edged with *Variegated Chrysanthemum Sensation*. This was perfect, and I do not suppose that, vary it how we may, we shall beat in this particular bed the planting of 1867.

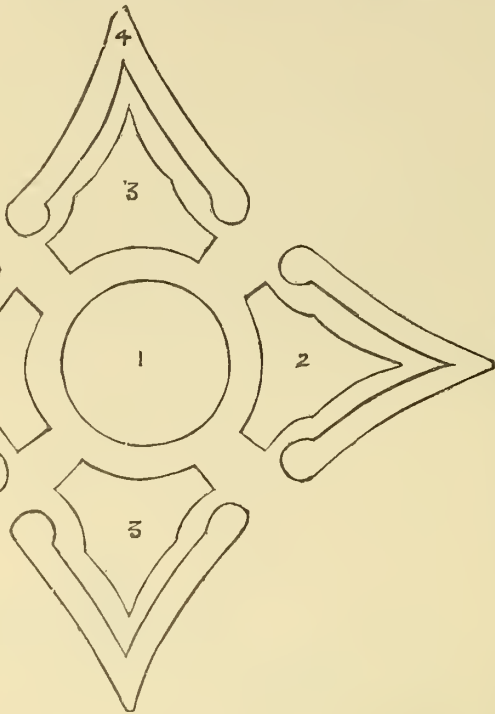
The Laurels, Taunton.

J. B. SAUNDERS.

WRINKLES FOR ROSE GROWERS.

Many a laggard is caught with uncompleted arrangements by King Frost, who never fails to punish procrastination by plentiful crop of doubts and fears, and apprehensions of failure in our cherished projects. When once the tyrant has set down his iron foot, who can tell when he will think proper to take it up again? We may be weather-bound for weeks. Our plantings and removals delayed till the prospect of summer blooms becomes an enigma difficult of solution, and all because of neglecting to seize father Chronos by his top-knot at the proper opportunity. To the victims of such unfortunate delays, however, there are still crumbs of comfort in the idea that ingenuity may in some degree repair the consequences of neglect; so let us see how to effect such a desirable consummation. The remedy is in manure. Where planting has been deferred, from whatever cause, some such course as the following must be pursued. Obtain a good supply of warm litter, the shorter the better, and having determined upon the situation where plants are to be placed, lay a good circle of manure, nine inches in depth at least, upon the soil. The ground under this will be impervious to the hardest frost, and whenever circumstances are convenient for planting, by simply removing the aforesaid manure the ground beneath will be in admirable order for receiving plants; afterwards the manure may be returned over the surface in the shape of a luxuriant mulch, to be worked in during the spring.

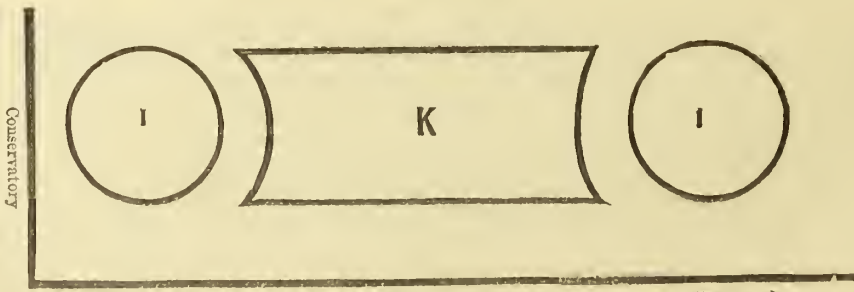
Those rose growers who wish to obtain fine blooms may adopt the following plan even yet, although it is somewhat late. Wherever roses are to be planted, let a foot or so of the earth be removed, and fill the cavity so produced with a couple of gallons of liquid manure—the richer the better. This will soak into and permeate the soil, forming a rich reserve of nutritious food, for roses, like the typical aldermen of old, love good living, and revel in strong liquors. At the end of February or commencement of March, weather permitting, the trees may be planted in the prepared hollow, filling in, in juxtaposition with the roots, a mixture of fat loam, roasted sods from heavy land, strong pig-manure, and a shovelful of bones. With such treatment of his plants, the would-be exhibitor need not fear that his roses will be passed disdainfully over by the judge's eye for want of substance, for they will be, as the knights of King Arthur's round table declared themselves to be, "very big;" and the less ambitious cultivator, who merely grows for the delectation of his lady friends, will often enjoy the satisfaction of being called "a dear man," from the surpassing beauties he will be able to present them with.



Group of Flower Beds, B.

by the way, is A 1 of its colour, especially now that my plants are about three years old. It bloomed profusely and remained so up to the beginning of November, when the plants were taken up and potted off for next year's display. These beds were edged with *Variegated Dandy Geranium*. The horseshoe beds (7, 7), *Stella*, edged with *Arabis variegata*. This design was not so good as I could have wished, owing to my being short of the plants required to fill it as I had arranged. However, it was a blaze of colour, and pleased very many of my visitors.

The opposite geometrical design (B), here drawn to the same scale as the last, is by no means easy to plant, and it will consequently be broken up in a few weeks, and replaced by one which may not look so graceful on paper, but will be much more suitable for the purpose for which it was designed. This was planted as follows: Circular centro bed (1), a specimen plant of *Yucca variegata*, with a broad band of the *Variegated Dactylis*; the triangles (2, 2), *Madame Vaucher Geranium* and *Verbena La Boule de Neige* mixed, edged with *Variegated Geranium Queen of Queens*, the *Verbena* being introduced for the sake of the white bloom, which made up for the "shortcomings"



Walk.

of *Madame*; the triangles (3, 3), *Geranium Flower of Spring*—these beds were very beautiful, and greatly admired; the two boundary V-shaped beds (4, 4), *mixed Verbenas*, edged with *Gnaphalium latatum*; the boundary V-shaped beds (5, 5), *mixed beds of Purple King Verbena, Geranium Manglesii, and Variegated Alyssum*. The arrangement of this design was much more successful than the other; but No. 2 beds were not satisfactory, owing to the indifferent blooming of *Madame Vaucher*.

The border on the right-hand side of the garden was filled with a mixture of *Geraniums, Verbenas, Heliotropes, Tagetes signata pumila, Petunias, Stocks*, and other bedders "on trial," backed by *Dahlias*.

In the centre of the lawn on the left side there stands a very fine specimen of *Arucaria imbricata*, around which the turf has been removed for some distance, in the same manner as those at the Crystal Palace. This space was

Here is another indentation for the rosarian's thoughtful brow: "suckers," a word delightfully suggestive to the juvenile imagination, but equally abhorrent to the mature rosarian mind. Do what we will, these nuisances crop up more or less, like the daughters of the respectable horse-leech, crying ever, "Give, give!" draining the strength of our favourites, turning roses into stocks, betraying growers into unseemly language, and a state of irritation by no means congenial with the gentle spirit which should animate the votaries of floricultural science. How are these pernicious parasites to be eradicated? There is but one way of dealing with the

plague—the careful application of the knife at the time of planting. Every vestige of an incipient eye should be removed; not simply pared smooth with the surrounding surface, but scooped boldly out, like extracting the core of an obnoxious corn.

Again, there is nothing which demands the enthusiastic rosarian's watchful care more than the selection of a skillful workman to plant his trees when he has obtained them; for fine plants are but fine failures if not properly placed in the ground. Let jobbing gardeners, or third or fourth rate nurserymen, who send out men of a similar grade, be eschewed as rosicides. There be some such, as the rosarian of Chaucer's time would have said, who knowe not yo briar from yo mannetio; I wolde not truste soche, I ween, to plante oven a birche brome. Plants will be ruined, temper spoiled, money wasted, if these ignorammuses are trusted. "Horresco referens." I once fell a victim to the proceedings of one of those barbarians. Plants died by the dozen. New and expensive varieties gradually fell into the sear, the yellow-leafed condition, and dwindled away without apparent cause. When the skeletons of the defunct, however, were removed, to be committed to the muck-pit or fire, their disorder was apparent enough. Briars had been planted a foot or more deeper than the collar; manetti works were left three or four inches above the ground. This was a lesson to go to a first-rate nursery only for men to plant roses, and, indeed, also for the plants themselves. "Verbum sap."

Another point in planting roses, not half sufficiently attended to, is the careful expansion of the roots in the ground before filling in, and the completely surrounding their fibres with some soft encouraging loam or comfort for them to run into, and the tender spongiolos to take up when spring growth begins. How can healthy growth, or any growth at all indeed, take place when the roots of plants are jammed together like a Chinese lady's toes, and the delicate young fibres have to make their way into earth trodden as hard as pavement and as sticky as soap?

There are few objects in the garden which exhibit a more disconsolate and forlorn appearance during winter than standard rose-trees; they present, however, a much more dismal aspect tied in bundles at the doors of the London seed-shops, like samples of birch-brooms. I saw my friend Greenhorn the other day labouring to the train under a huge packet of standards, which he had purchased on his way from the office, believing he had secured a treasure at a marvellously low price. The shoots were already shrivelled and yellow, and their roots looked like bundles of withered horse-radish. "What do you think of these, old fellow?" he chuckingly exclaimed, "I rather flatter myself this season I shall take the shine out of even you." I recommended him, in reply, to have the knobbyest and thickest trimmed into walking-sticks for nocturnal purposes during the winter festivities, as they would be sure to be dead in the course of the spring. Elderly ladies too, of confiding dispositions, and old fogies who wish to grow roses on "the cheap," are very fond of purchasing lots at the sales. Such a method of procuring roses is a delusion and a snare. The plants are usually the refuse of small country nurseries, where the stock consists of bygone varieties, and they have commonly, moreover, been out of the ground till dry, knocking about in sheds and railway vans. A rose, to thrive properly, should be out of the ground the shortest possible time, and if sent any distance the roots should be carefully packed in wet moss, well covered in with sound exterior layer of straw. The branches, especially the work should likewise be treated in a similar manner.

"All that's bright must fade," saith some poet or other; and, unfortunately, roses, like poor humanity, are subject to the disagreeable propensity of growing old. More fortunate than we, however, they are capable of being rejuvenated to a certain extent, and this is the process of grinding roses young again. At any time, from November to the end of February, weather being suitable, carefully take up the plants without damaging the roots, and remove a cubic yard of earth from where they have been growing. Fill up the cavity with a mixture of the strongest maiden loam and rich manure; then cut back the roots of the plants considerably, selecting a nice tuft of fibres for the termination of the operation. Demolish every vestige of a tap-root; exterminate even the ghost of a sucker. Cut back every main shoot of the head to within two eyes of the work. Be especially careful that the pruned roses are placed in soft maiden soil only, away from any contact with manure; indeed, this practice should be a canon in all planting.

I will just add two or three little "crowsfeet" nevertheless, not to be despised on that account. Wash your "stocks" as well as your stockings. If you wish to avoid green-fly, import half a peck of ladybirds. If you wish to prevent your

"toas" from catching cold, give them a "nightcap." Lastly, if you are ambitious to become a first-rate rosarian, take in the GARDENER'S MAGAZINE!

W. D. PRIOR.

Clapton.

THE SEASONS AND VEGETATION AT THE ANTIPODES.

In the Proceedings of the Royal Society of Tasmania, occurs a list of the Leafing, Flowering, and Fruiting of a few standard plants in the Royal Society's Gardens, which shows the bearing of some of our garden plants at the Antipodes:—

December 12th, common Privet commencing to flower; 15th, first bunch of Red Currants ripe; 20th, first bunch of Black Currants ripe; 25th, *Mollia Azedarach* commencing to flower; 31st, *Doyenné d'Été* Pear commencing to ripen.

January 10th, *Veronica angustifolia* in full flower; 11th, first ripe Apricot gathered (Royal); 18th, *Groevilla robusta* in full flower; 18th, first Jargonelle Pears gathered; 25th, *Catalpa syringifolia* in flower; 30th, Black Mulberries commencing to ripen.

February 1st, Peaches commencing to ripen (George IV.); 8th, Kerry Pippin Apple commencing to ripen; 11th, Windsor Pear commencing to ripen; 16th, Bon Chrétien Pear commencing to ripen; 16th, Greengage Plum commencing to ripen; 26th, Ash commencing to shed seed.

March 9th, tip of Hornbeam commencing to turn yellow; 10th, *Colchicum autumnale* in full flower; 12th, *Coc's Golden Drop* Plum commencing to ripen; 14th, *Szeckel* Pear commencing to ripen; 15th, tips of Elm turning yellow; 16th, Horse-chestnut leaves turning brown; 20th, Oak-leaves commencing to fall.

April 3rd, Chinese Chrysanthemum commencing to flower; 4th, Elm-leaves commencing to fall; 9th, *Coc's* fine late Red Plum commencing to ripen; 18th, Mountain Ash-leaves commencing to fall; 25th, leaves of Black Mulberry commencing to fall; 30th, seeds of *Carpinus betulus* commencing to fall.

May 10th, first Medlar ripe; 17th, *Coronilla glauca* commencing to flower; 25th, *Ailantus glandulosa* leaves all shed; 30th, *Photinia serrulata* commencing to flower; 31st, *Spiræa prunifolia* commencing to flower.

MONKEYS IN THE COTTON FIELDS.

A cotton planter from Georgia gave his experience, some time ago, in the *Galveston (Texas) News*, on training monkeys for picking cotton. He writes that in 1849 he owned a cotton plantation in Georgia, and that having occasion to visit the Island of Trinidad, he was persuaded to buy twenty-three monkeys, at a round price, to test their latent capacities for cotton picking. The letter adds: "I was mighty well pleased when I received my monkeys. Their arrival turned my plantation topsy-turvy. For two weeks nothing was done by whites or blacks but play with the monkeys. The overseer got one of the brightest looking, and remained at his house most of the time watching the monkey's tricks, and I must confess that my wife, myself, and children were in the same business. Seeing this would not pay, I began making preparations to go to work. I had reckoned on one negro managing ten monkeys, and five monkeys picking as much as three negroes.

"For the next two weeks, all hands, whites and blacks, were engaged in the cotton fields teaching monkeys. The result was somewhat different from my calculations. Instead of one negro managing ten monkeys, &c., it took ten negroes to manage one monkey, and then the monkey did not pick a pound or an ounce of cotton. I became disgusted, gave all my neighbours that would accept a monkey, and about a fortnight since sold the last eight to a travelling menagerie at five dollars apiece. My monkey speculation has thrown me behind six weeks in cotton picking. The next time I go to Trinidad, I don't believe I shall want any monkeys."

A GAY CHIMNEY AND A FRAGRANT GARDEN WALK.—The following directions "To dress up a chimney very fine for the summer-time, as I have done many, and they have liked it very well," is extracted from a curious work, entitled, "The Queen-like Closet, or Rich Cabinet," by Hannah Woolly, 1681: "First, take a packthread, and fasten it even to the inner part of the chimney, so high as that you can see no higher, as you walk up and down the house. You must drive in several nails to hold up all your work; then get good store of old green moss from trees, and melt an equal proportion of beeswax and resin together, and while it is hot dip the wrong ends of the moss in it, and presently clap it upon your packthread, and press it down hard with your hand. You must make haste, else it will cool before you can fasten it, and then it will fall down. Do so all round where the packthread goes, and the next row you must join to that, so that it may seem all in one. Thus do till you have finished it down to the bottom; then take some other kind of moss of a whitish colour and stiff, and of several sorts or kinds, and place that upon the other, here and there, carelessly, and in some places put a good deal, and some a little. Then any kind of fine snail-shells, in which the snails are dead, and little toadstools, which are very old, and look like velvet, or any other thing that was old and pretty. Place it here and there as your fancy serves, and fasten all over with wax and resin. Then for the hearth of your chimney you may lay some orpine sprigs in order all over, and it will grow as it lies. And, according to the season, get what flowers you can, and stick in as if they grew, and a few sprigs of sweet-briar. The flowers you must renew every week, but the moss will last all the summer, the orpine will last near two months." One phrase in the above should particularly recommend it to such of our readers as, in the nice language of the day, have a love of propriety. "Little toadstools, &c., and anything old and pretty." Was ever antiquity so smoothed over? The culinary recipes have nothing remarkable in them. Everything, to the meanest meats, is sipped in claret, steeped in claret, basted with claret, as if claret were as cheap as ditch-water. I remember Bacon recommends opening a turf or two in your garden walks, and pouring into each a bottle of claret, to increase the sense of smelling, being no less grateful than beneficial. We hope the Chancellor of the Exchequer will attend to this in his next reduction of French ~~wines~~, that we may once more water our gardens with right Bordeaux.

A PLEA FOR THE VARIEGATED CURLED BORECOLE.

In your remarks on Winter Decoration of Flower Gardens, contained in the GARDENER'S MAGAZINE of the 7th ult., you write disparagingly of the variegated kale for winter decoration, at same time recommending them as being well adapted for the shrubbery borders and the kitchen garden. We must differ from you so far, as we find them very ornamental in flower-beds or borders, when properly treated. At present we have a bed filled with Melville's triple curled, which looks even at present quite brilliant, and when the plants begin to make a little fresh growth they will then look even more so. The centre of our bed is dark purple, surrounded with three rows of mauve, finishing with an edging of white. Our treatment is as follows: To keep them dwarf and compact, and to bring out the true colours, we sow the beginning of March thinly; after the plants are a moderate size we transplant them into poorish soil, in an open space of ground, but not too close together. They remain there till wanted for use, when they are removed at any time to the winter garden. We plant out in November, and keep the heads with their foliage close to the ground. We cut off all the lower rough leaves, leaving the rich-coloured centre or head, which in all weathers will be found to stand up neat and trim, even in bright frosty weather. Although the plants are much reduced in size by cutting off the under leaves, they can be planted much closer in the beds. Another plea in their favour,—they are within the reach of every one; a packet of seed can be bought for one shilling, enough for most purposes. One plant of a good sort of ivy would cost as much. We agree with all you say in praise of the latter, *i. e.*, the ivy, as being beautiful subjects for winter decoration.

STUART AND MEIN.

Kelso, N.B.

FAIRLOP OAK AND FAIRLOP FAIR.

There is one mystery of mankind that always baffles one, and that is, why it should be necessary for people to go to fairs. If I only knew why, I could begin this paper with a philosophical observation, and show that it was in obedience to a stern and deep necessity of our moral natures that my excellent friend and neighbour, Dr. McDonnell, and myself, were wafted on the wings of a mutual impulse to Fairlop Fair on Saturday last. No; not on the wings of a mutual impulse exactly, for we had the wings of Pegasus to bear us along, and it was the mutual impulse that made us willing to give Pegasus an opportunity for a flight through some miles of London fog, and some more miles of country rain, slush, and chilling wind. I'm so satisfied that no human philosophy can account for the proceeding, that I begin my task by giving it up. What I give up is the mystery, not the task, for it is to tell a story that I have begun with these incoherences. The story should begin with the impulse. We, that is to say, not the humbugging "editorial we," but the Doctor and the Party now inditing, and who no doubt deserves to be indicted for sharing in the impulse and perhaps for its initiation,—we started in our open phaeton with a brisk bay-coloured Pegasus with a flaxen tail for Fairlop Fair, on Saturday last, the 14th of December. All other people who go to Fairlop Fair prefer the first Friday in July, for it is then a rather lively proceeding; or I should say *was*, for Fairlop Fair was finally closed by us on Saturday last, and will be heard of no more except through these immortal pages. Yes, Dr. McDonnell and the Party inditing were the last frequenters of the scene of revelry which for 150 years has on the first Friday in July been enacted in Hainault Forest. I have not known the forest or the fair through all that time, but only since thirty-five years perhaps, having been born some three-and-forty years ago at the London end of the long stream of people that lined the road on Fairlop night, to see the fairing people and the boats returning. We agreed to go and see what was to be seen on a dull sloppy December day; and we did well, for from first to last we had a glorious holiday, and Pegasus was as ready when all was over for another flight as if, when he was stabled steaming and muddy, he had only just started in the freshness of youth from the blood of Medusa. Being a thorough East-ender, it was my part to play pilot, and guide the Fairlop boat. We left Stoke Newington about half-past ten, and steered through Hackney to Old Ford, in order that, for thoroughly enjoying the fair, we should be first ground young. When I was a small East-ender, and, with the rosy hue of smiling youth, ranged on happy foot and light of heart in innocence and glee over Ben Jonson's fields, and with superexcellent innocence caught red-poles in the meadows flanking "Cut-throat Lane" (where is the East London Cemetery now), to sell to schoolmates at "tuppence apiece," there was famed in that happy land a sweet retreat, called "Clay Hall," where the delighted youth of both sexes witnessed for a consideration the gyrations of some painted dolls, which performed the attractive drama of "Decrepit Age transformed to Youth." There never was a grander treat than *that*. Nobody that I knew ever wanted to see anything grander; and nobody ever had seen anything more wonderful, beautiful, and refreshing. So away we went through Victoria Park, and thence down the Old Ford Road, and at last we pulled up at a very commonplace looking "public," finding ourselves at this great landmark, this remaining beacon of the light of other days,—this happy island of the world of innocence and glee that once was, and which still bears the happy designation of "Clay Hall." Pegasus snorted with disdain, to inform us that he was not usually so arrested in his wild career when in the service of Apollo and the Muses; but on being assured that we were seeking the gift of perpetual youth, he stood patient while we sought the necromancer. A mild damsel in the bar received us, and to our trembling interrogations replied that they still ground old people young in the *summer time*. "Then this bold expedition," we expostulated, "must have the blight of a disappointment upon its initiatory phase, and an omen, dark and dreary to presage its dreary end." The damsel was impenetrable, immovable, unpoetic, and renounced her necromantic art; and so we strolled into the garden to behold the spot where, through the aid of the painted dolls, many generations had been delightfully informed of the possibility of second childhood. Oh, the changes that time works! What was to me once upon a time a region of enchantment was now only half an acre of mud. The ground was greasy and sour, the great grass-plot had become a miniature bog, on the farther side of which a dead pavilion seemed to float like a cast-up shanty of the primeval men. This dead pavilion is no doubt the principal retreat for people who still go there in the "summer time," to be reminded of Pygmalion and Frankenstein and Meph., and such other people, who, in common with the keeper of Clay Hall, have the gift of the renewal of youth. I presently descried other dead pavilions of a ghostly washed-out blue

colour starting out from the far-off walls all round, like as if Charon would occasionally row across the bog, and convey a dead doll to the nearest dead-house he could find. How were we startled to meet the Queen hero, standing bolt upright, clad in faded robes of state, and looking fixedly into futurity, guarding one of the dead-houses! But so it was; and her majesty's feet somehow changed into great clumsy acanthus leaves; for the wooden figure carved and painted to represent the mighty and beloved sovereign of these realms, was mounted apparently on some worn-out capital of a disused wooden pillar, and so was saved the ruin of her royal feet from contact with the bog. On the other side of the same dead-house rose a fearful spectre, with the head and shoulders of a man terminating in vast acanthus leaves; it might be a colossal bust of somebody stuck ruthlessly in the mud, but I think it much more likely it was a pale giant immersed to the waist to undergo the earth cure for rheumatism. Filled with fear and dread at these things, we stole about suspiciously, looking for the awful mill where the grinding was performed. All our fear was soon dispelled by laughter, for we found a sort of a little shop, twelve feet or so wide, with an iron railing in front to keep back the crowd (when there was a crowd), and in front of the shop a long shutter; and I remember that when that shutter rose in days gone by, the wondrous work of rejuvenating delighted the eyes of all beholders. It was once so vast, so grand, so wonderful, but *now* it was a very small and very washed-out peep-show. The Doctor immediately plunged into the depths of his erudition, and began to recite Moir's beautiful lines on "Disenchantments," while I called to mind that on one side of the show we used to see an aged pair go tottering to the mill, and presently the same pair came out skipping on the other side all joyously in the flush of youth and love,—and we knew them to be the same by their garments. We quaffed a refreshing bowl, gave Pegasus the signal, and away we went, feeling a little bit the younger for having seen the outside of the show.

At every step, as we paced over ways that I had known from a boy, the many marks of change were almost past belief. All the substantial villas that had ivied porches, and the old gardens that had picturesque gateways, are gone, and in their place are dense blocks and rows of small houses, most of them newish, and all of them humble. No, the porches and gateways are not all gone. We noticed the remains of a grand old garden on the left, the old trees within looking very sooty, and the wall without being quite covered with the gigantic autograph of Griffiths and other varlets in the whitewash line. Next we noticed a fine old Norman-looking gateway, with a scrap of ivy nodding from it, like the one lock of curly hair left on a bald-headed patriarch. This had been the entrance to a fine place, which had now become a wood-yard. We uttered an invocation, "Woodman, spare that arch!" and told Pegasus to go on. Presently we emerged into the high road beside Bow Church, another and a genuine bit of the picturesque which the March of Improvement has left untouched.

We took the road to the left of Stratford church, and then began to feel we were in the country. If you know the route, you will agree that all about the Green, from the front of Stratford church till you reach the railway bridge, is as perfect a picture of an old country town as you can well have, considering there is no market-place, no cross, no cage, and no great butcher's shop with elm-trees in front, and a great penthouse to shelter the rosy meat. Next past Bunney's nursery, and so on to Leytonstone. Now, let me tell you that a drive of this sort on a dull December day is far from unenjoyable to those who really love the country. The well-kept rural boxes of the wealthy Cits present a series of bright pictures; their great yew-trees, great firs, and great cedars; their rich groups of evergreens in the spacious front courts, the rich planting of deciduous trees round about, in the midst of which gigantic oaks, walnuts, and elms, rise up to take a peep at the passers-by; the gleam of the glass-houses, seen over the tips of dark ivy-covered walls; and the invariable lively trill of a song-trush, or the chir-r-r-r-r-r-ah of a startled blackbird,—afford most delightful variations from views over ploughed lands, and the occasional watching of great flights of lazy rooks skimming the highest heavens in search of fresh pastures. We had a little laugh at the little effigy that grins over the doorway of the Red Lion: it is a lion with mouth from ear to ear, and is undoubtedly the very lion from which those ingenious artists to whom we are indebted for lion-mouthed letter-boxes borrow the idea. Bravo, lion! and *esto perpetua*, with any other bits of Latin that may appear appropriate. The Crown next, with its picturesque portico. We ought to have brought the great effigy of the Queen from Clay Hall to present it for this portico. Pegasus refused to stop, so in another instant we passed the Green Man,—the immortal, renowned, romantic Green Man, and then we were actually on the forest. It is not the forest now so much as it is the "Cowley Park Estate." There are some gravel pits and some furze-brakes, and some clumps of trees, but the forest is gone, gone, gone; and I shall never sing away the sunny days in its leafy glades, or dream of Robin Hood amongst its giant oaks, or gather blackberries in the mellow autumn there again. No, nor will any of the East-end boys, for the glades are cart-roads, and the oaks have become timbers or firewood, and the blackberries are trampled in the dust. Towards Woodford there is much lovely forest still, and from thence to Buckhurst Hill and onward glorious scenes remain; but they are all doomed, doomed; the builder and the farmer are dividing them, and Utility is putting Poetry under its iron heel, to blot it out for ever.

But our way is really towards Hainault, and a pretty long round we are making of it. We pass Wanstead village—charming spot even on this dull winter day—and so on, through charming country, rising in swelling uplands crowned with fur-parted clumps of trees, and we are not long in reaching Barking-side. Don't confound this with the river-side Barking; for that is miles away to the south-east. On the left we note a little ploughman's public, called the "Old Fairlop Oak," and presently we enter by way of a good new road through a sort of sea. Now observe, I speak of this place as like a sea, for on either hand stretch wide and far immense billowy-looking corn-lands, and it is now raining fast, and the brown clay glistens, and the thin crop of weeds contributes a greenish shining gleam to the vast landscape, so that it looks more like water than land. There is on the left a well-compacted farm of quite the modern school, and we say, "Here dwells another Mechi." Neat labourers' cottages, neat galvanized iron straw-sheds, endless rows of corn-ricks, and innumerable flights of small birds that rise in clouds, and circle and mingle and wheel about, mostly going on before us as if to clear the way; and labourers visible at distances, though the work is almost stopped by the rain, and the half-finished furrow tells of the activities that only the unkind elements could check. Masses of trees on the horizon, and clumps of trees as on low islands rising from the general sea; but otherwise the aspect of the place is that of a thoroughly settled, farming country, where there has been no forest for at least a thousand years. Now for the "Disenchantment," which the Doctor would recite again, but

he begins to feel the cold as I do, and is, like me, smitten with the pangs of hunger, and Pegasus is a most black with wet and goes along in a cloud of his own perspiration. The farm belongs to Mr. Ellison; and in the great corn-lands on the right of the road as we go forward is the site of the once-famed Fairlop Oak and Fairlop Fair. The oak has gone long ago; the fair was held for the last time in July 1867; and, according to the best known maps, we are now in the very heart of HAINAULT FOREST.

On again through the blinding rain and through a sea of mud, that Pegasus plunges at, and that is a more serious sea for him than the drenched corn-lands are to us. Presently we see burst from the billows, like the enchantment of the Fata morgana, the charming village of Chigwell—name renowned in story, name precious to all East-enders who love the old forest, and remember something of its departed glories. Yes, we are within hail of Chigwell Row, and the muddy glimmer of the well-known pond warns us which way to steer through the rain and murk, and in another three minutes we are within the shelter of the brave old Maypole Inn, which for 200 years has received the weary traveller, and made him forget the cold, the danger, and the fatigue of forest travel in far worse weather than such mild drenchings as ours of to-day. I quite expected to see the ghost of Hugh (you remember him, of course—Maypole Hugh!) come forth to take charge of Pegasus; but another Hugh, whose Christian name is John, was there instead, and we saw the winged steed eating vulgar corn, and being kindly rubbed down and covered up by the other Hugh, ere we put our feet before the blazing Maypole fire and prepared for dinner.

We began by tasting the Maypole ale by the same hearthstone at which Mr. Dickens warmed his toes when exploring these parts, to give the strong touch of picturesque reality, the true breathings of the forest and its grim traditions, to his glorious story of "Barnaby Rudge." Mrs. Maypole remembered Mr. Dickens and all about his visit. The house and its surroundings were sketched for those charming pictures from the pencil of Hablot K. Brown with which the life-like tale was embellished when it first appeared. If Mr. Dickens had as good a steak, with as piquant gravy, and as snowy foamy potatoes, and as good ale, and as cheery a bottle of old port, as fell to our lot, he can have no quarrel with the Maypole; he must, indeed, love it for its own sake, to say nothing of its picturesque power in the principal scenes of that best amongst his many wondrous works. We did not pick up a single tradition of him, for it was not our business to be inquisitive in any such matter; but to gather up all we could of Fairlop and Fairlop Oak. But we did sit by the bright wood fire sipping the good wine, and talking of poor daft Barnaby, and the matchless skill with which this most original character is developed. And we went over all the plot, for it seemed as fresh to us as if we had read the tale but yesterday, though neither of us had seen a page of it since it first came forth, a surprise and a delight, some five-and-twenty years ago. Oh, the "pleasures of memory"! to have all that story fresh before us, like a drama acted in the bright wood fire. There we saw the cold-hearted Chester confronted by the implacable Haredale, and John Willet and the gaping tipplers listening to hear the due fought in the great room above, and remembered their comical disappointment, and the dreadful hate that on both sides stayed its expressions in blood. Old Varden, too, and the wounded Edward, and the lovely Dolly Varden, and Simon Tappertit, and Miggs,—O Miggs, Miggs!—and the incomparable fainting fit, when Simon stuck her against the wall, and left her like a broom that had been crossed in love. Just as we got to this part, the fire fell in and showered a lot of sparks on the hearth, and instantly we had a great picture of the burning of the Warren, and could hear the dreadful bell, and saw the direful Rudge; and through all the scene rushed the mad Hugh upon the stalwart steed, and London itself fed the flickering flame; and that madman Lord George Gordon fed his vanity and his fanaticism on the wretches that lay down in the Holborn gutter, and drank from the stream that the burning distillery supplied, and rose up maddened, and rushed to their ruin. The fire fell in again, and we saw Joe Willet married to the lovely Dolly, and were shocked to hear the Raven Grip cry "Amen;" and at that instant Mrs. Maypole appeared with pipes and tobacco, and once more we suffered a disenchantment, and came back to hard reality and demonstrative prose.

While we saw Pegasus harnessed again for his mean drudgery, and though the minister of Apollo still willing to be useful to mankind, we looked about in the dusk for a few of the old landmarks. "Ah," said the ostler, "I've stood here and counted the deer." No doubt; but in his time, as in ours, there were never many to count, though there are a few somewhere, and one especially that is kept for the Easter hunt, and that every year still makes his run from Fair Mead bottom whither he likes, but always where none but a certain gifted few can follow him. I can remember, too, when all round about here, for miles and miles, the forest gave its pleasant shade to millions of violets and primroses on cushions of greenest moss. Then it was that Fairlop was in its glory. Every year, on the first Friday of July, the East-enders poured forth in crowds, and the worshipful Society of Blockmakers, the descendants, in the mechanical line, of Daniel Day, the founder of the fair, led the way in well-built and very gaily painted boats mounted on wheels, with smart teams and postilions, with streamers, trumpets, and loud huzzas. Until the boats had appeared, the traffic of the road was as nothing compared to what followed; and at the forest until the boats came upon the scene the fun of the fair had not begun. Their appearance was the signal for anything and everything. Gongs were sounded to call the attention of the admirers of fat women and male giants, numbers of such being on view; brass bands threatened to split the heavens and shatter the trees with blasts of terrible melody, because there was a tragedy to be acted in five minutes; or Mr. Wombwell (then a reality, and sometime a resident near the canal in the Commercial Road) was ready to admit visitors to see the Polar bear, and the lioness that had a litter of whelps. Then the booths were opened, and the drinking and dancing began; then, for three throws a penny, there was a chance of getting a useless pocket-knife, if you could but hit it, and for the paltry sum of "two-pence you might swing sky-high, and nothing extra to pay for being sick." How many commonly went to the fair, think you? Well, a statistical postman, whom I met at Stratford not long since, told me he had counted 4,000 vehicles of various kinds going down the road on Fairlop day, and that passed by one spot in the space of four hours. Many a one-horse trap would contain sixteen persons, "all agog to ride through thick and thin;" but the average all round would be eight to every machine, a total of 32,000; so we shall not be far wrong in estimating that the visitors to the fair averaged 50,000, even in its latter days.

At night the Mile-end Road used to be just the counterpart of the Kennington Road on the Derby day; but the scene had this peculiar characteristic, that every carriage, cart, drag, dray, or what else, was completely covered with green boughs, so that one might say Birnam Wood had come to

Dunstable. It is a matter worth noting that on the first Friday of July, every year, the forest was torn to pieces; the people went to enjoy and also to destroy. We must remember such points as these when in the humour to howl about the decline of old customs. The best I know about the night was what used to take place at the "King's Arms Assembly Rooms," at the corner of Beaumont Square. The great Hemingway (he was great to his boys then because of his public duties) was living then, and it was the custom for the boats to halt there, in the midst of an awful crowd, and presently Hemingway used to appear at a window, and bawl out a Fairlop song, having for its burden, which the crowd took up and made a thundering chorus of,

"A charter we've got to support the old spot,
And Fairlop shall flourish again and again."

Once upon a time, I had a fit for collecting materials towards a history of old trees. Poring over a heap of prints at a little shop in St. Martin's Lane, a thrill of delight shot through me on discovering a Catnachian edition of that very song, and another, which used to be sung by Mr. Lidard (Lidard no doubt), both embellished with a most racy woodcut, as primitive as one of Caxton's, and professing to be engraved on a block cut from the original tree. I published a copy of this song, with some particulars of the tree, in "Notes and Queries," of May 15, 1852, and now, in December, 1867, I present the readers of the Magazine with a fac-simile of the sheet (see next page); and if any one likes to have the original for a five-pound note, I will part with it, and pay over the cash to one of our Stoke Newington charities.

The Catnachian sheet will inform the reader that Fairlop Fair was founded by one Daniel Day, blockmaker, of Wapping, about the year 1720. It began as a simple bean-feast to his men, and they selected for their rendezvous a grand old oak-tree that spread over a space of ground 30 feet in circumference; just about the same size, in fact, as the cedar-tree in Abney Park before age and storm had begun to destroy its fair proportions.*

When in its glory, Fairlop Oak had a grand fluted column, which measured at a yard from the ground 36 feet in circumference; its head was formed of eleven vast arms, which rose more in the manner of a beech than in that of an oak. The area of 300 feet circuit which it covered was the original dining place of Daniel Day's party, and therefore became ultimately the centre of the fair. It was barbarously mutilated—the boughs were torn down, the trunk was hacked and hollowed, and fires were lighted in it. At last, a desperate effort was made to save its life. It was enclosed with a palisade five feet high, and Forsyth's composition (then considered a certain regenerator) was applied to its wounds, and a board was affixed bearing this inscription:—

All good Foresters are requested not
to hurt this old tree, a Plaister having
been lately applied to its wounds.

But the lovers of forest fun would persist in destroying it. The palisade was broken down, fires were again lighted within the trunk of the tree, and in the month of June, 1805, it was set on fire, and continued burning until the following day, and was then nearly destroyed. Still it lingered on, a ghostly shell of its former self, a grim reproach to wantonness, a memento for a time of that destructiveness which has ever been a characteristic of the Englishman enjoying himself; but the end was near. In February, 1820 a fearful storm raged in Hainault Forest, and the decrepit tree came down with a dreadful crash, and strewed the ground with its mossy branches and the fragments of its wasted trunk. Nature's silent work through more than a thousand years (for scarcely less than that was its age) was thus mocked by man in his pretended devotion to her beauties and beneficence. What became of the mass none can tell, yet it was not wholly lost; for from the best timber that could be selected from the remains was constructed the

PULPIT OF ST. PANCRAS CHURCH,

which all true lovers of sylvan lore may see by attending Divine service there; and may it do them good to note the splendid carving, and to hear whatever lessons of love and duty are offered them from that venerable rostrum!

It only remains to add that the enclosing of the forest lands has rendered the extinction of the fair inevitable. For some years past it has been permitted within the enclosures, but the permission ended in the holding of the fair in July last, and we may say it has ceased to be. The terms of Daniel Day's will require it to be held in Dagenham parish, and in Dagenham parish no available spot can be found, for wherever there is a suitable place it is on Crown lands, and the Government are resolved to give it a quietus. "Ah," said one whom we questioned about it, "the clergy glory in putting a stop to the people's recreations! It's a good thing they haven't everything in their hands." Well, there are two sides to every question. None who have any sympathy with the toiling masses can resist a strong feeling of regret at the rapid destruction of forests, and the enclosure of picturesque wastes near the great metropolis; but the population increases, and corn-lands do more for mankind than forests; and though a great fair affords a great holiday, and gives innocent delight to thousands, there has been some degree of riot and dissipation mixed up with Fairlop Fair from the very beginning; and we need not look upon the clergy as the enemies of mankind if they desire to purge their parishes of scenes and people that in any degree tend to demoralize their flocks. There may be a way out of all these difficulties—a way of combining all that is jovial, free, and hearty, with absolute innocence of mind and the benefit of health, but we fail to see it just yet, and must wait and hope for a brighter future.

When we left the Maypole it was growing dark. We had to feel our way as it were along the roads, and we took the nearest cut, making for Lea Bridge Road, and we went home in at least half the time we spent in getting there. The day ended pleasantly, as it began. All the way home the rain poured down, but we sat close under the hood, with good wraps about us; and it seemed little else than a flight through the air, that ended in our sitting again before a bright fire, and while drinking good tea recounting our adventures in much the same way as I have done them here. Henceforth, it is only in our memories that "Fairlop shall flourish again and again."

S. H.

* Those who are curious about minute particulars may refer for them to a pamphlet published in 1813, entitled, "Origin, History, and Rise of Fairlop Fair." In 1795 a pamphlet on the subject was published; the title of this I cannot give. In "Excursions through Essex," published by Longman, 1818, vol. ii., p. 56, are some particulars of the tree. In the "Mirror," one of the best of the early-founded cheap and useful magazines, vol. ii., p. 81, is a figure of the tree. In a work published in 1847, entitled "Fairlop and its Founder; or Facts and Fun for Forest Frolickers, &c., printed at Charles Clarke's Private Press, Tobham," are fuller particulars than in any other work. In Mr. Gilpin's "Forest Scenery," the tree is described as one of the finest oaks in England. Lastly, to end this note of the bibliography of the subject, there is a figure of a tree in the "Gentleman's Magazine" for July 1806. None gives no particulars, and that is a marvel!



An original Drawing by an eminent Artist mounted on a Woodcut engraved on a Block of the Celebrated Tree.

The Stem of this vegetable Prodigy, which was rough and fluted, measured, at 3 feet from the ground, about 36 feet in girth, and the boughs extended about 200 feet in circumference. The Fair which is held upon this spot was founded, about the year 1720, by Mr. Daniel Day, Block Maker, of Wapping who gave his men an annual Bean Feast, under the shade of the Oak, on the first Friday in July, and which has been visited for a number of years by the Block Makers and Watermen of the eastern part of the metropolis, who parade round the spot singing the following Songs.

Song from the Block Makers' Boat, sung by

Mr. HEMINGWAY.

George, our great King as he sat on the throne,
The supporters of Fairlop sent in their petition,
That he the old Oak in true wisdom would own;
The answer returned from the head of the Nation—
This we agree, that the Maggot and Spot
Never shall be crushed, but for ever shall reign;
A Charter we have got to support the old Spot,
And Fairlop shall flourish again & again.
This answer so noble abroad quickly spread,
The enemy to friendship began to complain,
That this Fair of mischief was surely the head,
And if suffered would certainly soon show its aim,
Down cried he with this Fairlop Tree;
But George, ever generous, said, Cease to complain. A Charter we got, &c. &c.
Freedom, the Goddess for Britons so fair,
When she heard that a few of her supporters so free
Did reverence the Oak which was always her care,
And she said that the day ever sacred should be,
The Maggot and Spot the care of us shall be,
And never shall be crushed, but for ever shall reign. A Charter we got, &c.
Bright July now comes on, when we all are so gay;
The first Friday in the month we all know,
Our Maggot for ages shall shine on that day,

And every year some new splendour shall show.

When we agree that the Maggot and Spot
Never shall be crushed, but for ever shall reign. A Charter we got, &c.

Now my brave boys, since united we be,
With friendship and harmony keep up the day,
Our boat rigg'd and mann'd well, so pleasant to see,
There's nothing can equal our Maggot so gay.

A Toast now I say to good Daniel Day,
Who taught us first this Fair to maintain.
A Charter we have got, &c. &c.

*Written and Sung by Mr. Lidard,
from the Watermen's Boat.*

Come to Fairlop Fair, my good fellows invite

To partake of that day, that is our delight,
For we have spirits like fire, our courage is good,
And we meet with the best of respect on the road;

Would you see us you'd say, when we are muster'd quite gay,
Success to the lads that delight in that day.
Haste away, haste away, all nature seems gay,
Let's drink to the joys of Fairlop so gay.

Our horses are all of the very best blood,
Our boat is well built, and her rigging is good,

With our coats and our badges we unanimous agree,
And join hand in hand to support the old Tree;

There's old Cruff and young Cruff our music shall play,
While George Hall's staunch ponies shall tow us away. Haste away, &c.

'Twas one Daniel Day that invented this fair,
As hearty a fellow as ever was there,
The lord of the manor our Charter did gain,
And we sons of old Neptune will uphold the same;

We'll enjoy all the pleasure that springs from the day.
And ever remember that old Daniel Day.
Haste away, &c.

From Wapping Old Stairs away then we drive,

Upon the first Friday that comes in July;
We breakfast at Woodford, at Loughton we lunch,

And return back to Roundens to dine and drink punch;
Then our boatswain he starts us away to the Fair,

While Phoebus does shine on our colours so clear.
Haste away, &c.

It's when from the forest to Ilford we steer,
Every town we go through we'll give them three cheers;

Then up to Tommy Wright's for to get refreshed there,
Then return back to Wapping to sup of the best fare;

Where we'll dance and sing so cheerful and gay,
And ever remember that old Daniel Day.

Now, having described our boat, horses, and crew,
And our Fairlop so gay, which you all do review,

Our boat she comes home by the winding of eaul,
And now you are welcome into Fairlop Hall;

Our boat we'll put up for another fair day,
And ever remember that old Daniel Day.
Haste away, &c.

A few years before Mr. Day died, his favourite oak lost a limb, out of which he procured a coffin to be made for his own interment, and often used to lie down in it to try how it would fit him. He died Oct. 13, 1767, aged 84, and his remains were conveyed to Barking by water, pursuant of his own request, accompanied by six Journeymen Block and Pump Makers, to each of whom he bequeathed a new leathern apron and a guinea.

WINTER WREATHS AND BOUQUETS OF DRIED EVERLASTING FLOWERS AND GRASSES.

Before naming the lists of flowers and grasses employed in the formation of the bouquets and wreaths which you desired I should send you, I wish to make a few remarks. Some experiments were made here last winter with ferns, but all proved miserable failures. Perhaps you know of some good way of preserving these things; if you do, pray let out your secret. What I have seen of sand-dried ferns and flowers have not prepossessed me in their favour. When I see a bouquet formed with these combined with dyed flowers and grass, I turn sick at heart at their untidy, tawdry, and unnatural appearance. It is against the advance of taste to encourage and use such material for the purposes of decoration. As taste is of the first consideration in this sort of work, let us disqualify such got-up things, and consign them to the rubbish heap, their fittest place. You must be well aware how seldom flowers are tastefully arranged. Fresh flowers share this want above others. Your frequent visits to shows and elsewhere must convince you of this. The bouquet that struck your fancy most during the past season was exhibited at Nottingham, I think—described in your Magazine as being composed of pink, white, and blue flowers—and a confirmation of this. By the by, you did not make known the names of the flowers used in it. You must be familiar with the flowers and varieties of grass as used here in the formation of the bouquets and wreaths, and perhaps in your time have treated them as pets, as I do now. Do not therefore expect me to trouble you with a treatise on the best mode of cultivating these things, most of which are as simply managed as the grass in the fields, as well as the subject being well-nigh written out. There are a few exceptions of course in an extensive list. If all went on smoothly in the art of cultivation, much of its pleasure would be gone, and I fear with it much of our energy. Some plants may be bad to manage and grow, with the best attention bestowed upon them; but with proper treatment the few exceptions to this list may be brought to flourish in a most satisfactory manner.

All the plants having arrived at the flowering state, a sharp watch must be kept over them, to secure the fresh young blooms; picking them when dry, laying them on papers on shelves, in an airy warm place, where they may be quickly dried, so as to store them away, to make room for others. When a sufficient variety is dried, they can be made use of at once. A little time and experience will soon teach the unpractised the correct moment when to pluck the flowers. For variety, they must be gathered at various ages, from the coloured bud to the wide expanded flower. The storing place should be very dry, damp and moth being their greatest enemies. All the flowers might be immersed in a solution of corrosive sublimate and spirits of wine, which would keep them free from the depredation of the moth. Perhaps few would value them so much as to take such trouble in their preservation. However well cared for, the brightness of the colours will fade in time, so that when last year's flowers are placed near this year's gatherings, you would pronounce them dull—perhaps I ought to say worthless. The yellows are an exception. In these

faded flowers I see an advantage, as it will keep the cultivator and arranger in annual employment. Little more remains for me to add before I proceed to enumerate the list, except that should the cultivator meet with disappointment the first season do not let that cast him down. None become adepts at once. Experience and frequent practice alone can make him perfect. This will apply equally to the arranger, who must go on enthusiastically in her work of taste until arrived at the goal of perfection. Should the arrangement of what you have seen of these things infuse in you a fresh love for them, and the notice of them in our Magazine gain for them more cultivators and tasteful decorators, it will please me much, for I have no other end in view than to call attention to the usefulness of these beautiful flowers and varieties of grasses for ornamentation.

To the list of flowers I am going to name should be added the *Aphelaxis*, *Gompholobium*, and *Statice*. Firstly, I will call attention to the pretty little white *Ammobium alatum*, which is perennial; not yet killed by a frost of 8° or 9°. Judging by its present appearance, it will succumb to the rude northern influence before April. The *Aeroclinum roseum*, with its lovely tint of rose-pink, is a gay addition. The white variety is also a great beauty, but is scarce. My packet of seeds only produced one plant with white flowers, the others having flowers shading from rose-pink on the outer petals to pinky white on the inner ones. This is in every way a charming annual, and of the easiest cultivation.

Helipterum Sandfordii and *corymbiflorum* produce pretty little clusters of flowers, the first yellow in colour, and the second white star-like ones. These require care in growing.

Polycolymna Stuartii has a curious flower, is a free grower, and is not yet killed by the frost.

Then come the pretty *Rhodanthes*, which will well repay any extra care they may require in their cultivation.

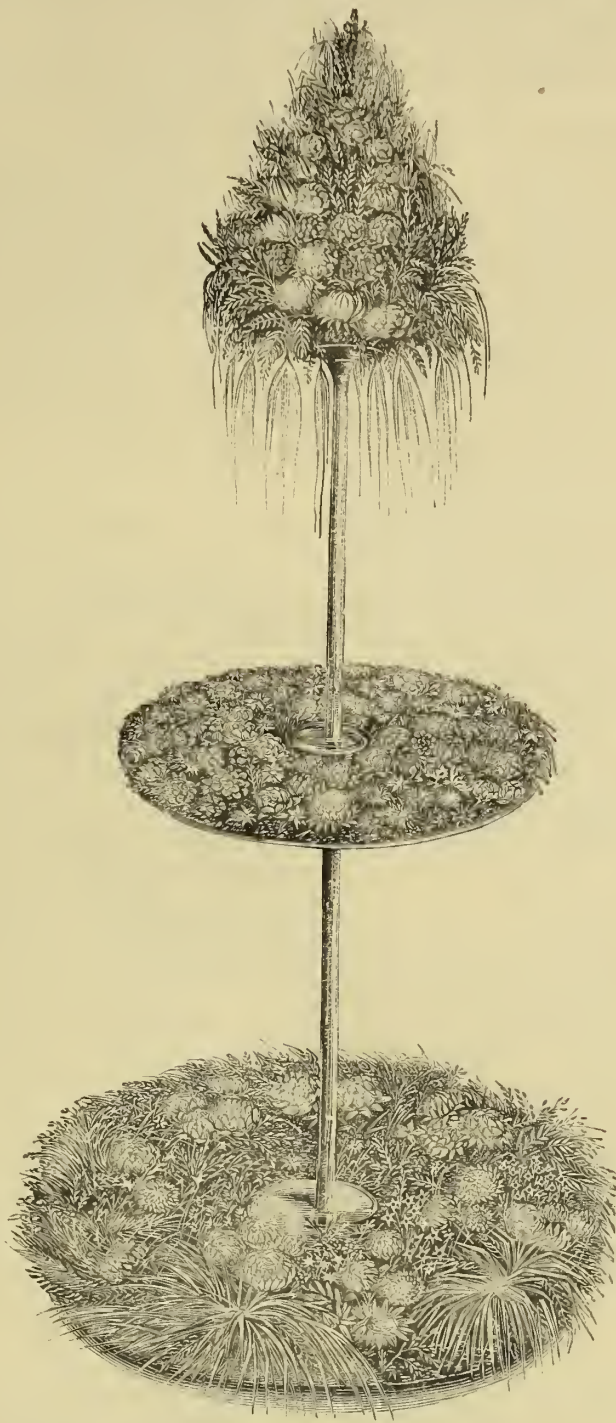
All the *Waitzias* have so far mastered my skill; though I have flowered some of them in the open border this summer, the result was most unsatisfactory. I shall try them once more, some in the border and others under glass.

Now I come to the *Helichrysums*. On these must the decorator mainly depend, which with the above will make up a pleasing variety. My chief stock of these plants was raised from a German packet of seeds of 12 varieties. From the Messrs. Henderson, of Wellington Road, I had

one, under the name of *Atrosanguineum nanum*, which produced very richly coloured flowers; and another called *Borusoram Rex*, yielding fine double white flowers.

The *Xeranthemums* I exclude, though their flowers are so handsome on the plant; in colours, from rosy purple, through various shades, and carnation striped, to plain white. When plucked and dried, the colours fade and look dull.

The list of varieties of grasses is much longer; to make it brief, I will mark what I most fancy with an asterisk (*). **Avena sterilis*, **Agrostis nebulosa*, *A. plumosa*, **A. pulchella*, remarkably pretty; **Bromus briziformis*, *Chloris radiata*, *Chloropsis Blanchardiana*. **Briza maxima*, *gracilis*, and *minor*. **Ceratachloa pendula*, large imposing spike. This has more the appearance of a fodder grass than any novelty I have seen. It is fresh, succulent, and growing with me at this cold time. All around the mother plants spring up young



ones from the fallen seeds. *Chloris barbata*, **Eragrostis elegans*, **Hordeum jubatum*, *Dactyloctenium Aegyptium*, **Elymus glauca*, **Lagurus ovatus*, **Leptochloa Schimperiana*, *Monochytron roseum*, *Panicum sulcatum*, **Paspalum stoloniferum*, **Pennisetum longistylum*, **Stipa elegantissima*, *Lappago racemosa*, **Milium multiflorum*, *Panicum compressum*, **P. jumentorum*, *Setaria macroseta*, and last, but not least, the pampas (*Gynerium argenteum*). Such plumes as we have here of this fine grass compel me to rank it first and foremost amongst large decorators. From six to twelve spikes placed, as if growing, in a large pot, with some of the leaves stuck in with them, is an imposing ornament in any suitable position. Out of a list of thirty wild species of grass I have collected, I will just name the cream: *Phleum pratense*, *Milium effusum*, *Agrostis spica venti*, *Aira caespitosa*, *Arrhenatherum avenaceum*, *Avena flavescens*, *Melica uniflora*, a lovely thing; *Glyceria fluitans*, *Festuca gigantea*, *Bromus asper* and *sterilis*, *Juncus lampocarpus*, *Carex remota*, *C. pendula*, *C. sylvatica*, and the varieties of the cultivated oat.

My seeds I had principally from Messrs. Carter and Co., some from Messrs. E. G. Henderson and Son, Wellington Road, and others from Mr. Thompson, of Ipswich.

Paignton.

VIVIAN OSWALD WALMESLEY.

[We should regret the necessity of adding a word to the above were it not absolutely necessary. Mr. Walmesley sent a bouquet and two wreaths of dried flowers and grasses, and asked for an opinion upon them. We frankly offered an opinion, and at the same time we wrote and asked him for some account of the plants, and the methods employed by him. The result is what we now have the pleasure to make public, the best essay ever written on this interesting subject. As to the examples sent us, the fruits of Mrs. Walmesley's skill, they surpass everything else of the kind we are accustomed to, as much as the sunshine surpasses the noisome flicker of a grease-pot at a country fair. We have seen some thousands of bouquets of everlasting lately, and what were they? Mere bundles of badly dried flowers tied up with dyed moss and dyed grasses, hideous mockeries of the beauty of the natural flowers, grasses, and mosses we have in the work of our esteemed friend. We have placed the two wreaths and a small bouquet in one of Naylor's épergnes, and the annexed figure affords a fair representation of the furnishing; but Mr. Damman, usually so truthful and elegant, has this time rather missed the mark, and given a hard wiry appearance to objects which are really most light, flexible, and elegant. The large bouquet has been mounted in one of Claudet and Houghton's hyacinth glasses (blue and white), and covered with a glass shade, and the result is a most elegant sideboard ornament. As our friend is still desirous of suggestions, we will remark on the subject of ferns, that if gathered when full grown and perfect, and quickly dried between blotting-paper under pressure, they keep their colour and character admirably. The heaths would scarcely need pressing. But we are much more anxious to learn of Mr. Walmesley, and feel that attempting to advise in this case is little else than vanity. Remembering the bouquet alluded to, it was shown, not at Nottingham, but at Peterborough, by Mr. Macaulay, of the medical profession, and consisted chiefly of geraniums, with a few scraps of lobelia. It was of course made by that gentleman's better half. It would be a pity if we forgot to add that all the flowers in Mrs. Walmesley's work are mounted on wires.—ED.]

A BUNCH OF BREVITIES.

A CAUTION TO THE PURCHASERS OF NEW PLANTS.—*A Perplexed One*: It is no difficult matter to me to solve the mystery of the plants in your houses getting infested with all kinds of injurious insects, such as the mealy-bug, red-spider, and thrip, as well as the white and brown scale, since, as you say, early in the summer of this year you bought in many new plants for the decoration of the stove, the greenhouse, and conservatory. It is quite clear that, if any or all of the above-named insects were unknown in your houses before, when you bought the plants you also (unknowingly) bought these very troublesome enemies. But, since you are not the only sufferer in this way, I would wish to make my reply to your letter a general warning to all intending purchasers of new plants, because they are very often the means through which many of the plagues of the garden are communicated from one place to another. It is therefore necessary to have a vigilant eye upon all new introductions before they are placed amongst any valuable collection of plants. They should be thoroughly examined and, if necessary, properly cleansed as soon as they come to hand, before there is any chance of their communicating to other plants anything with which they may be infested. I could name a certain nursery, not twenty miles from London, at which you have only to buy a few azaleas, and you will have thrip in abundance; and if you are a stranger to mealy-bug, just choose a few stove plants, and you will be certain to become familiar with it soon after you get the plants home. The same remarks will apply to the white and brown scales, especially if you purchase a few rather old plants of camellias and acacias.

SOLOMON'S SEAL.—*George Holmes*: I think it is not generally known that this hardy herbaceous plant forces well. I find it a most useful subject for forcing to intermix with other forced plants, and it is really very easy to do. If potted at once, and placed in a cold house for a fortnight, it may be started in a temperature of about 55° until it opens its first flowers, when it should be transferred to the conservatory. The refreshing green of its leaves is a delightful change amongst the more sombre tints of other plants.

THE AER NEGUNDO VARIEGATA AS A POT PLANT.—*P. & Co.*: We have grown this for several years in pots, and find it a highly decorative plant. Its foliage affords such a lovely contrast, when intermixed amongst early cinerarias and such plants as camellias and azaleas. But with us the most telling effect it has made was when a few plants were forced on and placed amongst a selection of forced roses; it was then most effective. Like most other plants, it forces best when established in pots at least one year before. They look best on stems about two feet high, with the strong growth pinched back once in the early summer to form a better head.

EARLY SPRING RADISHES.—*Amateur*: To have radishes out of doors early in the spring, they must be sown on the first mild day after Christmas.

Choose a rich warm spot on a south border. Lay it up high and dry, seeing that it has been previously well dug; rake the surface even, and then sow the seed, and cover it with half an inch of dry soil; failing this, some sifted cinder-ashes will answer; then get some long dry litter from the stable, and cover up the bed with a thickness of about two inches. This must be carefully raked off on one side or end of the bed every warm sunny day. As soon as the seedlings show themselves, reduce the thickness of the litter, except in frosty weather. It is advisable sometimes to change the litter by getting some more lighter and drier stuff. Look out for slugs and birds, and if the plants get drawn by being covered up, shake over them some fine earth or dry ashes. With this treatment I get radishes sometimes, in mild seasons, in the middle of March.

PLANTS WHICH LOOK WELL BY GASLIGHT.—*Kate*: The following is a short list, which may be useful to all who embellish their apartments with plants in flower: Red and white Primulas, Euphorbia Jacquiniflora, Poinsettia pulcherrima, Solanum capsicastrum, Begonia fuchsoides, and a white-flowered Begonia, more erect in habit, the name of which is nivea; to these may be added scarlet Geraniums, also Geranium Madame Vaucher. Variegated-leaved Geraniums are also very showy, while well-coloured leaves of Mrs. Pollock are quite fiery under a brilliant light. All these and many more are adapted for indoor decoration at this Christmas time, but none are more effective than clear whites and brilliant scarlets. No half-tints or misty shades of colour look well by gaslight, and the most showy yellow presents a dirty kind of white. It should therefore not be used by gaslight. Also red and white Camellias.

THE WEATHER IN THE WEST OF ENGLAND.—October was an exceedingly wet month, and when it was not actually raining we were enveloped in a thick fog, which hung about on the tops of the hills for days together. November was, perhaps, the finest in the memory of the present generation, although not the warmest, for, indeed, it was a cold month. We had rain on two continuous days only throughout the month. It was, in fact, a splendid season for the wheat-sowing and all outdoor work. December had no sooner made its advent than the whole garb of nature was changed. Sharp frost and biting north winds of great fury have, up to the moment of writing, continued with but little intermission, accompanied with hail, sleet, and snow. In all my experience I never remember seeing such subjects as broccoli and celery cut up with so little frost, for we have only registered 10° of frost as yet. I have known it to amount to 20°, and the above-named subjects not look worse than they do now. This shows the importance of shelter from the north.

J. C. CLARKE.

NOTES FOR THE KITCHEN GARDEN.—No. I.

EARLY RADISHES.

What constitutes a good gardener? This is a query the solving of which is not beset with difficulty, although the signification may be practically interpreted in various ways. It is to be regretted that many of us form an opinion of our professional brethren by the circumstances which influence our own practice. My humble opinion of a good gardener, apart from other considerations, is he who makes the most of the resources at his disposal, and thus at all times endeavours by perseverance and industry to gratify his employer's reasonable wishes. In regard to the practice of horticulture, we must not be unmindful that gardening tastes vary as much as our fashions. Some may derive no pleasure except in the culture of the most expensive plants, and so value them as the lady does her jewels, not for their utility, but for their costliness; while others may derive profitable and even delightful pleasure in watching the growth of the commoner produce of the vegetable kingdom. Thus far do our required qualifications range in the discharge of our duties to our respected employers. With this I introduce a very simple but important subject to those with whom economy and the securing of a crop are considerations. I shall entitle it Paper No. I. on Kitchen Garden Crops, as it is my intention to continue the subject at intervals. My first steps in gardening, ere I entered on my teens, were commenced in a market garden of some fourteen acres in extent, and I yet retain vivid impressions of the lessons I then learnt; and they have been in after years of great assistance to me. Everything in a well-regulated market garden is done methodically, because with them it is a matter of £ s. d., not of whims or experiment.

Now the most of us that reside in the vicinity of large towns have observed very early in the spring the great quantity of radishes offered for sale, not only in the shop windows, but on the costermongers' stalls, they being the produce of outdoor crops. This happens very often at a period when the supply in a private garden is limited to those grown in a frame. I will just detail the method pursued in the market garden in which I was employed for affording this early supply. There was a plot of ground to which in succession the following crops were allotted. In the month of May, long ridges or trenches would be dug out of sufficient width and depth, allowing a vacant space of six feet or more to intervene parallel with each ridge. The said trenches would be filled with hot manure, and then covered with earth, and at regular distances from each other cucumber plants would be planted, the same being protected by hand or bell glass which had been previously used for the protection of cauliflower plants during the winter. As soon as the cucumbers had ceased to bear, the ground would be cleared, and under each hand-light would be planted as many cauliflower plants as would be desirable. The intervening space of six feet or more would in the latter part of November, or beginning of December, be thoroughly dug and sown with Scarlet Short-top radishes. They would then be covered with short straw or litter which was shaken from the stable manure at various times, and which had been thus collected during the summer months, and stacked in some out-of-the-way spot. When the radishes had commenced vegetating, the litter was drawn off them with a wooden rake on all fine days, but they were covered again in the evening, unless the weather was very favourable. But until the young seedlings were sufficiently strong to resist the depredation of the birds they were carefully guarded by a boy during the day. These radishes would be fit to draw for sale by the first or second week in April, so that the ground would be cleared of the radish crops early in May. Then, again, straight along the centre of the same ground, the trenches would be dug out for the reception of the hot dung, on which the ridge cucumber would be planted; and thus the changing of the crops would be continued from year to year, the cauliflowers and radishes being benefited by the manure used for the cucumbers.

Having said thus much of what I have observed on the cultivation of early radishes in the market garden, I shall now detail the mode as in after years practised by me in private establishments, where it was essential that I should utilize space. Perhaps, as the use of litter as a covering may not appear

tidy or pleasing to the persons visiting the garden, it is necessary for the sake of order that the spot selected for the early crop should be in the least frequented part of the garden. Of course the benefits derived from sun, light, and air must also have our consideration. A southern aspect is desirable. Having made choice of the ground, I dig in plenty of decayed manure. The finer and lighter the soil is for these kinds of crop, the better they thrive, as under any system of culture they always require plenty of water at the period of swelling. If there is an absence of rain after the ground is dug, I subdivide it into beds four feet wide, with alleys of sufficient width to retain the litter when the beds are uncovered. Of course the number of beds must be regulated according to the demands of the family; but for all ordinary requirements, three beds of four feet wide and twelve feet in length will suffice. About the last week in December I sow the following varieties of radishes, viz., *Scarlet Short-top Red* and *White Turnip*. With the short top I would thinly scatter some seed of the *Early Horn Carrot*, which would succeed the radishes for use. Previous to sowing the red and white varieties, the beds should be planted with some favourite dwarf variety of the ash-leaf kidney potato, not more than one foot apart. These will afford a few early potatoes in succession to those planted in the frames. When the stems of the potato appear above ground, the radishes should be cleared away from them as fast as they become fit for use. After the seed is strowed over the surface I cover it, not by raking it in, but by sifting some earth over it with a sieve: on so small a scale it costs but little extra labour, and the seed vegetates much more regularly over the surface. With the back of my spade I then make the earth firm, and then cover the whole with some short straw litter. This litter is not removed till the seed vegetates, and the bed is covered again on the slightest appearance of frost. This covering is never removed entirely until the plants are sufficiently strong to withstand the effects of any after frosts. There is one thing that you must guard against by watchfulness, and that is in not allowing the covering to remain on the plants too long at a time after they have vegetated, as they are apt to be drawn up weakly, and rendered useless. It is just in this sort of management that skill and watchfulness win the day, and this skill and watchfulness must come from within the cultivator; it cannot be derived from books. All we can do is to point out what is required, and then leave the matter.

Jno. F. McELROY.

HOW TO PLANT GARDEN TREES.

Our modern method has the merit of being rational. It looks upon roots as organs to be preserved, and not useless appendages to be mutilated or destroyed at pleasure. It recognises the importance of giving them a fair start in the best possible direction; it acknowledges that they are worthy of room; although necessity compels us to bury them out of sight, they are never on that account out of the modern cultivator's mind. One of the most singular revolutions in horticultural practice is the additional interest that is now taken in the roots of plants. Ancient cultivators operated on the trunks and branches chiefly and directly. They sought to induce fruitfulness by barking, ringing, twisting, and cutting them in various ways. Modern horticulturists achieve the same result much more speedily and successfully through the medium of the roots. Root culture is therefore not only of the highest importance in itself, but it has modified and altered our treatment of all other parts of the plant; hence planting now, instead of being performed in a haphazard rule-of-thumb sort of way, is conducted with more care than almost any other operation in gardening. Before planting, take a survey of the roots of the plant, and measure their length; then, from the point where the bole of the tree is to be placed sweep a radius right round if the tree is to be placed in the open ground, or half round if against a wall. From this semi or whole circle remove the soil to a depth of six inches, or less for very small trees; then tread down the bottom quite firm and make it even. If the soil is naturally strong or wet, no earth need be thrown out at all, but the preliminary operations of levelling and consolidating may be made on the surface itself. If only moderately strong, the hole might rise slightly from the centre to the sides. Under no circumstances should it fall from the centre to the circumference; and as a rule the bottom of the hole for the roots should be perfectly smooth and quite level. Over this carefully-prepared base a thin layer of compost, consisting of equal parts of sweet leaf-mould and loam, may be spread. On this the tree is to be placed; fix it at once to the wall or fence, or to a stake, to be now driven into the ground for this purpose. There are two great advantages in placing the stake into the ground at this stage; one is that no roots can be destroyed by its insertion afterwards, and the other that, by fixing the tree at once loosely to the stake, both hands are left free for the great operation—and it needs them both, and a nice head to guide them, to root a plant skilfully and well. With a sharp knife in one hand, and a root in the other, begin the process of laying out the roots to the best advantage. Handle them as tenderly as if every rootlet was endowed with sensitive feeling. Cut off with care and precision every broken and bruised part; let the whole diverge from the centre to the circumference like the spokes of a wheel, or the branches on a well-formed fan-trained peach-tree. Let there be no entanglements nor interlacings; give each root its own line of sway. The operation is a nice and delicate one, and must not be hurried through. It constitutes the basis of success, and it is as notably important in the science of horticulture as in that of architecture that the foundation should be "well and truly laid."

Having satisfied ourselves on this point, the next proceeding in the operation is that of filling in or up. First should come a covering, about two inches thick, of the same compost as that placed beneath the roots. Then the whole of the other earth should be broken fine with the back of the spade. It should then be sprinkled or scattered over, not thrown in heavy spadefuls upon the roots. The soil should be so placed as not to need any levelling afterwards. No foot, nor spade, nor rake should be allowed to touch the charmed circle devoted to the roots. If the trees are placed on the natural surface, of course when the operation of planting is completed an artificial mound will be raised on to the top of the roots. In such cases the covering should be a few inches thicker than when the roots are under the natural level.

The only consolidating agent we allow is water, and even this may safely be dispensed with when the soil is wet. In other cases, the earth may be washed in with from six to a dozen gallons of water, applied over the entire surface of the roots through a coarse rose. The more rapidly it is applied the more efficiently it will act as a consolidator of the earth. In a few hours after watering, the surface should be covered over, or *mulched*, as it is called, with a layer, about three inches deep, of half-rotten manure, cocoa-nut fibre, moss, or such material. This exerts two influences, each of the greatest consequence. It prevents the earth from becoming dry, and protects the

roots from frost. The latter is of vital moment. For although an excessive activity of root action in winter is to be discouraged, yet it is most essential that any rootlet that may venture forth (at this season) should be preserved from injury or destruction; hence the planter's motto for the first winter should be, no frost admitted to a single root.

A curious caution needs to be given here. Beware of hanging the newly planted tree. The firm bottom so much insisted on is a good antidote against this danger. But no amount of artificial consolidation will arrest the further subsidence of recently moved earth. It thus happens that when trees are firmly attached, as we have advised them to be, to either walls, fences, or stakes, they are often suspended as it were between the earth and the air, as if they belonged to neither. Under such conditions the roots have to support the whole weight of their covering soil, and are often ruptured or unduly strained by the heavy load. From this hidden cause frequently spring forth the germs of constitutional debility, disease, and death. The remedy is simple. In fixing the tree securely against any violent horizontal movement, see that one end of the tie is so arranged as to admit of a vertical depression. With this freedom of movement downwards there must, however, be combined resistance to horizontal motion. Otherwise, just as the roots lay hold of the soil their tender and delicate points will be broken off by a change of place. A succession of such deprivations will prove as injurious to health and as fatal to strength as hanging itself. Practically, there is no difficulty in securing the one while providing against the other, and the two combined constitute the perfect art of fixing newly-planted trees.—*The Field*.

Calendar.

WORK FOR WEEK COMMENCING DECEMBER 21.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—There ought not to be now a single square yard of unoccupied ground that has not been deeply dug since the last crop was taken off. Deep stirring and successive frostings of the soil are immensely beneficial, and there will never be much success in the culture of edibles where there is any fear of hard work in winter. The outdoor work of this month must be regulated by the weather. When the ground is not fit to be trodden on, get together all the clippings of hedges, prunings of trees, &c., for charring, and keep the produce under cover to use as needful; it is a most valuable top-dressing for peas and other early crops, both to stimulate growth and prevent attacks of slugs. During frost, wheel out dung, ready to dig in at the first opportunity. Sow, during fine dry weather, Dillistone's Early and Sangster's No. 1 peas, Mazagan, Longpod, and Beck's Gem beans, Horn carrot, and hollow-crowned parsnips. We have found of late years that parsnips sown at the end of January make very heavy crops, and are rarely hurt by frosts; and if they do happen to be cut off by frost, there is still time to sow again, and the loss of the seed is a very trifling matter compared with the chance of a heavier crop.

PEAS AND BEANS may be sown now in frames, to transplant when the season is sufficiently advanced. These will be useful to replace any outdoor sowings destroyed by frost, and to mend and patch the rows that have suffered damage. The best way to sow for transplanting is on strips of turf, which can be lifted out and laid in the rows when the transplanting takes place.

ASPARGUS, SEAKALE, AND RHUBARB will now be coming in plentifully from the forcing-beds. If these beds are allowed to get too dry, the produce will be neither good nor plentiful. But they may be moist on the surface, and yet dry at the roots of the plants; therefore ascertain by stirring the soil with a trowel in the middle of the bed, and if dry give a good soaking with tepid water. Make up fresh beds for successive supplies. In ordering in roots for forcing, take care either to plant immediately on receiving them, or keep the roots moist with moss or mould, or they will be much injured by the action of the atmosphere.

COMPOST should be prepared in quantity, as there is now a chance of getting it well frozen and several times turned before the winter is over. The benefit of attending to this at once will be immense in the culture of specimen plants, and, in fact, with whatever requires a good compost, well pulverized, and free from vermin. It must be remembered that composts frequently turned at this time not only get frozen, which kills the vermin, but the robins and thrushes explore it every time it is thrown up afresh, and they, perhaps, clean it more effectually than frost.

WARM BORDERS sloping to the south under brick walls may be sown with Horn carrot, Early Short-top radish, white mustard, golden cress, Beck's Gem beans, and Hammersmith lettuce. During sharp weather, dry litter and hurdles will protect them very efficiently.

Flower Garden.

FLOWER GARDEN.—We cannot advise the planting of evergreen shrubs at this season, though we confess to doing it ourselves, and seeing it done by everybody else. It would be much better for the trees to be content now with marking the places where they are to go by stakes, and leaving them untouched till April, when the shift will distress them less, and they will commence to make new roots immediately. This plan allows of the planting of deciduous trees and the finishing of all the rough work in laying out a shrubbery; and it may even be carried so far as to the making of the holes for the evergreens, laying the stuff taken out in heaps beside them, to get completely pulverized for filling in. Every cultivator of flowers should secure now a good supply of turf from a loamy pasture, and of bog, peat, or silky yellow loam in which the common brake grows plentifully. These should be stacked up in high ridges like walls, so that the frost will penetrate the whole mass, and the grass will rot quickly. Manure, roughly spread among choice shrubs, will assist in protecting their roots from frost. In spring the manure can be levelled, and all rough stuff raked off. This is a good time to make banks and rockeries, as during frost the wheeling can be done without harm to the walks.

RHODODENDRONS that have been many years planted require a little refreshing at the root, and this is the best time to do it. A mixture of very rotten cow-dung and leaf-mould is an excellent surfacing material, or two or three inches of rotten cow-dung only will do; nothing stronger must be used. This is a job that may be done during frost better than while the ground is wet.

ROSES requiring protection, and hitherto neglected, must have attention at once, as we are now approaching the season of real winter. Plantations of Roses should now be mulched with half-rotten dung, the looseness of which will protect the roots from frost, and the drench of rain and

snow will carry much of its goodness into the ground. Roses to be planted should be got in without delay while there is yet a chance of fair weather, as if neglected now it will be better to defer planting till the end of February. All newly planted standards are to be securely staked. In damp soils iron rods are the best stakes, as they do not encourage mildew in the soils, as wooden ones do.

TENDER PLANTS in the open ground, such as Fuchsias, Erythrina, Bouvardia, Oxalis, Alstroemerias, Japan Lilies, Watsonias, and other rather delicate bulbs in the peat-bed, must have some protection, such as coal-ashes piled in the form of a cone over their roots, or heaps of moss put over, and kept from blowing away by means of hoops of willow rods.

Fruit Garden and Orchard House.

FRUIT TREES of all kinds, both in fruit garden, orchard, and orchard house, should now be pruned and painted. For the latter purpose a mixture of lime, soot, and clay, to the consistence of paint, will answer well; or use Gishurst's compound according to the directions which accompany it.

Greenhouse and Conseratory.

CHRYSANTHEMUMS may be disposed of very easily by setting aside in a cool greenhouse one store-pot of each variety it is intended to propagate, and destroying all the rest. That is our way of wintering a large number in a small space. Good stools in six-inch pots will furnish any number of cuttings when required. People who have no glass can pack the roots close together under a wall or fence, where some dry straw can be thrown over them during severe frost.

|| GARDENIAS.—*G. radicans* is a well-known and very favourite greenhouse shrub; it is a native of China, and was first grown in England in the year 1804. As a greenhouse plant it has scarcely a compeer in fragrance or beauty; in its native country too it is very highly prized. The Japanese, as Thunberg relates, form hedges of it, and ornament their houses and the walks of the gardens with it, and other species of *Gardenia*. This is one of the very limited class of plants suitable for window culture, and there are only three of this genus which bear the character sufficient to warrant the prenomens: these are *G. radicans*, *G. Thunbergia*, and *G. Rothmannia*; the remaining species are all properly stove plants. A difficulty is often experienced in the blooming of these plants, more especially the greenhouse kinds; sometimes the plants do not produce any flower-buds at all, and others may bring a sufficiency of buds; but they as often fall prematurely, much to the disappointment of the fair owners, for this genus is a most decided favourite of the ladies. It may be useful to endeavour to trace the cause of this premature fall of the flower-buds, as the knowledge of the true cause of a failure is the first and most essential step towards the application of a remedy; these plants, when in a state of nature, inhabit a portion of the globe where the seasonal changes are very great, and consequently the seasonal growth of plants equally marked. Indeed, so severe are the winters in some parts of the eastern world, and the effect of this tending to render the plants constitutionally robust, that, was it not for the greater humidity of our climate, we might be justified in the expectation of acclimatizing all the plants of those countries. The effect of this has been already explained as instances have arisen, therefore what is now required consists chiefly in a practical view of the case. The plant, when placed in a room as a window plant, is subject to one undeviating atmosphere, the temperature of which is kept as as nearly the same as possible, and, through a mistaken kindness, supplied with water just as regularly. This is clearly the opposite of the plant in its natural state, for then during the summer months it has the full influence of the sun, with the benefit of the free air; and in winter, its only advantage is its annual covering of snow, just sufficient to protect it from the effects of frost, and which yields but very little humidity until it becomes thawed; and the same cause, namely the power of the sun, which supplies the plant with moisture by dissolving the snow, acts immediately on the energies of the plant, throwing it into a growth as luxuriant as it is sudden, and it is by this the treatment of the plant when in an artificial state should be regulated. In the autumn, let the supply of water be gradually but certainly diminished, giving at last only just sufficient to keep the earth in the pots together; this should be continued from October till March, then let them be placed in a very gentle hotbed, if at hand, or in a warm window, or part of the greenhouse, but the frame is the best, the heat of which should be about 55°. The plants must not be plunged into, but merely placed on the bed, and from this time increase the supply of water and air, and a good bloom will be the result. After the plants have done flowering, they should be repotted in a mixture of loam and peat, or loam and old leaf-mould, and then place them out of doors, shading them for a few days from the intense heat of the sun till they become re-established, after which they should have all the sun they can get to ripen the wood, observing to give them plenty of water while growing. By the end of September they should be removed into the house, and the autumn treatment repeated. The remaining species are all, strictly speaking, stove plants; the finest of them is *G. Florida*, with its variety *fore-pleno*; these all delight in a mixture of loam and peat, with the addition of a little fine silver sand: a good drainage is always requisite. The season for repotting is immediately after flowering; they should never be over-potted, as they always grow best when the roots are touching the sides of the pots; after repotting they will be benefited by being placed in a cool part of the greenhouse; these, like the others, should be allowed to become dormant during the winter months, and started again in February. They may all of them be propagated by cuttings taken off in June, July, and August, and planted in a pot of sand and peat, and plunged in a very gentle bottom heat, covering it with a small cap glass. They strike readily. Though some care is necessary to keep the glasses dry, they should be wiped once or twice every day, and all symptoms of mouldiness removed.

Stove and Orchard House.

IXORAS to be near the glass, and have plenty of air as the weather will allow.

STEPHANOTIS to be potted and trained.

ALLAMANDAS to be potted and trained.

DIPLODENIAS to be potted and trained.

Forcing Pit.

FOREIGN FLOWERS.—Put in Provence, Tea, Bourbon, and Perpetual Roses, Sweetbrier, Lily of the Valley, Lilacs, Weigelias, and bulbs, according to stock.

ORCHARD HOUSES FOR TROPICAL FRUITS.—Orchard houses for stone-fruits have of late placed us in a more advantageous position for securing the presence of those luxuries on our tables, than when we had to depend on open walls for our supplies; and cheap glass, with the diffusion of practical knowledge, add to our luxuries grapes equal in flavour and beauty to the

productions of the sunny south. Why should we not proceed a few steps further, and produce at home the fruits for which we are in general dependent upon the sunny climate of Italy and other parts of the Continent, for many a nook about a house and premises might afford a site for a fruit-house of some shape or size; for there is no need to be fettered by empiric rules as to form or size, so long as a tolerably good aspect can be secured. And this may range from south-east to west, the other necessary conditions being the provision for warming, airing effectually, and the admission of all the light possible. A narrow house with perpendicular front lights, and span roof might often be made to cover an ugly wall, and afford an agreeable promenade in inclement weather. Supposing such a house, with a border two feet wide at the back, well drained of course, and filled with suitable soil, and another border of the same width in front, a walk between the two four feet wide, with a flow hot-water pipe running on one side, and a return pipe on the other side, to form an edging or kerb to the walk, a wire trellis on the back wall would serve for training oranges, &c.; a dwarf and a standard tree alternating; in the front would be a trellis about half the height of the front lights, say three and a half feet; on this the guava (*Psidium Cattlejanum*), the pomegranate (*Punica granatum*), the *Eugenia ugni*, and the *Physalis Peruviana*, commonly called Cape Goose, berry, may be trained, and to these may be added the olive if desired, whilst from a wire under the ridge of the roof might festoon the *Passiflora edulis*. The value of some of the above-named, especially the genus *Citrus*, and the pomegranate, consists not alone in their fruit-producing properties, but have for centuries been considered worthy of the cultivator's care for their flowers alone, or at most for their general ornamental appearance; for if we take a retrospective view of the culture of these plants, we find them cramped in ugly pots or boxes, with the view of stowing them away during winter in opaque-roofed houses, to be the more readily dispersed about the gardens in summer as rare ornaments. Under such circumstances the fruit seldom attained anything like perfection; but we have on record exceptions to the above rule, and these exceptions proved that they were worthy of better treatment, for, in cases where they have been planted out, and grown either as standards or trained against the back walls of forcing houses, they have produced abundant crops of fine fruit. Of the utility of the other fruits above named, we may remark that the appreciation of them depends in some measure on individual tastes, but that is not the view in which most gentlemen regard such things. Many of the dishes that are sent to table might as well remain elsewhere; but as they are sure to find some admirers, and at any rate afford diversity of an uncommon order, that would be sufficient inducement for their adoption, as it is become an important matter, since the present style of giving dinners "à la Russe" has obtained favour, to display a handsome dessert. Of the history of the *Citrus* tribe, Loudon gives an interesting epitome in his "Encyclopædia of Gardening," in which he says "the citron was introduced into Europe from Media, and was first cultivated in Italy by Palladius, in the second century."

The ORANGE is supposed to have been introduced into Italy from India, and into England in the sixteenth century from Italy. All the species endure the open air at Nice, Genoa, and Naples, from whence large quantities of trees are exported to other countries, many of them, it must be confessed, in a very careless manner, being merely tied in bundles, and wrapped in mats or straw, in which state they may be obtained, at a low price, from the Italian warehousemen and seedsmen in London. And if time and proper attention can be afforded them they soon recover themselves and make splendid trees, as they generally possess clean and straight stems; but if immediate effect is desired, and expense not an object, fine plants in flower and fruit may be obtained of the nurserymen, who import them in tubs and boxes. Should a batch of the first-named trees be obtained, the first thing to be done is to arouse their dormant energies, by means of a tepid bath, which must be kept to a uniform temperature by additions of warm water for the space of twelve hours, or longer, if the trees are very dry; should the vessel in which they are plunged admit of it, they may be laid down root and branch in the water; if not, the roots must be plunged, and the stem and branches be kept moist by syringing. When taken from the bath, they may be covered in moist hay or moss for a few hours, or a day, by which time it will be seen which roots are plump and fresh, also which of the branches are likely to push strongly; then cut away all injured parts, both of the roots and branches, but before the trees are procured, it will be well to consider what is to be done with them, and whether everything is in readiness to insure them proper treatment when they arrive, if it is determined to plant them at once in the place they are to occupy. The border should be in readiness by forming a drain at the bottom, and upon that place a foot in depth of broken bricks, upon which should be two feet in depth of prepared soil, in a comparatively dry state, the soil to consist of partially decayed turf from a pasture—no substitute for this will do—with a small sprinkling of inch bone, of charcoal in small lumps, and of coarse drift or river sand. The latter ingredients are to keep the soil in a free and open state, consequently, to be used in larger or smaller proportions according as the compost is porous and friable, or tenacious and heavy, the orange preferring the latter description, provided sufficient of the rectifying ingredients are used to keep it open and pervious to moisture. Manures may be added in moderate quantities, but must be old and reduced to a black mould, cow, sheep, or deer dung being best, as they are cool in their nature; hot stimulating manures are exceedingly injurious to the orange. In order to give the trees a start, when planted it will be well to have in readiness a heap of well fermented stable manure with which to cover the border between their stems to the depth of twelve or fifteen inches, the stems in the meantime to be protected by hay bound round them; it can be removed when the trees are become somewhat established. Early in spring is the best time to procure the trees, as their growth will then proceed without check; should, however, the house and border not be in readiness at that time, the trees may be potted in large pots or temporary boxes, and be plunged in a tau or other bed in any vinery or other house in which is kept a moist and warm temperature, and can afterwards be transferred to their permanent place. Should it be wished to plant out trees that have long stood in pots or boxes, it will be well to choose either spring or autumn for the operation, and if the soil is sour or the roots much matted, clear them of all the soil by plunging the ball in a tub of tepid water, and after having soaked for a time, lift it up and down until all the soil is freed from the roots, then prune away any that are decayed, separate and disentangle others, and having ready a hole sufficiently large to spread the roots in, place the tree in its place, shake in the soil between the roots, and water with tepid water. It will be well at the same time to relieve the head of the tree by pruning away all small useless branches, so as to admit light and air to those that are strong enough to produce the fruit; a warm atmosphere, with frequent syringing, must be maintained with newly planted trees

established in their new quarters; afterwards the general treatment as hereafter given. Those persons who may not be in a position to plant out their orange trees, but grow them in pots or boxes for special reasons, are often grieved by the yellow and unsatisfactory appearance of the plants notwithstanding all their attention to their wants. This often arises from imperfect drainage and sour soil; the presence of worms often occasions this; their best remedy in such a case is to have recourse to the tub of tepid water, as above described. Clear their roots of every particle of soil, and repot in fresh, such as is described for the border of the orange house, not using pots over-large for the size of the trees, but just of sufficient capacity to hold the roots without squeezing or cramping; when potted, cut back the branches so that when the tree breaks afresh it will form a symmetrical specimen; plunge the pots in a warm medium, and syringe as before directed for trees planted out. After they have made fresh roots, and some degree of growth, they will then bear to be withdrawn from the hotbed of tan or other matter, but will be benefited by being kept in a rather warm house until July, after which they may be hardened off to stand for a few weeks in the open air, or a common greenhouse. But before returning to the orange house, it will be well to say a few words respecting the conditions necessary to be observed, with respect to keeping the orange in health and vigour in pots. The chief evil to be guarded against is the disarrangement of the drainage, and consequent stagnation of moisture in the soil; therefore means must be used at all times to keep worms from entering the pots, whether the plants are standing on the floors of houses or in the open air; therefore, if the tubs are not raised on feet, they, as well as pots, should be set upon something to keep them clear of the ground. If pots are used, make the hole or holes at bottom much larger than they are when received from the pottery; this may easily be done by a small hammer. Boxes likewise must have holes of considerable size at the bottom. Over these place large potsherds, and upon them two or three inches in depth of lumpy charcoal, and pieces of bone, then a layer of coarse lumpy compost, and upon that the tree may be placed. Work the compost well between the roots with a pointed stick, giving the pot or box a rap occasionally upon the potting bench until filled to the rim, when considerable pressure with the hand must be applied, for the trees will do better when tightly potted than when loosely potted, and the soil not be so likely to get disarranged by watering. Water should in no case be applied until the tree is removed to its place, so that it has not to be jarred and shook about immediately after the water is given; the reason for this hint must be obvious, as any one knows that to shake about a top of wet soil is to convert it into a lump of brick-earth. If care is taken from the first to exclude worms, the water will pass freely through the soil, and at every watering enough should be given so to pass through; but should by any accident a worm get in, it may generally be brought to the surface by running a pointed wire into the soil and gently shaking it about, when the intruder may be caught. To established trees liquid manure may be given, made as follows: To one bushel of cow, deer, or sheep dung, add one peck of soot, upon this, when put in a tub, throw about ten gallons of boiling water, let stand for a day or two, take off the scum, then add ten or fifteen gallons of soft water, and it will be fit for use, and may be given once a fortnight during the growing season; the above will also be applicable to trees growing in borders, to which we now return. And supposing the trees planted, and the border covered with hot well-fermented dung to the depth already named, it will impart a genial warmth to the root, and also a considerable degree of humidity to the atmosphere, which, with light syringings with warm water, at three or four o'clock p.m., and a temperature kept up to 65° by night, and 70° to 75° by day, will speedily bring the trees into active growth, when their shoots must be trained and tied to the trellis, and if any appear too gross they may be stopped when two feet long, by pinching out the point, and if they break too thickly from the old wood, the weakest shoots may be thinned out. The manure must be removed from the border when exhausted of its heat, and as the season advances, the temperature may be allowed to advance by sun-heat to 85° or 90°, if with air on at the same time, but there will be no necessity for exceeding 70° to 75° by fire-heat. Air should always be given early, for if the sun breaks upon the foliage before the latter gets moderately dry, it is apt to disfigure it. As the trees get into free growth syringing must be discontinued, excepting occasionally when cleansing their foliage, and water instead be thrown upon the floors. If this is done in the afternoon of fine days, it will afford sufficient moisture. Air must also be increased as the season advances, so that in autumn the wood gets well ripened and fit to pass through the winter, when the temperature for the winter must be reduced to from 40° to 45° night, 45° to 60° day. If scale or dirt accumulate upon the foliage, sponging with soft soap and water must be had recourse to, and for this tedious operation a woman will do the work better than a man. For excellent advice on cleansing the orange, see an article by Mr. Chitty, in the October number of *Floral World*, 1861. Of course the foregoing remarks apply to all the citrus tribe that are likely to be cultivated in the fruit-house, and in general to the other fruits here classed with them, though some slight modifications as to soil, &c., will be necessary. The varieties of orange best adapted for general purposes are the Seville and Maltese, the Maudarin and St. Michael's. These are free-growing, free-flowering, and abundant fruit-producing varieties. Many others may be grown for variety, if space can be found for them.

THE CITRON offers several curious varieties. The best, perhaps, is the Madras citron, and though the fruit is seldom brought to the dessert in a raw state, it forms excellent preserves and sweetmeats to furnish the table when other fruits are scarce.

THE LEMON is well known, and generally esteemed in confectionery; the common variety is as good as any.

THE LIME, of which there are also several varieties, is used much in the same way as the lemon, and makes a pretty variety with the other fruits. The same may be said of the SHADDOCK, but for a different reason, the fruit of the former being the smallest of the group, whilst that of the latter is perhaps the largest. The citrus tribe should occupy the back wall, as they will there be slightly shaded by the *Passiflora edulis* on the roof, and the other fruits occupying the front trellis. It may here be remarked that they will be benefited by a very thin shading of net, in spring and early summer, until the other things afford them a natural shade.

THE PASSIFLORA EDULIS will thrive in any good soil, and may be planted in the end of either back or front border, but its roots are very encroaching; therefore, a space should be partitioned off for it, so that it does not interfere with the other plants. It may have one main stem carried under the ridge of the roof; from this lateral shoots will proceed on either side; on these the fruit will be borne. These must, every winter after the fruit is gathered, be cut back to within an inch or two of the main stem, as the fruit is only borne on the current year's shoots. The fruit, when ripe, is of a purple

colour, consisting of a tough rind, within which the edible pulp is contained.

THE POMEGRANATE (*Punica granatum*) is not alone worthy of culture for its singular and pleasant fruit; but, like the orange, has been much esteemed for the beauty of its flowers. Success in fruiting this plant depends much upon the proper ripening of the wood in autumn; consequently, the weak shoots should be thinned out, that those bearing fruit, as well as the main branches, may receive all the benefit of the sun and air circulating amongst them; those left should be closely trained to the wall or trellis, and at the winter pruning strong shoots should be shortened back, so as to get a supply of moderately vigorous young wood from every part of the tree, as only upon such is the fruit produced. This tree thrives in the soil recommended for the orange, with the addition of a sprinkling of old mortar and brick rubbish amongst it. Liquid manure or top-dressings of old manure may be applied as for the orange, in order to keep up a moderate degree of luxuriance; too much, however, will only produce coarse unfruitful wood.

THE GUAVA (*Psidium Cattleianum*).—The soil for this should differ from that recommended for the foregoing, and should consist of turfy loam and peat in equal proportions, with a sprinkling of old leaf-soil and silver sand; pure soft water only should be used for this. Pruning is required to keep the tree sufficiently thin for sun and air to reach the fruit, and for keeping the tree in proper form. The fruit is juicy, and in consistence much like a strawberry, to which it bears some resemblance, but with a slightly turpentine flavour; notwithstanding which it is highly esteemed by some.

THE CAPE GOOSEBERRY.—This belongs to the Solanum tribe; notwithstanding which its fruit, which is a yellow berry, within an inflated calyx, and ripens at all seasons, is wholesome and particularly agreeable when the palate is once used to it; it is also used in tarts. The plant may be propagated either from seeds or cuttings, and is of easy culture; in fact, apt to grow too gross, unless its roots are somewhat confined; it is, therefore, best to plant in a nine or ten inch pot, and plunge in the border so as to cover the rim with soil. As many roots as is thought proper can then be allowed to pass over the side of the pot into the border. This plant is subject to the red-spider; the syringe should, therefore, be well plied upon it to keep the enemy under. Training and tying to the trellis or pillar must be attended to, and its shoots and larger leaves be kept moderately thin by pinching.

THE OLIVE is a low branching evergreen plant; the flowers are produced in small axillary bunches from wood of the former year; the fruit is a berried drupe of an oblong form and yellowish green colour, but turning black when ripe. Unripe olives often appear as a pickle, both at dinner and dessert; and though to those who taste them for the first time they appear harsh, yet soon become extremely grateful, and are thought to promote digestion and create an appetite. The soil for this plant should resemble that above recommended for the pomegranate, and as this tree produces its fruit on the former year's wood, a portion of the shoots should be shortened or spurred back every winter, so as to insure a supply of wood of the proper age for fruiting. Strong imported plants should be planted, as young plants are long before they arrive at a fruit-bearing state. This, like the others, should be trained to a trellis, and its shoots kept moderately thin, so as to insure the ripening of the wood.

THE FIG is a fruit as well worthy of the gardener's care as any fruit grown; for though it ripens in favoured situations out of doors, it can only be so produced for a very limited period in each year; but under glass, by using a variety of sorts, the season of their ripening may be much extended, as several varieties will ripen two crops in each season, and the choice kinds can be had in greater perfection. Young fig-trees are very gross in their habit of growth when unlimited space is allowed to their roots; consequently, not arriving at a bearing state so soon as those having their space somewhat limited. If the border for these is made three feet wide, the soil need not be more than eighteen inches deep, resting on a foot in depth of well-rammed brick rubbish; the latter is necessary both as a drainage and to prevent the roots penetrating the subsoil; even in a border thus formed, it will be proper to lift the trees every year or two, according to their rate of growth, until a fruitful habit is secured, returning them back into their places immediately, and keeping their roots near the surface of the soil. If the above plan had always been practised, we should never have heard of the malpractice of ringing, which old gardeners had recourse to. It will, however, under such circumstances, be necessary to water freely in the growing season, and even to apply liquid manure to trees some years established and carrying heavy crops, for, should watering be neglected in hot weather, the fruit will fall off before arriving at maturity. Pruning should be done in summer, and that before the season is too far advanced for the wood to ripen, and should be principally done by pinching with the finger and thumb, so as to keep all growths short and the tree compact, yet sufficiently thin for sun and air to penetrate to every branch. The sorts to be relied on for two crops are, Brown Ischia, Black Genoa, White Genoa, and Black and Brown Italian. The larger and later kinds are the Murray, Brunswick, Brown Naples, &c. The fig in houses is best grown as dwarf standards, unless where they are trained to a wall or trellis; even then a stem a few inches in length should be kept clear of branches, otherwise coarse watery suckers are apt to rise from about the collar of the root; and these, when they show themselves, should be rigorously kept down. As the fig is subject to red-spider, copious syringings must be applied in hot weather.

THE NEW ROSES.

It is said that the following are the best of the roses now offered to English buyers. For my own part, I shall buy the four of which I give the raisers' names in parentheses: *Baronne Haussmann*, *Deuil de Maximilien*, *Duchesse d'Aosta*, *Elie Morel*, *Ernest Boncenne*, *François Fontaine*, *Impératrice Charlotte*, *La France* (Guillot fils), *Madame Girodelle* (Charles Verdier), *Madame Roland*, *Madlle. Christine Nilson*, *Merveille d'Anjou* (Trouillard), *Pitord*, *President Villermoz*, *Prince Humbert* (Margottin), *Souvenir de François Ponsard*, *Vicomtesse de Vézins*.

VIATOR. ✎

THE CHRISTMAS MOON AND THE HARVEST.—There are many locally accepted agricultural axioms that are worth noting, and probably acting upon. Said one of my ploughmen to me to-day, "We shall have a heavy harvest next year, because there will be a dark moon at Christmas—a new moon on Christmas-day." The other ploughmen assented, and said, "It had been noted by very old men for many years that a light Christmas moon gave light sheaves, and a dark Christmas moon gave heavy sheaves." They had themselves observed this, and called to my mind that the last two Christmas moons had been light or full moons. The dark or new moon takes place this year on Christmas-day. So let us hope that next year we may be blessed with an abundant harvest.—*J. J. Mechi*.

Replies to Queries.

F. Stephens.—A figure of Maréchal Niel rose was published in the *Illustration Horticole* for April, 1866. Possibly the surest way to obtain it would be to write direct to M. A. Verschaefelt, 50, Rue du Chaume, Ghent, Belgium, enclosing three sixpenny postage stamps to pay for book and postage.

Plants for Cool Greenhouse.—H. II. W.—We could more easily tell you of a hundred than a dozen, and it is all the more difficult to select seeing that you require them for exhibition. We will take six flowering plants first, and they shall be, *Chorozema Henchmannii*, *Correa picta superba*, *Desfontania spinosa*, *Epacris miniata splendens*, *Eriostemon pulchellum*, *Leschenaultia biloba major*. For six fine foliage plants, *Latania Bourbonica* (or *L. rubra*), *Yucca aloifolia variegata*, *Chamærops humilis*, *Echeveria metallica*, *Lomatia ferruginea*.

T. Taylor.—You will find an article on *Lobelia* in the Magazine of April 28, 1866; and articles on *Violas* in the issues for March 24 and December 8, 1866.

Roses.—O. P. Q., junior.—If you strike roses from cuttings in autumn, you may lift them from the bed and pot them in April, and, in fact, that is the right procedure. It is a good plan to place them when potted on a hotbed in the open air (without frames or lights); a free vigorous growth is thus ensured the first season. Grafts put on manettis in February may be from forced plants or from outdoor plants—that must depend on the condition of the stocks. If the stocks are in the open ground, then the grafts must be from plants in the open ground also, or, at all events, from plants that have been out all the winter.

Tan-bed.—Alice.—Tan is not often recommended, because it is generally less easily procurable than stable-manure, and it requires more judgment to use it to advantage. But when the right sort of tan is obtained, and is used in the right manner, it makes a lasting hotbed, far superior in equableness and continuance of temperature to the best stable-manure. As you are circumstanced, tan is the very stuff you want, and your pits are admirably adapted for it. In the first place, get clean tan—that from the lead-works is useless. Throw it in a heap for ten days under cover, then fill the pits with it, observing that it should be damp throughout, *not wet*. A depth of two feet will secure a lasting heat; better three feet, better still four feet. Immediately after filling the pits, begin to start your plants for cuttings, plunging the pots to the rims in the tan. Have also plunged in the tan a thermometer to give warning of a rise. When the heat rises above 60°, or at the utmost 70°, as no doubt it will, lift up the pots and place empty pots inverted under them, to prevent burning of the roots. After the first rush, the heat will gradually subside, and will remain for months at about 65°, and will carry you safely through all your spring propagating.

Vines.—J. J. M.—Training on a wall under glass is not by any means so good a plan as training under the glass, by means of wires attached to the rafters, as when on the wall the vines are too far removed from the light. We cannot encourage you in the plan you propose. In any structure such as you propose, it would be desirable to afford room for the cultivator within it.

Ozon.—The mites you send are *Gymnogrammas*. If you want to learn French, begin with Cobbett's French Grammar and a French Dictionary.

Horticultural Exhibitions.—Laird and Sinclair.—Your questions are best answered by a reference to facts. The great shows at Regent's Park, Manchester, and Kensington, have been held under canvas, the tents being on the ridge and furrow principle, and comparatively low in altitude. In these cases the plants have been seen to the best advantage, the attendance of visitors has been large, the returns have been satisfactory, and, as a rule, the plants sent have suffered little. In the great "suspension tent," which was erected under the direction of Captain Powkes at Kensington, and which was at first used for an exhibition of rhododendrons, a span-roof of lofty altitude was adopted, and the grandest specimens in that tent look dwarfed and poor; the great aerial space above them renders them pigmies by contrast. In those places in the provinces where the most successful exhibitions are held—such as Taunton, York, Leicester, Peterborough, &c., &c.—tents are invariably employed, and they have the advantage usually of being pitched in some pleasant spot, which people bent on a holiday prefer to the most elegant room in the midst of a town. One of the most thriving provincial societies, that at Cambridge, has long been accustomed to hold spring and summer shows in the Guildhall, but lately has taken to tents and gardens, and was highly successful with its exhibition, held in tents in the grounds of St. John's College, in May last. You really ought to have included in your query some reference to the seasons, as when we approach the time of year when outdoor pleasures are at an end, there is nothing left but to obtain large halls for exhibitions. Thus the exhibitions of chrysanthemums are always held in halls. The Birmingham Rose Show is the only really successful exhibition on a grand scale which we can call to mind as held in a building in the centre of a town, in the height of the summer season; and we are inclined to believe that the Birmingham Rose Show would be more successful if held in a great tent in a pleasant spot, at the distance of a short drive from Birmingham. To attempt general replies to general questions, we would say that exhibitions in large halls usually cost less, are more convenient to visitors, and more secure for the plants than exhibitions held in tents. But, on the other hand, exhibitions held in tents are more attractive, first, because the effect of well-grouped plants and flowers under canvas surpasses the utmost that can be done under any other kind of roof, and secondly, because people like to quit a town when visiting a flower show. The town hall is doubtless the most convenient, but the tent is the most agreeable. Finally, we vote for the tent whenever and wherever it can have the preference, leaving the hall as an alternative for times and seasons and places when and where the use of tents would be out of the question.

Vines.—R. H. C.—Leave your vines alone, and hope they may do as well going down as they did going up.

J. H. W.—You are mistaken; the Somerset Gardener has told how to grow pears without a wall, and he has given his opinion as to the relative merits of peaches and pears. If you can do as well, do it; and if you cannot, you must allow him to express himself in his own way. At all events, we shall do so, and hope to hear from him again soon.

* * * In Mr. Muir's paper on "Unnailing Wall-trees," page 535, second column, seventh line from the top, the word "stopping" should read *stopping*.

ON THE UNNAILING OF PEACH-TREES.

I have often had a number of crude ideas pass through my brain concerning the above subject, and, having heard and read all manner of stuff about it, also having made a modicum of observations of my own, with which the hearings and readings got intricately mixed, the result was a kind of mental hash, made of everything a little, and not much use to any one; but, by the process of time, which reduces all things to their simplest forms, this small chaos has also been reduced to something like order; then, at a given signal from without, a small observation from another hand, all this accumulated matter shall be poured forth.

Now, to begin at the end, or middle, or wherever it may happen, I do not much care which, I will give at once the small observation.

We often see it about this time of the year—I saw it, I think, only last week—that you are to unnaïl your peach-trees, so that the weather may act on the wood and harden it. Now I want to know what is the use of nailing or of putting them up at all after they have grown part or all of their summer growth. I cannot help thinking that the readiest way of obeying this order is to do as I do, and not have them nailed up; they take an uncommonly small amount of trouble to unnaïl them *then*, and not much more to nail them, for they are by this system to do without either the one or the other.

I will here give my ideal of the round of cultivation for the peach. All the winter the trees to be loose and unnaïled. March, nail up and prune. May, disbud and thin the fruit; here note that green shoots left in the middle of the tree get much too strong, and sometimes exhaust to death some of the branches; therefore be chary about leaving them. June, July, August, September, October, let these growths continue, thinning them out only where necessary, being scrupulously careful to keep them *off* the wall, and nail up only such as are in danger of being broken by stress of weather. March, nail up and prune for the next year.

We thus, about this time of the year, see a full supply of nice stout, brown, blooming wood, about nine inches to a foot long, bristling from the wall, and defying all the attempts of vermin to lodge anywhere near it; and not only this, but all through the growing season the cleanness of a growth will generally be seen to depend directly on its distance from the wall; for then it gets all the wind and weather—which are both noted insecticides, almost equal to Fowler's—but when you go to work industriously to nail up, or by any other means to fasten up close these growths, you keep them in the shelter of the wall, and the various vermin tribes gather under their shelter and thrive.

Now I have heard of an invention called Foxley's beaded bricks, which was to provide us with the means of tying up our trees, and so avoiding the cruel injury which we inflict on walls by nailing; and the objection raised against these by some old fogey was, that they kept the wood from the wall and so prevented perfect ripening of it.

I also saw communications about peach orchards where they were to be grown in the open; I also know to my certain knowledge that in the nurseries peaches are trained up to stakes in the open, and there are no complaints about the ripening of the wood.

And now, why not commit all such mandlin excuses to oblivion, and say at once that for blooming and bearing the wood should be nailed down, but that *all growths for the coming year should be allowed freely to push outwards?*

In the same line, I will relate an incident connected with a few Morello cherries. These trees, against a south-east wall, were in themselves about one day's work every year in pruning and nailing, for which outlay we generally got about a peck of black aphid and six or seven cherries (would that the two had changed places!). This I got sick of; so one day we had them all up and planted them in the open, taking from them such wood as could be spared. The following season they were clean as new pins, and brought about a quart of cherries; another pruning of old wood then followed. This year they had nearly a peck of cherries, and now they promise well for next year. I have pruned nearly all the old wood out, and the supply of new and last year's wood is quite a picture, so full of spurs too, so clean, sturdy, short, and strong. Ah! catch me planting Morello cherries against a wall any more, that's all; or, for that matter, bothering about nailing my peaches all the summer long, when there are better things to do.

A. DAWSON.

Chiswick.

IS DRUNKENNESS RARE IN VINE-GROWING DISTRICTS?—The Rev. Dr. Bellows writes from Bingen-on-the-Rhine to the *Liberal Christian* of New York:—"It is much to be regretted that the friends of temperance have of late been trying to unsettle the opinion that drunkenness is rare in vine-growing countries. It is so patent in France and in Germany that intemperance in the form of drunkenness is a most exceptional vice, that only wilful blindness or partizanship could deny it. I do not recollect to have seen one tipsy man since I left Paris, and only one in Paris, and I have diligently sought the places where, in our country, they would be found. The truth is, wine is one of the most common and one of the most beautiful gifts of Providence; an article joined with corn in the praises of saints. The countries which possess it understand its use, and are just as little subject to excess in using wine as in using corn. Excess is found everywhere, and all Heaven's gifts are liable to abuse; but to expect France and Germany to give up wine or beer is absurd, nor would anything but harm come from the attempt to enforce their disuse by legislation. Special efforts must be made in northern climates to resist the tendency to strong drinks, which is aggravated by cold and by the necessity of harder work to live, not to add gloominess of weather, short days, and much darkness. I was somewhat horrified to find, later, in common use among field labourers, both women and men, in certain districts aside from the Rhine, a fiery alcoholic drink called potato-whiskey—strong, intoxicating, and full of fusil oil. It is part of the daily ration of field labourers in the region about Frankfort—a half-pint per day; and in harvest time even this does not satisfy them. They expend a certain portion of the extra pay of this season in adding to their whisky ration, and many of them then drink, I am told, to drunkenness. This is a proper deduction to be made from the universal temperance observed among the better classes, and should give some pause to the inquirer's verdict upon the sobriety of wine-making countries. Unhappily, the whisky is only twenty-three cents per gallon, and wine is many times dearer. It is, however, universally conceded that drunkenness is more and more rare even among this field class, and that it is wholly confined to it, with rare individual exceptions. I shall press the investigation wherever I find opportunity, and report results without fear or favour, be they in accordance with theories or expectations or no.

M D	W D	ANNIVERSARIES, EXHIBITIONS, &c.	Sun rise.	Sun sets.	Moon rises.	Moon sets.	WEATHER NEAR LONDON, 1866.					M. imp. avrg of 43 yrs.	Orchids that may be in bloom, 1, Indian House; 2, Mexican House; 3, Greenhouse.	M D	
							Barometer.	Thermometer.	Rain	Growth					
1867															
29	S	1st Sunday after Christmas.	8 0	3 56	0 55 a.m.	7 30 p.m.	29 78	29 40	51	30	40 5	01	37 4	Cypripedium leucogon, 1	29
30	M	Length of night, 16h. 12m.	8 0	3 57	10 24	"	29 85	29 21	45	19	32 0	09	37 0	Mullel, 1	30
31	T	Wickliffe died, 1384.	8 0	3 58	10 49	"	29 27	29 24	35	19	27 0	00	36 5	Miltonia caucata, 2	31
1868		JANUARY.													1868
1	W	New Year's Day.	8 8	4 0	11 14	"	29 34	29 25	35	15	25 0	00	36 4	Angræcum eburneum, 1	1
2	Th	Day breaks 6h. 1m.	8 8	4 1	11 37	"	29 09	29 00	30	-4	13 0	00	36 5	" eburnum, 1	2
3	F	Wedgwood died, 1795.	8 8	4 2		p.m.	29 81	29 65	33	2	17 5	00	37 0	" virens, 1	3
4	S	Amazon steamer burnt, 1852.	8 8	4 3	0 28	p.m.	29 06	29 88	30	-11	0 5	00	37 3	Dendrobium speciosum, 1	4

The Gardener's Magazine.

SATURDAY, DECEMBER 28, 1867.

HORTICULTURE DURING THE YEAR 1867 has certainly not retrograded, but, we would fain believe, has made some substantial advances. In our representative capacity we have to consider not only the progress of the science or the art, whichever it may be called, but also the nature and the result of every demonstration of its purposes, made in the presence of mankind at large. While, therefore, we reflect upon our acquisitions of knowledge and our progress in the improvement of opinion, we must bestow some attention upon the displays of the products of horticultural skill through which the public are advertised of the tastes that prevail amongst us, and the aims we cherish and desire to fulfil. Undoubtedly the most important contributions to our actual knowledge, and to the advancement of healthy opinion, in the past year, have been obtained for us from the Continent. It scarcely matters whether the gatherings of correspondents, and of one especially, whose privilege it has been to create unwonted curiosity and excitement in the horticultural mind,—it scarcely matters, we repeat, whether the particulars that have been made public respecting French practices in fruit culture be absolutely new or not, it is quite certain that to the majority of English cultivators, including the reading men amongst them, very much of the information made public on this subject is as new as if but now for the first time discovered. Our esteemed friend, "W. R.," has furnished to this sheet an admirable summary of the results of his explorations of French fruit gardens, in so far as relates to the modes of training which are most in favour, and in respect of which the prolonged discussion on the relative merits of English and French methods has waxed hottest. We do not hesitate to say that to him the whole body of English horticulturists owe a deep debt of gratitude, and we believe there are but few exceptions to the acceptance of his services as benefactions of the greatest value. The discussion has called forth the opinions of men best competent to speak on such a question, and the conclusions arrived at by the writer who set this ball rolling have been almost unanimously confirmed by the most experienced and far-seeing of English pomologists. That there should be an exception or two to the generally fair and generous spirit in which the several points of the discussion have been handled, need not surprise; indeed, we never expect public discussion to proceed far without being marred by dogmatism. But the lesson afforded is a good one; it is, that we may learn something of our neighbours if we go to them in a teachable spirit, and to advance our knowledge is of far more importance than to feed our pride. From the tone of some letters that have appeared, one might suppose that the matter of first necessity, irrespective of all facts, was to establish the absolute superiority of English practices above all the rest of the world, and to shut out light from whatever source, for fear our national vanity should be affected. How absurd! This tight little island is not the sole fountain of wisdom for the world; we may learn something by looking about us, and we rejoice in the belief that during the year 1867 we have been taught something useful in the matter of fruit culture.

The Paris Exhibition has contributed in some degree to the advancement of taste as well as of knowledge, irrespective of what we may now call the episode of the fruit-tree controversy. The manner in which the model gardens were formed and planted, and the success of the several features of which they were constituted, afford a salutary lesson on the great general subject of exhibitions. Extemporised plantations and instantaneous effects are as desirable in quiet times as in a season of excitement and novelty, and we hope for the time when our customary exhibitions will be accompanied with illustrations of scenery, climatal phenomena, and taste and style in garden architecture. In respect of all such matters, and making

full allowance for some inevitable bits of tawdriness, the out-door portion of the great Paris exhibition has afforded useful lessons, which are likely to bring forth fruit amongst us. Referring to our own exhibition season, we have every reason to congratulate ourselves on the increased and increasing interest manifested by the public in displays of horticultural productions. The great exhibitions of several days' continuance that have been held in several places, have proved successful in more cases than one, and there are but few modifications of rules and observances to be effected to render long-continued displays as acceptable to exhibitors as to treasurers and the general public. The effect of several good examples is to culminate in an expansion of the exhibition scheme, at the Royal Botanic Gardens during the coming season; and we hope for as complete a success for the two days' exhibitions announced to be held at Regent's Park as the society has become accustomed to in its eminently useful and honourable career.

The weather of the past year was equally unfavourable for horticulture and agriculture. A defective corn-crop was accompanied with defective crops of potatoes, fruits, and other kinds of garden produce. One general cause may be referred to in every case of a general failure of crops in this country, and that is deficiency of solar heat and light. Science has contributed largely to mitigate the evils incident to our isolation and the precarious nature of our climate, but there remains abundant room yet for discovery and improvement. Glass and coal have been the most beneficent amongst many of the new friends of the horticulturist; and it is but reasonable that in a country so densely populated, and where wealth and enterprise go hand in hand to multiply the comforts of life and enhance the beauties of nature, that the production of artificial climates should be considered by cultivators of plants as amongst the most important subjects to which invention and industry can be directed. There can be no doubt at all that the economical employment of glass and fuel is the one great problem of our time. Only within about five years past, some twenty or more patents have been taken out for improved (or supposed improved) forms of glass houses, furnaces, and other lighting and heating apparatus for horticultural purposes. Some of these merit attention by their extravagant complication and costliness; all of them merit attention as indicating the common consciousness of a want, and as pointing to work which yet remains to be done to render our daily share of sunlight, which is very small sometimes, productive in plant growth and the maturation of fruits to the full maximum of its power.

That we move slowly is but too evident in the general defectiveness, cumbrousness, and expensiveness of the majority of newly-adopted appliances. It is our bane that as horticulturists we shut out much of the light which enlarged views of nature would obtain for us. We construct plant houses without knowing much of the laws of light; we construct furnaces while in great part ignorant of the laws of heat; we engage in hybridizing and cross-breeding for the most part in ignorance of the laws of physiology, and it is but rarely the breeder of sheep and cattle and the breeder of garden varieties exchange notes with each other, or seek for any light beyond the sharp boundary line which they have drawn round their pursuits in a spirit as narrow as if they belonged to a separate world. The most accurate observation of minute particulars is consistent with a broad view of universal laws, and we shall not fear for any of the departments of the horticultural arts when practitioners of horticulture give their minds to the study of the laws and phenomena of nature in the largest manner, and in the conviction that every separate truth is but a part of the great whole which the Creator has set before us in His word and His works.

MANCHESTER NATIONAL EXHIBITION.—On the 27th of July last we announced (see page 319) that the council of the Manchester Botanical Society had resolved to hold a great show during the Whitsun week of 1868. It will be seen by the dates of the intended exhibitions of the Royal Horticultural Society that Kensington will again wage war with Manchester, and we may expect that Kensington will again be worsted. It is inexplicable on any other ground except that which men of honour and spirit must reject as having any proper place in this matter, that the council of the R. H. S. should fix the time for their first great show when it is impossible that the leading exhibitors can take an equal part in both, as they would do were

the dates sufficiently far apart. It is alleged that the great races occurring in May and June leave the council no alternative. Well, perhaps so; we are accustomed to find the council destitute of alternatives when direct injury and disgrace of the society they represent are imminent; weak and misdirected governments are always crippled for alternatives, and we must expect that the Royal Horticultural Exhibition, which is to continue from June 2nd to 5th, to prove as great a failure as that of last year, when, Manchester attracting the principal talent and the grandest collections in the country, the council of the R. H. S. made a pitiful appeal to exhibitors to allow their plants to remain a longer time than first agreed on, in order to make both ends meet. The Manchester Exhibition will open on the 29th of May, and close on the 5th of June next. The schedule is now being distributed. We observe amongst the prizes offered the following: sixteen stove and greenhouse plants, 1st £30, 2nd £20; twenty miscellaneous plants, 1st £30, 2nd £20; ten Azaleas, 1st £20, 2nd £12; ten Roses, 1st £14, 2nd £10; sixteen Orchids, 1st £16, 2nd £12. Other prizes are in like proportion; it will be understood therefore that this is a liberal schedule.

We regret to announce the death of Mr. William Clark, seedsman, of Bishopsgate Street, and Tottenham, who succumbed to an attack of apoplexy on Saturday last.

MY ORCHID HOUSE.—No. XV.

THE DENDROBIUM.

The popularity which this genus has acquired amongst orchid growers, and, in fact, amongst lovers of plants generally, whether growers or not, is abundantly testified by the number of species there are in general cultivation, and the number there are in individual collections. There can be no doubt the genus fully deserves the attention it receives at everyone's hands; for "fræe November till October" it contributes largely more or less to the beauty of the orchid house. Whether we take into consideration the handsome appearance which some present in their manner of growth, the graceful habit of others, the extreme beauty and diversity of the flowers which the different kinds furnish, or the profusion with which they are produced, together with the simplicity of the rules necessary to be observed to accomplish their successful cultivation and management, there is not another genus in the whole family of orchidaceous plants that can bear comparison with it. I am fearless of contradiction in making this assertion. If we take the whole of the good qualities collectively, unquestionably some of the Cattleyas, such as *Mossiæ*, *labiata*, and one or two others, would beat the best of the dendrobes in point of beauty; but then they are expensive to get at, and difficult to grow and flower after they are obtained, and the same may be said of other genera. But, take them "all in all," the dendrobes are decidedly the best for growers who are not lucky enough to possess separate houses for special purposes. Although they cannot be grown in such a low temperature as some of the *Lycastes* and the *Odontogloss*s, they can be grown more easily, and at the same time afford a large amount of beauty, that is, with few exceptions; for when the species are natives of New Holland, Nepaul, and Japan, the same temperature as would do for the *Lycaste* will suit them capitally. Amongst such as we may call cool species are, *chrysanthemum*, *Egertonii*, *heterocarpum*, *Kingianum*, *speciosum*, and *transparens*. The whole of the others are best grown in what is known as the East-Indian House. Ainery in full work will do very well until the grapes begin to ripen, when they must have fresh quarters provided them; for though some few others in addition to those enumerated above will live in a colder house, still it is a most difficult matter to keep them healthy, much less to persuade them to grow vigorously and flower well. The principal consideration in growing this genus is to push the plants freely when they are growing, so as to give the young bulbs every opportunity of attaining their full size early in the season, and before the shortness of the days and the dullness of the weather prevent their receiving that full amount of light which is so essential to their well-being, and to their flowering the following season. When the bulbs are properly matured the plants can be thoroughly and efficiently rested and, as I have remarked on one or two other occasions, so far as these conditions are kept in view and complied with, a more robust health can be expected, combined with a larger proportion of flowers. Unless the plants are grown strong, there will be nothing to produce flowers, and it follows as a matter of course, that unless the bulbs are ripened after they are grown, the flowers will be deficient in quality as well as quantity. In this respect orchidaceous plants in general, and the dendrobes in particular, are not at all singular in their requirements; for, take any other known plant, whether grown for fruit or flowers, no matter of what class, and no one having any knowledge of plant or fruit growing would expect fine fruit or flowers from half-starved plants with ill-ripened wood.

In cultivating this genus the natural habitat of the various species should be studied, and, as far as practicable, the different seasons of growth, rest, and flowering imitated. As most of the species are natives of different parts of our Indian

territory, it can be done with very little trouble; for, in the first place, we have the rainy season, when the plants make their growth; the cold season, when they rest; and the hot and dry season, when they flower. Although the different kinds vary in the time of flowering, they generally begin to push in March and April, when the plants should have the advantage of a temperature, to begin with, of 70°, combined with plenty of water thrown on the stages and floor, and with a syringe overhead once a day. As the days lengthen, and a large proportion of the heat is derived from the sun's rays, the thermometer may go up another ten or fifteen degrees, and the plants are then to be syringed twice a day, and the water at the roots increased. But whenever the temperature is kept up entirely by fire-heat, it should never, as a rule, exceed two or three degrees above seventy, for nothing is gained except weak spindly growth, by an excessive use of fire-heat. As soon as the growth is finished, the plants should be placed in a cooler part of the house, and exposed to as much light as is possible, without their being burnt by the direct rays of the sun. Afterwards from 55° to 60° will be quite sufficient to keep them in health, and much better than a higher temperature; for although I do not agree with the idea of orchidaceous plants growing and flowering without the aid of artificial heat, I am quite certain that it is equally as injurious to coddle them in a temperature of about 75° or 80° through the winter. I have seen plants (and more than once, too) kept in a temperature quite as high as that, but I have never seen them when so treated in such robust health as plants treated in a more rational manner, to say nothing of the time and fuel wasted.

If the drainage is in a good state, and the roots all right, plants growing in baskets and pots will require watering about twice a week through the growing season; and plants on blocks will require dipping every other day at first, then every day, and again every alternate day as they approach a resting condition. During the winter two or three good waterings will be plenty to carry them through. It is much better to let the bulbs shrivel slightly than to keep them too wet. The whole of the species are propagated by division, and some kinds form young plants on the old bulbs. These young plants are best taken off in the spring, and potted firmly in either pots or baskets, or fastened upon blocks, according to which of these methods of culture may be determined upon. I also prefer the spring, just after the young shoots have pushed between one and two inches in length, for dividing the plants, when it is considered desirable to increase the stock by division. I find they take root quicker, and grow away stronger when divided at that stage than they do at any other time. Only very large plants ought to be divided, for one good plant is worth twenty small ones for making a show, and not a quarter the trouble to manage, unless they are intended for sale.

Some kinds are most suitable for growing in pots, others for baskets, and a few for blocks. In the list of kinds at the end of this paper, I will indicate a few which are more suitable than others for growing in baskets and upon blocks for suspending from the roof. The others can be grown in pots, or in the square rustic baskets which are now common in orchid houses, but on account of their upright habit are best stood down on the tables. All baskets and pots must be filled with at least two-thirds of their space of drainage, and the plants should be potted very firm; for as they are mostly tall-growing they are liable to shake about and get loose, as there is not sufficient body in the sphagnum to hold them tight if it is put in loosely. They should be properly tied out as soon after they are potted as is convenient, as the sticks assist to keep the plant in its place. In putting fresh plants on the blocks, the best way is to put a layer of moss, then the roots and base of the bulbs, and cover them with more moss, and securely fasten the whole with copper wire. Very small growing kinds, like *Jenkinsii*, merely require tying on the blocks without the moss.

The best material for growing the dendrobes is good sphagnum, and the next best good fibry peat, with the whole of the fine stuff shaken out from it. The thrip is their greatest enemy, but it can be easily kept down by tobacco smoke. The operation of fumigating must be conducted with care, and not given strong, for the young growth is too tender to stand much of it without injury. Two mild doses are better than one very strong one. If the plants are kept in too dry an atmosphere, the red spider will soon make its appearance, but if a proper degree of humidity is kept in the house, there will be very little fear of their doing any harm.

I shall not attempt to enumerate all the species which are deserving of cultivation, but confine my list to those kinds which are really good, and with which I am personally acquainted:—

D. aggregatum majus.—Rather dwarf growing; blooms in April, with white flowers.

D. alba sanguineum is a very fine kind, the flowers creamy white, with crimson blotch.

D. bigibbum.—This species is a native of New Holland; it grows about a foot in height; flowers in spikes of about six flowers each, the flowers have large round petals of a deep rich lilac colour, with a nearly purple lip.

D. chrysanthemum.—This is a graceful growing plant, suitable for blocks and baskets for suspending from the roof; it flowers in spring and autumn; the colours are rich yellow with dark lip.

D. chrysoctonum, in the way of densiflorum, but has the lip beautifully fringed; the blossoms are produced in spring and are of a rich golden yellow, with a brownish red circle towards the base of the lips. First-rate for specimens.

D. Dalhousianum.—A very strong-growing species, with long spikes of deep rose and purple blossoms, produced at the top of the bulbs.

D. Dayanum is of recent introduction, and first-class.

D. densiflorum is a fine dwarf-growing evergreen, with large handsome spikes of golden yellow flowers.

D. Devonianum is a slender grower suitable for suspending; it flowers in May; the petals and sepals light pink, with a pink and yellow lip. A very pretty species.

D. Falconerii.—This is a very distinct species; the flowers produced on a long spike, with thirty or forty flowers on a spike; the diameter of each flower about three inches; the petals are white tipped with purple, sepals pale rose, with yellow lips.

D. Farnesii blooms in March, with pale straw-coloured flowers.

D. funbratum oculatum is much better than the species (namely *D. funbratum*), as it has the advantage of a brownish red lip. This and *D. Paxtonii* are so much alike that one is sufficient for a moderate collection; it blooms in May.

D. heterocarpum is valuable on account of its doing well in a cold house.

D. Jenkinsii is very dwarf, not growing more than two inches, suitable for blocks only; fine orange-yellow flowers.

D. Kingianum.—The flowers are produced on an erect spike; they are pink spotted with crimson.

D. lituiflorum.—The blossoms of this species are of a pale lilac colour, with deep violet lip.

D. MacCarthie.—This very splendid species is rather scarce and expensive as yet; the sepals and petals are of a rosy purple colour, and the lips white, with numerous small purple spots in the throat, and a purple blotch in the centre.

D. moniliforme, in the way of nobile, but blooms in January; valuable for its early flowering.

D. nobile.—This is one of the very best; flowers rosy purple with dark lip. This can be had in flower from March to June by retarding a few plants.

D. speciosum flowers in January, yellow and white. It is a native of New Holland, and may be grown in a cold house.

D. transparentum.—Native of Nepal; the flowers are rose coloured; a cool temperature will also suit this.

Besides the above, there are as many more first-rate kinds, which should be in collections where there is room to grow them.

GEORGE GORDON.

ON PURE HYBRIDIZATION; OR, CROSSING DISTINCT SPECIES OF PLANTS.

[Read by ISAAC ANDERSON-HENRY, Esq., F.L.S., President of the Botanical Society of Edinburgh, on 14th Nov. 1867, being the opening address of the thirty-second session of the Society, slightly abridged for the *Gardener's Magazine*.]

In the paper I read before the Society in March last, which related mainly to that form of hybridizing generally known as *muting*, and cognate matters—all akin, no doubt, but for the most part *outside* the proper province of hybridization—I intimated my intention of afterwards submitting to you another paper limited to the latter branch in its purer and simpler form. I have now, in laying what I have here to say before you, some things to enumerate which may sound as a thrice-told tale; but as they consist of my own experiences, and as I am animated by a desire to lay them truthfully before you, I trust they will neither over-tax your patience, nor be without some value to those who may be already some way a-field or a-mind to follow in that direction.

1st. I long held it to be of vital importance to have the separate plants intended for the parents in the cross, even though both were hardy, brought under glass, and I still recommend it; for by doing so you heighten the temperature—an important thing—and you can better secure against the interference of winds and insects; and though Darwin holds the former of small account, I have reason for differing with him there. But in the height of summer, pollen may be taken from an outside plant to cross an inside one, and *vice versa*.

2nd. I hold it not enough merely to emasculate the intended seed-bearing flower; I take off every petal, for the petals attract the insects, which seem guided more by their optics than any sense of smell. This act of emasculation in some cases I perform long before the expansion of the bloom, for in many plants—*e. g.*, in the *Papilionaceae*, some of the *Rosaceae*, and *Compositae*—self-fertilization may and does often take place in the unopened flower. This is not all. I sometimes put a *gauze* bag over it; if I do not the mutilated bloom may not escape that most troublesome of all insect pests, the humble bee, which in his unwieldy flight may come across it by pure accident. But for the most part now I make clean work of it, and remove all other expanded flowers on the seed-bearing plant, and allow no kindred one to be near.

3rd. Do not be in a hurry to effect your cross; wait till you find that the stigma is fully developed. In many plants this is shown by a glutinous exudation on the summit, such as in the whole family of the *Ericaceae*, the *Onagraceae*, &c. In other families, such as the *Geraniaceae* and *Malvaceae*, it is indicated by the feathery expansion and recurvature of its separate divisions.

4th. The next thing is to obtain properly-ripened pollen grains from the male plant. This is done by carefully watching when the anthers burst open, otherwise the insects may be before you; and so active are they, especially on such favourite food as the pollen of the *Rubus* tribe, that, to get it at all, I have found it necessary to encase the opening bloom in muslin bags till the pollen was ripe and ready for use. Do not use, as is generally recommended, the camel-hair pencil, which, applied often and indiscriminately, may and often does convey, with the foreign some insidious grains of native pollen, which, however few, are prepotent, and wholly neutralize the former. Take, where that can be obtained and afforded, the entire bloom of the intended

male, and give the slightest brush with all its anthers over the stigma, or all the stigmas if more than one, of the intended female. I will give my reasons for this by and by. You may use for experiment, in some cases, the *long*, and in some the *short*, anthers. To those of the proper dimorphic form I have made some allusion already; they occur in the *Primula* and in some of the *Linum* tribe (as to both of which see Darwin's most remarkable papers in the Proceedings of the Linnean Society). Such anthers, at least two long and two short ones, occur in the two orders of the class *Didymia*, on which I may have a suggestion to offer hereafter, for I think something interesting may be worked out of this form. In cases where the anthers are few—in the *Dianthia*, *Triandria*, &c.—you may use small pinets; a bit of wire so twisted as to form that implement, to carry in the pocket, is by far the handiest; I have used such an instrument all along, and find it better than any other form. In some tribes, the better to secure against invasion by insects, such especially as in some of the *Rosaceae*, having large discs, a muslin bag may be used so as effectually to exclude them; I use it constantly in the *Rubus* tribe immediately after emasculation, taking it off and replacing it after the cross, and keeping it on thereafter till the cross has set.

5th. In some cases it is a matter of some difficulty to procure, and when procured of no less importance to preserve, pollen. In dioecious plants—say the *Aucuba*—a friend may have the male and you have, as we all have, the female in abundance. You would like to store that pollen till your female plant—generally later—comes into flower. Many hold that pollen cannot be preserved in a vital condition for more than one or two, perhaps three weeks. In a recent publication which refers to this matter—namely Max Wichura's "Observations on Hybridization"—of which a very lucid abstract, carefully digested and translated from the original German, by the Rev. M. J. Berkeley, is given in the January number of the *Journal of the Royal Horticultural Society*, that eminent authority holds it as "a fact of great importance that the pollen of willows retains its potency for some time. In some cases pollen ten days old was efficient, while vitality was still further prolonged by steeping it in a solution of honey" (of which I have doubts). "Pollen," he adds, "of *Salix Silesiaca* eight days old seemed almost as potent as ever: in twenty-eight days the traces of vitality were very slight, while that of *Salix cinerea* had become weak in sixteen days." Now I am not aware that there is less vitality in the pollen of willows than in that of any other family; and as many experimentalists hold kindred views to those here enunciated by Wichura, I deem it a matter of some importance to give you one or two instances of my own experience. I have carried in my pocket the pollen of *Rhododendron* again and again from six weeks to two months and upwards, and still found it potent. Of the Japanese forms of the genus *Lilium* I have kept pollen effective in the same manner for equal periods. In fact, generally speaking, I have found the pollen of most plants to remain good for similar periods. Having last year got the new and beautiful *Clematis Jackmanii* to flower, and anxious to preserve its pollen as long as possible, I collected and stored it in its anthers in a simple pill-box. On the 4th of July, 1866, I so gathered and put it into a drawer of a cabinet in my own sitting-room, where it remained wholly away from damp. On the 5th of June, 1867, having first carefully emasculated a flower of *Clematis candida*, I crossed it with the pollen, then eleven months old, and from this cross, I have this autumn gathered and sown eight well-developed seeds. Now, both parents are hybrids, with a large infusion of *alien* blood in them, so that here the vitality was put to its severest test. I notice this result here (somewhat out of place) to suggest the propriety of storing and, if needful, of importing pollen, which, if wrapped up in silk paper, might even, enclosed in a letter, reach this country still potent, by the overland route from India, or, after two or three months' voyage, from all parts of South and North America. Let collectors and friends in distant countries be instructed as to this, and we may soon have an improved progeny of the rarest things, even before such novelties from which they are derived have been obtained from their own seeds in this country.

6th. There is, I humbly hold, another matter of much consequence to be attended to in the crossing of distant species; I mean the times and seasons for effecting the cross; yet not one of those most experienced in the art, from Darwin downward, have touched upon this point. I have had it forced upon my attention for more than twenty years, and found that I could, on some few happy days which occur throughout the season, successfully effect crosses I could not effect with all my care at other times. I have adverted to this in the paper I formerly submitted to you, and again I cannot pass it by. I have some crosses to tell you of which I effected at such times, and might have tried in vain to accomplish them at times less favourable. If you have, say two plants of *Rhododendron*, one a tiny thing, to cross with a large species, or if you wish to attempt a cross between an Indian azalea and a rhododendron, of which I will have to speak hereafter, watch for a propitious time. Such times occur, often few and far between, when there is less of sun than of that latent form of heat, which frequently occurs before thunder, from the air being more than ordinarily charged with electricity. Or it may occur in the spring season, when that form of it which chemists designate by the term *ozone*, is present, whose influence I have often found tell most favourably in promoting the germination of long-sown seeds, of which please pardon my notice of a single instance here. It was to the presence of this, or to some other form of electrical agency, I attributed the almost simultaneous germination of some New Zealand seeds, of a shrub which I got from that country under the name of "Black Maupan," a species of *Pittosporum*, which sprang up together on the morning of the 16th March, 1863, after they had lain dormant two years and eight months. Such atmospheric conditions, to whatever cause they may be due, I have found not infrequently to occur with the east winds of March and April, of which we have so much at that season; at which times I have seen many other long-sown seeds spring quite suddenly and unexpectedly into life. Seize upon all such seasons for difficult crosses. As to the time of the day, you may operate best perhaps from 10 a.m. till 6 p.m.

We shall suppose the cross now performed. Your next anxiety will naturally be to find out whether it has taken. Almost all experimenters have noticed that soon—I would say from six to ten days—an alteration is observed on the stigma and style. On the first you will find its viscous matter dried up and the latter begun to shrivel. You will naturally conclude that it is all right, and that the fertilizing pollen has now passed down into the ovary, and in some cases you may be right; but these appearances are deceptive, especially if you find the style maintain an erect position. The following degrees of failure noted by Wichura have so often occurred in my own experience, that I cannot do better than cite them in his own words, from the Rev. Mr. Berkeley's translation, already alluded to, which I only alter according to my own experience: 1st, The organs submitted to hybridization (the stigma and style) soon wither, but do not in all cases soon fall off. 2nd, The ovaries swell and ripen, but do not contain a trace of

seed. 3rd, The ovaries may seem filled (I say may seem partially filled), having in some instances the small protuberant swelling outside as if seeds were within, and yet no seed be there. 4th, Seeds are present, but small, languid, and incapable of germination. 5th, Seeds apparently perfectly developed, but do not germinate. 6th, Seeds germinate, but the young plants are weak, and wither in a short time, dying off oftentimes after developing the seed-leaves. I have had all these conditions and results amply illustrated; and of the second in the above category, I have had, last summer, mortifying proofs in the muling operation I tried, by fertilizing a flower of the new *Arabis blepharophylla* with my still newer *Draba violacea*. The cross, to all appearance, had taken; the seed-pod swelled better than the others where no experiment was made, and while the valves of the siliques of these last opened and showed no trace of seed in them, the former remained closed, showing by outward development that two seeds were certainly within. But I found on opening, when to all appearance ripe, not one seed was there, though there was a something, which, however, bore no resemblance to a seed—an utter abortion. While Wichura's accuracy in the above degrees of failure are consistent with what I have myself had ample experience of, I cannot, from like experience, endorse the views he has formed on some of his successful results. At page 72 of the above article in the *Journal of the Royal Horticultural Society*, Mr. Berkeley, commenting on Wichura's paper, observes: "Gärtner, indeed, supposes that in genera which are rich in species, there are some which have a prepotent influence when hybridizing, so that in some hybrids the type either of the male or female prevails. Amongst the various hybrid willows, though the genus is so rich in species, and so prone to hybridizing, Wichura has never seen a prepotent type, and doubts Gärtner's statement, especially as he makes it in very qualified terms;" upon which Mr. Berkeley very judiciously remarks on the difficulty of determining, "by examination of types, whether, for example, a hybrid is more like the mother or father—the perfect distinction is subject in many cases to great difficulties, since very much depends on the subjective view of the observation; for, in consequence of the frequent intermingling of both characters, the one observer finds in a hybrid the maternal type, while another thinks the paternal type prevalent." By which I regard Mr. Berkeley as very modestly dissenting from his author. And further on, at page 78 of the same journal, Wichura speaks out still more absolutely. "When both parents," says he, "belong to the same species, we cannot tell what part the male and female parent take respectively in the formation of the progeny. But dissimilar factors are united in hybrids, and an intermediate form is the consequence. The products which arise from reciprocal crossing in plants, unlike those which are formed amongst animals, are perfectly alike." I regret to differ from so great an authority as Wichura, and must venture to demur to the doctrine in more decided terms than Mr. Berkeley does. I have had so many instances of hybrids taking sometimes to one side and sometimes to another—but most frequently to that of the mother—that to those who, like me, have tried their hand with many genera, it would be a matter of supererogation to give instances; I have had them by the score. The converse is the rarer case—i. e., where the paternal type comes out most marked. Yet I remember one eminent instance of a seedling *Veronica* (from the batch of seedlings from which I obtained *V. Andersonii*, *V. salicifolia*, *V. speciosa*) being so like the male parent, *V. speciosa*, that I presented it to a friend in the belief it was purely and simply the latter species; but when it bloomed, it showed, by the longer spike and lighter and brighter colour of the flowers, and by their being a bright crimson instead of very deep purple, which is the colour of the flower of the *V. speciosa*, that the blood of the *V. salicifolia* was there. I can well understand that, as respects the family of willows, from their being so attractive to bees, and from their being naturally so prone to intermix (in so much that few can tell what is a species and what is a hybrid), Wichura has not much overstated the fact, and that a distinct intermediate form may generally be reckoned on. But I must dissent still more strongly from what he lays down in continuation of the above passage at page 78, as to reciprocal crossing. "The products," he says, "which arise from reciprocal crossing in plants, unlike those which are formed among animals, are perfectly alike. It is of no consequence which is the male and which the female parent. It is, therefore a mathematical necessity that the pollen-cells must have just the same part in the act of generation as the ovules." And, based mainly on this doctrine, he follows up and amplifies it in a series of aphorisms which, he admits, are to be "considered conjectural, and require to be submitted to proof," an admission for which he is to be commended, and all the more if he submitted to the like test the dogma on which they mainly rest; for it humbly appears to me that it had been suggested from his experience among the *Salices*—of all plants the most mongrel in a state of nature. Now, in all this it appears to me to be implied by Wichura, that if a distinct intermediate may be formed, and is formed, by crossing A on B, so may an exactly similar intermediate be reciprocated by crossing B on A. And M. Naudin, I observe, in his experiments among the *Daturas*, enunciates the same belief, and holds "that there is not a sensible difference between reciprocal hybrids of two species." That distinguished observer, like Wichura, seems to have confined his experiments to herbaceous or soft-wooded plants. But, from a long and large experience among both hard and soft-wooded plants, I demur, 1st, to the capability of the parents being in all cases made subject to such reciprocity; and, 2nd, to the dogma, where such reciprocity does hold, that the progeny are perfectly alike, whether A or B supply the pollen.

1st, In my various crossings I have had my hands on many hard as well as soft-wooded genera—in particular, I would here instance among the former the tribe rhododendron. There I have again and again been baffled to reciprocate a cross which on one side was comparatively easy to be effected. When the lovely and fragrant *Rhododendron Edgeworthii* first bloomed in this country, all were eager to see its beauty and perfume transfused into dwarf and hardier forms. Some tried the cross by making *Edgeworthii* the female or seed-bearer, others by making it the male. I tried it in both ways, but, for my own part, all those efforts failed where I attempted the cross on the *Edgeworthii*. But while it would not be brought to bear hybrid seed, I had no great difficulty in effecting a cross from its pollen on *R. ciliatum*, another of Dr. Hooker's beautiful Sikkim species having all the desirable requisites of hardiness, dwarf habit, and free-flowering tendency; and, singularly, just as I had obtained and sent off blooms of this brood to lay before the Committee of the Horticultural Society of London, Messrs Veitch, of Chelsea, anticipated me in having a plant of this identical cross first exhibited before that Committee, which is now well known and generally cultivated under the name of "Rhododendron Princess Alice." Now, neither I nor any one who ever tried it, so far as I know, ever effected the inverse cross of *R. ciliatum* on *R. Edgeworthii*; and if they did, the progeny would long ere now have appeared in nursery catalogues. But more of this

below, though there is yet one other instance I may notice now as an illustration of the matter I contend for here. In my former paper I noticed, as an exception to a rule I had found almost general—viz., that European had great aversion to cross with Asiatic species—that I had, notwithstanding, effected such a hybrid by crossing *R. cleagnoides* (another of Dr. Hooker's acquisitions, a tiny Sikkim species) on the European *R. hirsutum*, and of having sent the survivor of the two plants which came of it to Kew, of which, by the way, Dr. Hooker writes me, that it dwindled away and died after being a few years in their hands; but by no possible means could I invert that cross, or get that same very interesting tiny yellow-flowered species, *R. cleagnoides* (a form of *R. lepidotum*), to submit to a cross from any species whatever.

I shall now advert to the second point which Wichura lays down as a dogma—viz., that the progeny of reciprocal crossing, whether it is A on B or B on A, are precisely alike. While my past experience goes with what I observed last summer, it may perhaps suffice to give the latest instance. Having, through the kindness of Dr. Hooker, obtained seeds of beautiful new Californian *Arabis* (*A. blepharophylla*) with large fine rose-tinted flowers, I felt desirous to infuse that colour into some of the other kinds I possessed. After trying it on several, especially on *A. albida*, all in vain, I at last effected a cross,—a reciprocal cross—between it and *A. Soyeri*, a white-flowered kind, something like the *A. albida*, but with a glabrous foliage. Of the cross *A. Soyeri* on *A. blepharophylla* I have raised six plants, the product of two very largely developed seed-pods. These plants are alive and healthy, and promise an improved vigour over either parent. That the cross was sure I had the best proof from there being no seeds in the normal pods of the seed-bearer. Of the inverse cross from one weakly seed-pod I raised one plant, which, after maintaining a sickly existence for some two months or so, has died off. But while this last cross was equally certain as the others, like it, the plant had more of the mother than the father in it. In fact, I have oftentimes found the maternal type most marked in hybrid progeny. I have various crosses effected between distinct species of the rhododendron, where, while the male manifests his presence, the female type prevails. I have it in *R. Jenkinsi* crossed by *R. Edgeworthii*, *R. Caucasicum* by *R. cinnamomeum*, and the hybrid from this latter cross crossed again with *R. Edgeworthii*, and especially the Sikkim species *R. virgatum* crossed with another of my hybrids, *R. ciliatum* by *R. Edgeworthii*—all having more the foliage and the aspect of the mother than the father.

I have another hybrid of the same *R. virgatum*, the female parent crossed, I believe, by *Rhodothamnus chamaecistus*, a tiny procumbent plant of three inches, but all set with flower-buds—not, as in the male parent, at the tips of the shoots, but, as in the female, at the axils of the leaves. I have stated my belief that the *Rhodothamnus* is the male parent, but I cannot do so confidently, from the tallies having got into confusion—the specimens being planted out. But as some plants were obtained from that cross, and as this is the smallest, I regard it as likeliest to be the true progeny; and the cross being an extreme one—a mule, in fact—it is open to question. But as I have this season effected still more extreme—certainly more unlikely—crosses in that family, where there could be no misarrange, you may, I think, take it as true in the meantime. But I could overwhelm you with proof. Darwin, at page 333 of the last edition of his "Origin of Species," has observed the above tendency. "When two species," he says, "are crossed, one has sometimes a prepotent power of impressing its likeness on the hybrid; and so I believe it to be with varieties of plants."

Naturalists of the highest note—Gärtner, Kœrleuter, Naudin, and Wichura—are far from being at one on the subject of variability, as Darwin has shown, especially as relates to crosses, first, between species and species; second, between species and varieties; and, third, between mongrel offspring. But this is a complex subject, and when such high authorities are not at one, and Darwin admits that he cannot reconcile them, it is manifest that the case is still open to further probation. Please excuse me for citing him again in dealing with the views of Gärtner, to whose testimony he deservedly accords great value (page 331). Gärtner, whose strong wish "it was to draw a distinct line between species and varieties, could find very few, and, as it seems to me, quite unimportant differences between the so-called hybrid offspring of species and the so-called mongrel offspring of varieties. And, on the other hand, they agree most closely in many important respects. The most important distinction is, that in the first generation mongrels are more variable than hybrids; but Gärtner admits that hybrids from species which have long been cultivated are often variable in the first generation; and I have myself seen striking instances of this fact. Gärtner further admits that hybrids between very closely-allied species are more variable than those from very distinct species, and this shows that the difference in the degree of variability graduates away. When mongrels and the more fertile hybrids are propagated for several generations, an extreme amount of variability in their offspring is notorious; but some few cases, both of hybrids and mongrels, long retaining uniformity of character could be given. The variability, however, in the successive generations of mongrels is perhaps greater than in hybrids." So reservedly does Darwin deal with a subject on which a flood of the opinions of others could be brought to bear; but as they are not all concurrent, and not unfrequently conflicting, which they may well be from the various subjects experimented on, he has said, with commendable moderation, all that can be said on the subject.

From you, gentlemen, I respectfully claim the same kind indulgence which Darwin has shown to the testimony he has had to deal with, in judging of the views I have offered, and am now to offer, on the experiments I mean, as briefly as I can, to lay before you. But ere I enter upon them it is necessary to premise, especially as regards that form of dimorphism which occurs among many tribes—in all the Jannæan classes from *Pentandria* up to *Decandria*—in having very generally one if not two pairs of anthers shorter than the other anthers in the same flower. And the same dimorphic form often occurs in even a more marked degree in many tribes of the class *Tetrandria*. Besides, as you know, and I have noticed, it is the distinctive character of the two orders of *Didynamia* to have two long and two short stamens.

As observed in my former paper, it is now seventeen years since my attention was drawn to the long and short anthers, but to the latter more particularly in some muling operations there alluded to, where by using them, I crossed that large species of rhododendron, *R. cinnamomeum*, on the pigny *Rhodothamnus chamaecistus*. I refer to these short stamens again as the means by which I succeeded in effecting some extraordinary crosses which, I confidently believe, but for their use and my improving a propitious time, would have been utterly impracticable. As I have said, I at first worked only with short stamens. These I use in all cases where I wish to cross a large on a small species. I have now found that the converse holds, and use the long stamens where I wish to cross a small on a large species. In all extremes I use the longest or shortest pair of stamens as the case demands.

The short pair is generally well distanced by the others—the longest pair often not just so much in advance. There is often an intermediate pair of short stamens, which in cases less extreme are exceedingly serviceable, but there are seldom such intermediates among the long ones. My reason for the use of these short, intermediate, and long stamens is intelligible enough. If I wish to cross a large on a small species, the smallest-grained pollen being in the short stamens, I take the pollen of these stamens of the large plant as best fitted to pass down through the tubes of the stigma to fertilize the ovaules of the smaller species, and so effect the cross on it; and so, *caeteris paribus*, with respect to the other forms.

As this paper has already so far exceeded the limits I intended, I shall not go far back on past years, but restrict the instances I am now to cite to the last few years, noticing,

I. CASES OF CROSSING WITH SHORT STAMENS.

The first cross I shall notice is one I have already alluded to—viz., *Rhododendron virgatum* with my own hybrid rhododendron *B* (*R. ciliatum* crossed on *R. Edgeworthii*); and as this cross is memorable and instructive in several points of view, it is proper to give you its history. On April 20, 1864, I find from my note-book that “I took off all expended blooms of *R. virgatum* and castrated all unopened ones on the plant, there being none left for self-fertilization; done in fine sunshine—west wind—with three short anthers of *B*”—i. e., the hybrid male, being the identical cross which produced Veitch's rhododendron, Princess Alice. Of this cross I ripened four pods of seed, which I sowed on January 28, 1865, and with some failures, got up by December that year seven nice healthy plants, all of which, however, save one, I lost by an accident. That one plant is now setting for bloom—not at the axils, as the female parent (*R. virgatum*) generally shows, but at the extremities of the shoots, as in the male (*R. ciliatum* crossed by *R. Edgeworthii*). But, as I have had occasion to observe already, the type in all else is more that of the female than of the male parent. By the mother's side this plant is a hybrid, by the father's it is a mongrel, and yet it has a fair share of vigour in it. As in its sexual aspect, so in its height, it is that of the mother. Some few cilia are noticeable on its leaves, but it has none of the tomentose or dense hairiness of the male parent; and so in this also it partakes most of the glabrous foliage of the mother. Again, this doubly-crossed plant, and the crosses which produced it—all extreme—show how such crossing may hasten on the reproductive or flowering state. Never in all my experience have I seen or heard of rhododendrons offering bloom at two years of age, for it is only now rising in the third year of its being. I have rhododendrons now fifteen years from seed which have never shown the slightest tendency that way, though ten or twelve years I would consider about the mean at which they attain their flowering state. If by such crosses the like precocity can be generally secured, practical florists may turn them to some account in their profession. You will please observe that I am now dealing with *hard-wooded* shrubs, where there is in general more fixedness of structure and habit than in those on which the physiologists I have cited have chiefly experimented, and which are less liable to be modified by the manifold influences which affect the more pliant and shorter-lived herbaceous genera.

2nd. The next cross in the rhododendron tribe effected by the short stamens to which I would direct attention is very recent, and one with which I took the utmost pains to prevent miscarriage. The beautiful *R. jasminiflorum* of Java, with its delicious perfume and its long tubular five-lobed flowers, of snowy whiteness, so like *Erica Aitonii*, so like, too, in form and fragrance, the sweet-scented jasmine, and so unlike all its own congeners, is the subject of it; and as I regard this cross of some scientific as well as of some practical value, I shall offer no apology for taxing your indulgence in giving you particulars. I made it the subject of many attempted crosses by many of its own tribe, all of which failed except two, which, by the way, afford a good illustration of what I alluded to in my former paper of the *sympathies* of plants, and perhaps, too, of natural selection, though whether it be in the mode which Darwin regards as leading to diversity of species I cannot positively assert, yet I think it is worthy of his consideration. Well, while it rejected so many of its legitimate brethren of the rhododendron tribe pure and simple, I was somewhat surprised that it took kindly with my hybrid *B* already noticed—i. e., *R. ciliatum* crossed by *R. Edgeworthii*—a hybrid of the first degree, having large flowers of three inches diameter, perfumed, and also of snowy whiteness. After the bloom had been long emasculated, on April 17, 1867, I effected the cross with the short anthers of the hybrid *B*. The cross took admirably—the seed-pod swelled, and was pulled fully ripe about 12th July last. On the 15th of that month I sowed the seeds. For the purpose of comparison, I sowed a pot of its own plain native seeds which I had gathered previously, and had, in fact, sown it some ten or twelve days before I sowed the cross. These are both now up. While the native seeds have produced a fair show of feeble plants, the crossed seeds have come up in more than double the number of plants, doubly vigorous in growth and habit, and with leaves so much larger than those of the normal form as to remove all doubt about the verity of the cross.

3rd. The next illustration I have to give you is of a small-leafed Indian *Azalea* eighteen inches high, which I crossed with the tall and robust shaggy-leafed *Rhododendron Edgeworthii*. Two things more unlike in every feature from which to effect a union can hardly be imagined. Yet, with the short anthers—and it was with the very shortest I could find on *R. Edgeworthii* that I effected it—the cross, after careful emasculation, was done on 6th May last. The seed-pod swelled to its due dimensions, and appearing to be ripe, I cut a slice off it, and sowed the seeds so early as the 13th, and the residue on 28th, September last, and I have now got up one or two plants. If I shall be so lucky as to bring it to maturity, the progeny of this cross (one never before accomplished, perhaps) should be a sweet-scented azalea, having a rose variegation like the female parent, a novelty in its tribe; for though the *Azalea sinensis* has been crossed by rhododendrons, I am not aware of any authentic cross, or cross of any kind, between the rhododendrons and this proper Indian azalea.

4th. I have still further a cross of the same nature, between another Indian azalea and the *Rhododendron jasminiflorum*, the latter being again the seed-bearer; and I here refer to it mainly as showing another tendency of this rhododendron towards natural selection, or rather perhaps of *sympathy* between it and remote species, if not genera, for the azaleas have till lately been regarded as a separate tribe from the rhododendrons. The cross was effected in August last, when it again rejected its more natural allies, and formed a union with the Indian azalea, a late rose-coloured spotted variety, a seedling of my own raising. The seed-pod of this cross is now at maturity.

5th. But I have now to call your attention to a cross in the same family bearing on Darwin's doctrine of *natural selection*, or of *sympathy*, in a still

more remarkable manner, which I effected last summer between that most gorgeous of all the rhododendron tribe—namely, the lovely white, large-flowering, sweet-scented *R. Aucklandii* of Dr. Hooker—and an Indian azalea, the latter being the seed-bearer. I made the cross on two separate days on two separate blooms, carefully emasculated some time before; and on the same azalea I tried other crosses with several of the rhododendron tribe—viz., with a fine form of *R. arboreum*, *R. Edgeworthii* pure, and the above hybrid seedling *B* (*R. ciliatum* by *R. Edgeworthii*). But while every one of these failed, the crosses by *R. Aucklandii*, which were effected respectively on 30th April and 1st of May, took most kindly. Both pods swelled; and the seed-pods, though green, appeared to be sufficiently ripe when I pulled them. I counted the seeds in one of these pods, and found them to be about 324, all finely formed, but, I fear, too green to vegetate freely, though some which I sowed appear to be coming up. I cannot vouch for this cross being effected with the *shortest stamens*, for the stamens with which I effected it were kindly sent to me from another source, as I did not myself possess the male plant; but as I invariably select the *shortest* for such crosses, my firm belief is, I had so selected these in this instance, and I had a plentiful supply of all lengths to choose from. In the above cases of crossing a *small* with a *large* species, I hold firmly by the opinion that but for the use of the *short stamens* I could not have succeeded. I have few recorded instances of having effected my experiments with them far into other families. I certainly tried the *pelargonium* in a plant I had of the beautiful white-flowered Madame Vaucher. I fertilized a bloom with its two *shortest* anthers, which, however, were very little shorter than the remaining ones; and, from the three seeds which came of it I raised two fine plants, far more compact and somewhat dwarfer in habit than the parent, having the flowers equally fine, and elegantly thrown up above the plant. But the short stamens of this section of the *Geraniaceae* are very little shorter than the others, and I therefore cannot rely much on the results as establishing the hypothesis I contended for in my former paper—namely, that where all other things are equal, a cross or simple fertilization with the short anthers tends to dwarf the progeny—to my belief in which, however, I still adhere. The instances I have given above in this paper support this other hypothesis, that by their use you may cross a large on a small kindred species, a result which, without them, you might not effect.

II. CROSSING WITH LONG STAMENS.

I have made fewer experiments with the long stamens, but I have one before me now no less remarkable, perhaps, for its far-reaching result than any I have alluded to as done with the short anthers. It is a cross which I effected on the tall *Rhododendron formosum*, fertilized with a scarlet-flowered Indian azalea, on the 11th June last. The seed-pod is finely developed, but I have taken care in this instance to avoid pulling it too early. And I may here notice, once for all, that to obtain the seeds of a cross—especially if it be *extreme*—sufficiently ripe, you must allow a longer time for it than for the ripening of the normal seeds on the same plant.

In all the above crosses I had perhaps less an eye to accomplish a purely scientific experiment than to effect a beneficial result; for, after all, it is the *quid sit utile* which those for whom this paper is mainly intended will have most in view; and, in my estimation, science is best promoted when she is made to minister to some useful end.

The following experiment among the species of *Clematis* illustrates my view of *sympathy* as well as of *antipathy*, and, I would add, of *unnatural selection*: Having many years ago (long before the Messrs. Jackman, who have accomplished such wonderful results) been myself working on the members of this genus, I bethought myself of trying my hand anew upon it, with a view to infuse a richer colour into a new and larger-flowering progeny; and, as I have observed already, I managed successfully to cross with pollens kept for eleven months, the beautiful four-petaled *Clematis Jackmanii* on a thirteen-petaled flower of the fine *C. candida*; but it is of a cross on Messrs. Jackman's smaller, but no less beautiful, *C. rubro-violacea* I am now to speak. Though, like its congener *C. Jackmanii*, it sometimes comes with five or even six petals, it is in its general type a four-petaled flower. With a view to improve it in this feature, I crossed it also with pollen of the larger flowered *Clematis candida*, taken from a bloom having seventeen petals, though this *Clematis*—a French hybrid, I believe, from *C. lanuginosa*—is in its normal state a six or eight petaled flower. Though I crossed two flowers, after careful emasculation, I only gathered three seeds, but these all of unusually large dimensions. After the cross had taken, I left the normal blooms on the crossed plant to their fate; and though visited by insects innumerable, and though the native pollen was abundant, not one native seed, or any saving the three produced by the cross, were ever formed on the plant; and the singular thing was that, with its own native pollen, abortive on itself, I successfully crossed the fine double white-flowered Chinese *C. Fortunei*; and a cross more prolific in the seeds it yielded I have not seen in the tribe before. I know not the parentage from whence this *C. rubro-violacea* was derived, though I believe it to be a mongrel with none of the *Fortunei* blood in it; yet mark how kindly the latter took with it—another instance of remarkable *sympathy*; but, though I have no record of it, I think I failed to get *C. rubro-violacea* to reciprocate this cross.

In all these instances of *sympathy* and *antipathy*, and especially in this section of the natural order *Ranunculaceae*, there is something so inexplicable to me, that I can only concur with what Darwin has observed in his paper on the existence of two forms in the genus *Linum*, where at the close, in summing up the good gained by the inevitable crossing of the dimorphic flowers, and numerous other analogous facts, he says, that these all lead to the conclusion that some “unknown law of nature is here dimly indicated to us.” And this law, when discovered, may disclose more mysteries tending, perhaps, to the wider divergence of species, with constitutions and habits better fitted for the climates and localities in which they may be cast, as well as for subserving the purposes they are intended to fulfil in the economy of nature. In looking at *Ranunculaceae*, with their innumerable male and female organs (and the same thing occurs in the *Myrtaceae*, most of the *Rosaceae*, some of the *Hypericaceae*, and in many other families and tribes), the idea was long ago suggested to me, that each separate row, from the outer to the inner circle of the anthers, might have some separate function, just as I believe that the long and short anthers have their separate functions; and with the view of testing the matter, I had the last summer begun experiments with these *outer* and *inner* anthers; but other aims and objects interfering, I gave up the experiment after I had begun it on these *Clematis*.

But to make success certain, it is my custom, as I have already stated, in crossing either of the above polyandrous flowers, to take the entire bloom of one kind, and lightly to come over, with all its anthers, the stigmas of the flower to be crossed, and leave nature to make her own selection. In refer-

ring to the *Rubus* tribe and its species, I am reminded of an intention I expressed in my former paper of perhaps returning to them afterwards. I again tried my hand upon them last summer. But though I tried various crosses among them, and reciprocated the cross, I had no success in any, except between the *R. biflorus* and the *R. Ideus*, and that only where I made the latter the seed-bearer. And to make sure of either event—success or failure—I had the *R. Ideus* early potted and put under glass, emasculating every bloom I meant to cross; and for more security I stripped off all other flowers—nay, more, I put the emasculated flowers under fine gauze bags, to ward off the invasion of insects. When ripe for crossing I removed the bag, and, on effecting the cross, I replaced it. In this way I succeeded in ripening three berries of the cross *R. Ideus* by *R. biflorus*, of which I sowed the seeds between the 5th and 16th July, though as yet none have vegetated. But *R. biflorus* stubbornly rejected a reciprocal cross. Again I tried both of these on *R. rupestris*, and the latter on them; and though *R. rupestris* showed some sympathy with *R. biflorus*, in a slight tendency to form seeds, these came to nothing. In all these attempts I applied, as I have said, all the anthers of the male flower.

I cannot quit this part of the subject without offering some additional suggestions to those of you who wish to act on any hints I have it in my power to give:—

1st. If your desire be to hasten the flowering condition of plants—to cross violently—*i. e.*, where the allies are not too near akin, and, above all, in the case of mongrels; for nature, ere she gives up, ever makes a violent effort to reproduce.

2nd. If you wish to make your hybrid flower more freely, as well as early, adopt the same advice.

3rd. By following it you will find that you have attained a further advantage. Your plant will remain longer in bloom, because most mongrels, especially those among herbaceous or soft-wooded plants, to which these suggestions apply, are impotent to produce seed, or nearly so, and in such cases the blooms remain long upon the plant. I have another idea, not sufficiently tested, however, in reference to the first point among hard-wooded as well as soft-wooded plants, that all such as ripen their seeds more quickly than others (some among the rhododendron tribe ripen seed in half the time that others take) will reach more quickly their flowering state.

Lastly, as to fruits, on which, however, I have only partially tried my hand, I entertain the belief that we are on the eve of a revolution—that by judicious and persevering crossing we may not only transfer the delicious aroma of one to another, and communicate hardier and more abundant bearing habits to the hybrid progeny, but further, especially in stone fruits, such as peaches, plum, apricots, &c., we may, in addition to these advantages, increase the size of the fruits and diminish the size of the stones; and among vines, get rid of, or greatly diminish the number of, the seeds. And all this I hold to arise from that law of nature by which she not merely strains her efforts to reproduce (to which, however, she assigns a limit), but extends it when these have failed, to make provision for her creatures' wants. These views gather strength from what has been already done; and I may especially allude to what Mr. Standish, of Ascot, has achieved among grapes, of whose extraordinary results an interesting account is given at p. 135 of the *Journal of the Royal Horticultural Society* for July, 1866.

In conclusion, permit me to observe that, while my aim has been, in all the experiments I have brought before you, rather to achieve something useful and practical than to test the theories which Mr. Darwin and others—especially the Continental savans—have been so much engrossed with, I cannot refrain from remarking on the results and the conclusions which some of them have come to on prosecuting a series of crossing operations, tending to show that such crosses do and must eventuate in sterility. M. Naudin seems, like Wichura, as already observed, to have limited his experiments chiefly to herbaceous or soft-wooded plants; and among such, especially among calcularias, I too have often found myself brought to the terminus of bitter and hopeless sterility. I remember one instance where I had reached a perfect monster for size in that tribe, but except in that particular it had no other desirable property. Determined, however, to improve it by crossing, I found on trial I could make nothing of it, and on examination I found its stigma was a hollow tube, and that its anthers were hard masses, and contained not one particle of pollen. Man may run into such mistakes, but he cannot thence conclude that unviolated nature does so. Speaking from a general recollection which does not admit of my specifying instances, I have often found among hybrid seedlings some of a vigour which, in that respect, were in advance of either parent. May not such often occur in nature, and, as a naturally selected parent becomes the progenitor of a hardier and more vigorous race (which having in it, according to Darwin's views, a tendency to diverge), may it not culminate in the long lapse of time into a distinct species, and even annihilate the weaker one which gave it being? So that, in nature's crossing, may not fertility and vigour take the place of sterility and weakness, into which she so generally dwindles when modified by man's device?

THE SURE FOUNDATION.

There are two things which speak as with a voice from heaven, that He that fills that eternal throne must be on the side of virtue, and that which He befriends must finally prosper and prevail. The first is, that the bad are never completely happy and at ease, though possessed of everything that this world can bestow; and that the good are never completely miserable, though deprived of everything that this world can take away. For there is one reflection which will obtrude itself, and which the best would not, and the worst cannot dismiss—that the time is fast approaching to both of them when, if they have gained the favour of God, it matters little what else they have lost. But if they have lost His favour, it matters little what else they have gained. The second argument in support of the ultimate superiority of virtue is this: We are so framed and constituted that the most vicious cannot but pay a secret though unwilling homage to virtue, inasmuch as the worst men cannot bring themselves thoroughly to esteem a bad man, although he may be their dearest friend, nor can they thoroughly despise a good man although he may be their bitterest enemy. From this inward esteem for virtue, which the noblest cherish and which the basest cannot expel, it follows that virtue is the only bond of union on which we can thoroughly depend. Even difference of opinion on minor points cannot shake those combinations which have virtue for their foundation and truth for their end. Such friendships, like those of Luther and Melancthon, should they cease to be friendships of agreement, will continue to be friendships of alliance; approaching each other by angular lines, when they no longer proceed by parallel, and meeting at last in one common centre, the good of the cause in which they are embarked.

FRENCH FRUIT GROWING.

By W. ROBINSON, F.L.S.

As my writings, both in the *Times* and elsewhere, have had the honour of being quoted in the *GARDENER'S MAGAZINE*, and as there has been some little discussion of the matters I have treated of, it is with the greatest pleasure I comply with the Editor's request, and put the matter in as clear a light as I can. By so doing, I may in some degree benefit the horticultural public and save myself from misrepresentation.

Now, before we begin, I wish the reader distinctly to understand that there is nothing very extraordinary about French fruit-growing—nothing miraculously useful in what is called the cordon system—nothing about the matter at all, in fact, which should make us hasten either to abuse what is said of it or adopt any of their ways without due consideration. Slovenly fruit-growing is to be found in France as well as in England; but, taking all in all, they are before us in the culture of outdoor or hardy fruits, and, great as we are as gardeners, we must not be above taking a lesson from them in this matter. We are, on the whole, better horticulturists, especially in what concerns indoor plants, and what we may term the luxuries of gardening; but in the management of a fruit garden, and in the culture of vegetables for market, they do very creditable work indeed, and that which is sometimes surprising for its neatness, and the immense quantity they take off the ground. However, fruit is our theme. For centuries the French have been great fruit-growers, and many of the practices now common, or becoming so, in England were old in France before we even introduced them. Let it be distinctly understood that the district I am now speaking of is that of Northern and North-western France—a climate almost identical with our own, and quite as difficult for the fruit-grower in early spring, as is shown by the pains which the cultivators are obliged to take to protect the blossoms. France is divisible into five climates, so to speak—*i. e.*, the Séguanien, or north-west; Vosgien, or north-east; Girondin, or south-west; Rhodanien, or south-east; and Provençal, or southern. These are each distinct, and present many temperatures and varieties of conditions for fruit-growing, but the district which furnishes the peaches and grapes and pears and apples to the Paris market is that of the first-mentioned climate, as changeable and as disagreeable as our own, but warmer in summer as a rule, though not to the degree that is usually supposed amongst ourselves. It is quite common to hear people talking nonsense about the "fine climate of France," although the cliffs of its coast are as readily seen from Dover as if they were those of one of our large estuaries. The araucaria never attains any respectable dimensions in the neighbourhood of Paris; indeed, I doubt if it will live but for a very short time; and not a few things that we grow here with impunity cannot be ventured out there. But I cannot possibly give you a better illustration of the fact that the Parisian fruit-grower is, to all intents and purposes, as little indebted to the climate as ourselves, than by drawing your attention to this wall and its coping.

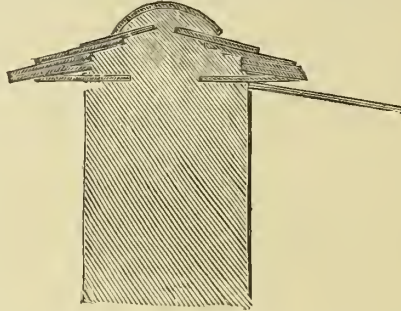


Fig. 1.

My firm belief is that, by paying wall-fruits as much attention as they deserve, we may attain as good a result as the French; in fact, I have eaten as good peaches from English and Irish walls as the most fastidious could desire, and as good as ever grew in France. But what I complain of is the comparative scarcity of the fruit, and the little attention that is paid to it generally. Nothing affords a more certain result than the peach. With good treatment the crop hardly ever fails; yet, in the presence of this cheering fact, there are hundreds of people with wall-space, either covered by useless climbers or bare, who never enjoy, or even taste, a peach unless they go to that miserably dear place Central Row, Covent Garden, where even when peaches are at their best in autumn, you may see little rubbishy fruit fit for nothing but pig-feeding, and two shades lower in quality than I have often bought in Paris for one halfpenny, marked at threepence each. To see such utter rubbish arrayed in a basket so as to look priggish, if not wholesome, is, as I take it, a sad and lamentable sight. If you want to get a peach that you can eat you must rise to sixpence, ninepence, or a shilling for it, though perhaps, from the disgracefully crowded and inconvenient state of the market, and from other causes which need not be named, the grower of the peach gets not one-fourth the price charged for them. As I have had to stand up for some phases of French gardening a good deal of late, I prefer quoting the following statement as to the price of peaches in Paris to giving my own experiences. It is written in a contemporary journal, by a person unknown to me: "I visited Paris for the first time in August last, and nothing more surprised me than the abundance and the quality of French fruit, accessible as it was to the poorest labourer. I purchased deliciously ripe peaches for one halfpenny each, fine ones for one penny, and for twopence-halfpenny such as I may fairly term superexcellent." Of course, many would say the climate is the cause of this; but I say we can produce quite as good a result in Kent. All the best peaches for the Paris market—all the ripe ones that come to it, in fact—are grown in the neighbourhood of Paris; and in all cases, with a good cultivator, the wood is carefully laid in to ripen, and the walls are coped as herein illustrated. (See fig. 1). It will be seen that there is, in the first instance, a prominent permanent coping (of tiles that overlap each other), and then there are long iron rods that project from under the permanent coping eighteen inches or two feet in a downward direction. Those rods are placed at six feet apart or so. The use of these is to permit the cultivator to slip temporary copings over the walls in spring, and thus efficiently protect them from the frost. I know one cultivator with 4,000 yards of tarpaulin on little light wooden frames, which he places beneath the permanent coping during the season of flowering. When the crop is out of harm's way, they are taken off and stored away for another season. Then the walls are exposed to the light as freely as could be desired. Some growers use little neat straw-mats made to conveniently roll along and throw off the water. Is not this a sufficient commentary upon the great differences of climate supposed to exist between England and northern France? The finest peaches in France come from within a few miles of Paris, not from the sunny south or the balmy south-west. However, the peach is not such a very important object with me as some other matters, and after merely introducing the reader to the village of Mon-

trouil, I will pass on. That is the place where the supply of peaches for the Paris market chiefly comes from, and an interesting village it is; nearly all the land round it being divided into small oblong spaces by the abundant white walls for the peaches that net over the land in all directions. In some of the gardens the cultivation is rather poor and careless, in others it attains the highest degree of perfection. Here is a sketch of



Fig. 2.

what catches the eye soon after entering the very large garden of M. Lepère one of the most distinguished cultivators. The cut can give no idea of the beauty of the tree, which stands against a tall white wall, and shows as conspicuously when its green leaves are as if the highest art of the advertising agent were used to print it thereon. I do not introduce it here as a model for imitation, far from it! It is simply engraved to show the command the trainers have over the trees. There is a finer example in the same garden to illustrate that, namely, the Napoleon peach; but as that has been before now figured in our garden literature, I prefer giving that which delineates the name of the worthy old man who for half a century has cultivated peaches here, and taught their cultivation with success. Every Sunday morning during the spring and summer time, you may see him with his class, teaching every phase of the culture. In this respect he differs a good deal from some of our own market growers, I think. Generally the trees are treated on the spur system, one which we never apply to the peach, and which to our eyes looks odd, perhaps, in connexion with that fruit; but so well do they take care to "equalize the sap" that the lower shoots are furnished as well as the higher, and the very stumps of the old trees are clothed with a spray of young stubby branches, which hide as well as shade their bark in summer. It is only fair to state that these fantastical trees, if we may so term them, are literally paved with fruit. They are however, merely for ornament, and the growers never think of adopting them for general work, preferring the fan, or what they call the palmette, which is like our horizontally trained tree. Our own fan method of training the peach is, when well done, very good; but how often do we see the trees badly attended to, the wall perhaps without an inch of coping, and the trees almost left to chancé during the season when they require most attention—in spring. Public attention has been called from garden walls in favour of more expensive and uncertain modes for a good many years past; but, depend upon it, our fruit gardens will never be what they ought to be till we learn to manage walls well, and to take advantage of every inch of wall-space that we can obtain. I had a letter from Mr. Watson, the manager of Sir Robert Peel's estate at Geneva, to say that in his neighbourhood they have actually covered a village church with peach and apricot trees, and that during the season the sexton, who is a good hand at fruit, gives lectures to the natives every Sunday morning on that art! Now, although I by no means wish to uproot our cheerful old friend the "ivy green" from his own special domain, I must say that there is a vast waste of wall-space in all parts of this country.

We will next turn to what is called the cordon system, of which probably some of your readers think I am an advocate. It has many forms more or less excellent, but of all the lot I have only felt justified in strongly recommending one, and that is the low horizontal cordon for the production of first class apples, and to enable us to do away with standard trees in gardens. (In orchards or outside the garden nothing can be better, but in the garden we want as little shade as possible). *Le cordon est la forme réduite à sa plus simple expression: une seule tige garnie de brindilles fruitières.* Here is a cordon (fig. 4). It is simply a term used to describe a tree with a single stem, and

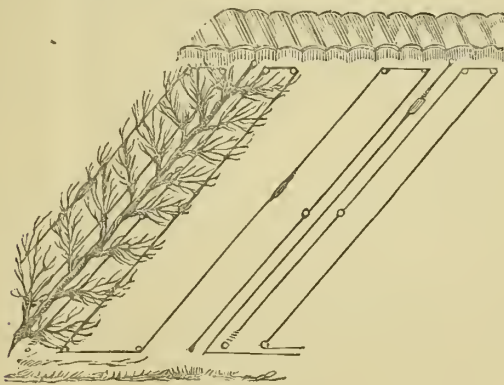


Fig. 4.

generally these are only useful in special cases—for the fruiting of seedlings, for obtaining a large variety of fruit in a small space, and so on. Generally, the *cordon oblique* that is here illustrated is considered the most useful for walls. The cut given here illustrates the way of arranging the wires for these cordons; but let us come at once to that kind of cordon which has been proved to yield a capital and distinct result, and which is used to a great

extent in France as an edging to the kitchen and fruit gardens. Here is a figure of it. This is a fair figure of some specimens bearing large crops of Requette du Canada that I have seen in France. The splendid apples recently shown at the Paris Exhibition were in most cases gathered from low horizontal



Fig. 5.

cordon trees, and the method is rapidly gaining ground in France, as being the very best of all for obtaining a supply of first-class fruit. It will yet be universally employed in good British gardens, notwithstanding the prejudice that now exists against it in the minds of some of our best cultivators. I desire to be distinctly understood in this matter, as some people condemn the system advocated without knowing anything about it, or even ever having seen a specimen of it. The prejudice alluded to is quite natural and accountable, and arises no doubt from the number of diminutive and useless toy-trees which have been sold to the fruit-growing public of late years. The great disappointment caused by these has given people a distaste for such things. They are right generally; but the particular form I wish to recommend will not disappoint them if they give it a fair trial. It is simpler and better than any method used in British gardens for the production of choice and handsome apples, fine in size, colour, and every quality. The dwarf bush and pyramid apples, so much grown by some, are grafted on the same kind of stock, but there is greater difficulty in training them to a desirable form; much of their wood, leaves, and fruit is not fully exposed to the sun, and altogether they are inferior to the horizontal cordon, of which we give two illustrations. Fig 5. represents the commencement of a line of horizontal cordons, and is the kind precisely suited for making edgings round plots of ground, &c.; or it may, on the other hand, be planted rather thickly on warm borders. To shortly explain the advantages of this method, I have merely to point out that the fruit are larger, and of a finer colour and flavour, in consequence of what we may term earth-heat.

As the apple flowers late, and is very hardy, it generally escapes the severe ground-frosts of spring, and the apple is the only fruit that we can at present recommend to be grown in this way. In consequence of the extreme dwarfness of the line, we may protect them with greater facility than any other form, and as only choice kinds are recommended to be grown, in this way, it may in many cases be considered worth while to do so. The fruit and leaves are fully exposed to the ripening and beneficial influences of the sun. The plan of training is so simple and definite that anybody may manage it. The form to be attained is precisely defined to the mind of the trainer from the day the wire is laid down. We have merely to allow the single branch to grow in the desired direction, and pinch in the side shoots now and then during the summer to three or four leaves, beginning in May with the strong "water shoots," or *gourmands*, which would rob the tree, and continue to attend to the pinching now and then during the growing season. This will induce the shoots to form fruit-buds at their bases; so that, if well managed, the line of cordons will, in a few years, prove a mass of fruitful spurs. Sometimes the point of one cordon is grafted on to the bend of another, but this is not at all necessary or desirable. A good deal depends on the pinching. It must not be done when the shoots are too young, or they will go on continually throwing out as soft shoots the buds that ought to form fruit-buds. These cordons formed a continuous line on each side of the main walk of the fruit and kitchen garden at Ferrières, the magnificent seat of Baron James Rothschild, about twenty-five miles from Paris. The truss of short and well-set buds that ran along in a regular line was ten inches or a foot in diameter, and the whole literally roped with the noblest and best apples in cultivation. A more pleasing sight could hardly be seen in a garden, and it is even prettier when, in spring, the long line is full of flower. Acting as an edging to the fruit and flower borders, it is in the way of nothing, shades nothing, but is, on the other hand, an ornament to the garden. The wire is best supported at from 10 in. to 15 in. from the ground, and great care should be taken to equalize the sap, *i. e.*, pinch the tree so that when full-grown it may be equally furnished with buds in all its parts. A galvanized wire is the best to use.



Fig. 6.

The figure No. 6. illustrates a form equally adapted to the same ends—the bilateral cordon. It is also particularly well suited for laying along at the bottoms of badly furnished walls, and from little trees in such a position we may get such specimens of Caville Blanche apples, such as they sell in Covent Garden for a couple of shillings apiece.

Plant the trees at from six to ten feet apart according to the quality of the soil. Where possible, use the "French Paradise" stock in competition with what is called the "English Paradise," and in fine sandy soils it would be wise to try the Doucin stock, using in all cases good varieties of apples, and taking care to secure a regularly furnished and well developed line of spurs. Space prevents me going into the subject more fully, and there are besides other important things to be spoken of.

Having said so much for this particular cordon, I now pass on to the naturally developed forms, so to speak. Most emphatically do I agree with recent recommendations of yours with respect to allowing trees something like a free development. What a sad and truthful tale that afflicted but eloquent amateur told the other day in your columns. Therefore I beg of your readers, if they have the least supposition of my being an advocate for what are called toy-trees, to banish it from their minds at once; I am nothing of the kind, nor are the French horticulturists. I believe that at this moment there are more poor little diseased and starved and pinched-to-death trees around London alone than in all France! The French are too

well acquainted with the nature of trees to pinch them to nothingness. They allow a free and natural development even to those trees that receive most pinching attention from them. Root-prune they do when a tree requires it; but none of that ceaseless root-pruning is practised by them that has for such a length of time been so prevalent amongst ourselves. Their pyramids generally attain a goodly size and beautiful proportion. They grow cordons of pears sometimes in little gardens, where the proprietor is what we may call a fancier of curiosities in fruit-growing, and for the fruiting of seedlings, &c.; but in general the forms on their walls are large, simple, and natural, and the same applies to the very neat and cheap trellises that they employ, instead of our cumbersome and awkward espaliers. Toy-trees, forsooth! Reader, if I had had but one lesson in this matter, it would have sufficed to teach me that more of what is unsound and bad and costly in practice has been taught and accepted in this matter of fruit-tree cultivation for the past generation than in any other rural pursuit whatever.



Fig. 7.

Not long ago I paid a visit to Oak Lodge, Addison Road, Kensington, one of the most beautifully laid out places near London; it is, in fact, one of Mr. Marnock's very best examples of the villa garden. On passing near the extensive rockwork and charming piece of water, I was struck by the picturesque beauty of a large pear-tree; the leaves and fruit were quite gone. The handsome form of the tree, and the drooping of its long bud-laden side-branches, drew my attention to it, and on inquiring further I found it was a *Beurré Diel*, and one as famous for its supplies to the fruit-room as for its appearance in this exquisite pleasure ground. No pruning, at any time or of any kind, was given to this fine tree; no more attention paid it, in fact, than one of the common deciduous trees of the plantations, yet it is very doubtful if any over-pinched dwarf tree in existence would afford as good a result as even one branch of this noble old specimen, which would be worth growing

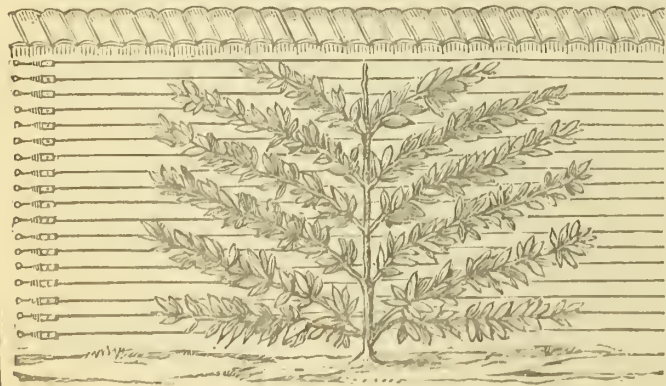


Fig. 8.

in such a position for its flowers in spring alone. And so Mr. Marnock must have thought, or he would not have suffered it to remain among the choice specimens of rhododendrons, and other shrubs that embellish the place. For a gene-

ration this tree has borne large crops of fruit, and of twelve dishes of *Buerré Diel* recently submitted to the Fruit Committee of the Royal Horticultural Society, a dish gathered from this very tree was pronounced the best! And the aspect of the fine collection gathered from it on the 15th of this month fully proved that their good opinion was well won. Here is a testimony in favour of full and free development of which few will doubt the value—here a significant commentary upon the unnatural and bad system that we have, in too many cases, followed for years. Nobody will deny but that much good has been done by judicious root-pruning, and that pinching and summer pruning properly carried out are things which we *must* practise and study more and more; but it is their indiscriminate adoption for every case that we have to battle against. That great harm has been done in this direction most practical men know, but the state of our fruit-rooms after Christmas, in ninety-nine out of a hundred of our gardens, abundantly proves it also. The pyramid well managed is a most excellent method for growing the pear, but the pyramid badly managed, and in the state described by the amateur above referred to, and who wrote so eloquently, because truly, is as bad as bad can be. We do not plant half so many pyramids as we ought; but even if we had pyramids as abundantly and as well managed as the French have them, even around little houses, that would be only one step in the desired direction. Here I introduce the reader to a specimen of a class of forms of pear-tree that is largely adopted in the Imperial gardens, and apparently with a very good result. The tree is not large, but so shaped that the branches get an equal supply of nutriment, unlike those of the old espalier. The various ringings in the branches indicate the successive cuttings required to get the tree to its full development. By growing this type of tree on the cheap and neat trellising they adopt in France, the advantages of having a great variety of fruit from a comparatively small space are gained, and at the same time you have what we may term a naturally formed tree. Having alluded to their trellising being adopted in preference to our own old and clumsy way of training espalier trees, it is now time to say all this kind of thing is beginning to be done on a very neat, cheap, and effective plan, in the best French fruit gardens. So many failures have we seen in British gardens as regards the placing on the walls of the wire to which to affix the trees, that it has been given up as a bad job, and many have said that the old-fashioned shred and nail were the best things. But there is a very much better and sounder way, and I am completely converted as to the value of the French mode of wiring a wall, of which fig. 7 is an illustration. It is done with the same galvanized wire they apply to the cordons, and in much the same manner. In the first instance, several strong iron spikes are driven into the wall at the ends—in the right angle formed by two walls, in fact—and then rough nails, or rather hooks, are driven into the wall in straight lines by a mason, exactly in the lines of direction through which we want the wire to pass. The wires are placed at about ten inches apart on the walls, and the little hooks for their support, also galvanized, are placed at about ten feet apart along each wire. The wires are made as straight as a needle and as tight as a drum, by being strained by a little tightener. A man may do as much training along one of these walls in a day as he could in twelve with the old nail and shred. Now, if we consider the expense of the shreds and nails, the procuring and cutting of the former, the destroying of the surface of the walls by the nails, and the leaving of numerous holes for vermin to take refuge in, the great annual labour of nailing, the miserable work it is for men in our cold winters and springs,—it will be freely admitted that a change is wanted badly. The system of wiring a wall above described is simple, cheap, almost everlasting, and excellent in every particular; and it must ere many years elapse be nearly universally adopted in our fruit gardens.

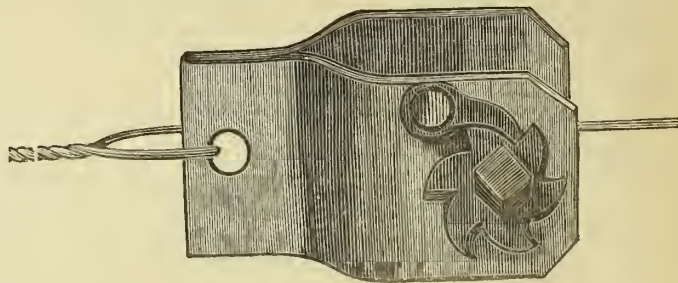


Fig. 9.

To make their capital trellises erect posts of T iron are used, and the same little *raidisseurs*, or tighteners, as are employed for walls and cordons, and, indeed, all their garden wire-work. Fig. 8 will explain this at a glance: it illustrates one of the cheapest and best forms of *raidisseur*. It will be readily seen that no straining-post is required with this kind of thing; the wire being fastened in the axle, and by turning that (which a child can do) we get the degree of tightness required. There are several forms of this all alike in principle. By their use a very slender cheap kind of wire may be used instead of the bolt-like iron we use at present. Here space compels me to finish, though there are several points upon which I had intended to enlarge at greater length.

I have not alluded to the extraordinary way in which I have been attacked for noticing the few merits of French fruit-growing in the *Times* and other journals, and by those who before I wrote had been engaged in praising French gardening for a generation past; but that, perhaps, is better left untouched by me. And, after all, those who endeavoured to throw discredit upon my statements have indirectly done good; for they have led to my being able to call public attention to the matter much more forcibly, and to my ascertaining that our wants in the fruit way are much greater than I had supposed at first. I am not without hope that it may eventually lead to our being enabled to supply our own markets, which we are so far from doing at present, that one importer alone brings to them £10,000 worth of French pears every year, and has done so during years when the demand was less than it is at present.

P.S. Since writing the above I have read an article in the *GARDENER'S MAGAZINE* for the 9th of November, in which the sort of objections that my papers have met with is embodied in a plausible and scientific form. Before I ever said a word about French fruit-growing I knew the exact differences of the two climates, and, what is more, I experienced them. Concisely, I reply to that article by saying, If the climate of France was so hot that the French would have to devise means to keep their trees cool, and I had recom-

mond English gardeners to go and do likewise, its arguments would apply to my case. Otherwise they do not. In the districts of France that I am alluding to, the peach and winter pear are put against walls to get heat, and against walls with a good aspect. I assert that against walls we can grow the peach as well as the French, and as cheaply; and, in other respects, render ourselves independent of them for fruit. Time shall tell us if I am right. Of course at present everybody says I am wrong. *Nous verrons.*

EXPERIMENTAL CULTURE OF GERANIUMS.

In reference to the note which you inserted of mine, at page 464 of your Magazine, and which you have noticed in your article on "Bedding Geraniums," at page 487, I did not intend, by stating the experiment referred to, to ignore the blending of colours in crosses. What induced me to state that experiment without any comment was, that there was hardly a possibility of any mistake in making it, as only the two plants were in flower in the house at the time the seed was obtained, and, having carefully crossed them myself had more faith in that cross than any I ever made, and wished to have the experience of others on the same subject. It is facts, not theories, I wish to advocate. I am well aware we must often use the words "chance," "sport," and "accident;" but it is merely an acknowledgement of our ignorance of the principle or law by which the Governor of all things sees meet to regulate that to which we apply them, for assuredly no such terms can be applied to any of the operations of His workmanship. I am also aware that blending of colours does take place, and, as you observe, were it not so, "there would be but little interest in the proceeding." Still, may blending of pollen (on this subject we have yet much to learn) not arise from insects in some way immediately before or after impregnation by a particular flower, and in this way thwart the operations of the hybridizer. The above experiment is the only one I can point to to prove that such a thing was next to an impossibility, and in *no* case was there a blending of colours of the two parents.

In Lawrence's "Physiological Lectures," I found a case in point from the animal world, which he quotes from Col. Humphrey, and where he states, "the increase of a common ewe impregnated by an ancon (the name given this particular breed) ram follows entirely the one or the other of the parents, without blending any of the distinguishing and essential peculiarities of both. Frequent instances have happened where common ewes have had twins by ancon rams, when one exhibited the complete marks and features of the ewe, the other of the ram." What happens in the animal world may also happen in the vegetable world, and it looks like a confirmation of my experiment.

In the article above referred to, you state "from seedlings derived from Christine in any way, whether as a father or a mother, you would expect about nine-tenths of pink flowers, so powerful is this variety as a parent to transmit its colour to its progeny." In my experiment I did not find it so, for the colours were pretty equally represented by both parents.

This season I have a seedling between Madame Vaucher and Dr. Lindley, the flowers of which I think little, if anything, inferior to the latter in shape and size, but the colour is a light pinkish salmon on a white ground—very pretty; so that it appears to be influenced to some extent in colour by both (supposed) parents (for there were many geraniums in flower at the time the seed was impregnated); although I have seen Madame Vaucher when much exposed to the sun of a very similar colour to my seedling.

I may mention that my experiments on the variegated tribe of geraniums were more to find out the capabilities of these plants to perpetuate their peculiarities than through any love I had for them, although individually some of them are very beautiful. Hitherto I have looked to form in the flower as the first quality in a geranium (I adopt your nomenclature, and discard *pelargonium* from this section), and have taken always a deep interest in your papers on that subject, and feel satisfied they must have done good service in bringing about a sound and wholesome state of things; for however much plants like *Stella*, *Cybister*, and *Black Dwarf* (and they are the best of that class) may yet be necessary to fill up the border, I have no doubt a time is coming when we shall see plants equally capable of withstanding the weather, and making even as good a show there, and yet individually as well formed, as the best shaped flowers we at present possess, such as *Dr. Lindley*.

In bedding geraniums, however, I differ a little from you, and think they should all have plain leaves and be without a zone, so that we may have breadth of colour. The dark zone, in my opinion, swallows up, if I may be allowed the expression, the colour of the flower, and I think is one cause why such plants as *Punch* have so long kept possession of the field.

I am glad to find from *Dr. Denny's* reply to my query that his experience so far agrees with mine, viz., that when the cotyledons are entirely green the plants afterwards exhibit no sign of variegation. This I think is very important when fully proved, and I do not yet find even one exception from it in my own experience; and as this would enable any one with a limited supply of room, and who was only wishing to cultivate variegates, to get quit at once of a great many seedlings, and thereby give the remaining plants more room, and a better opportunity to display their variegation, and also save both time and labour on that which in the end would prove worthless.

I do not know if I understand exactly what *Dr. Denny* means by "The fact of the eye at the foot-stalk of the splashed cotyledons of an entirely green plant assuming the variegation when it pushes into a shoot," &c., &c. We are agreed that if the cotyledon be splashed, that the after foliage of the plant will be variegated, so that if the word "*splashed*" be omitted I can at once see what is meant, as *Dr. Denny* afterwards puts the query, "Are the shoots thus obtained 'to be considered in seedlings as sports?'" In this case I should suppose if a seedling sent out a shoot differing from the original plant, it was as much a *sport* from that seedling as any sport arising from an entirely green plant; the word "*sport*" being given only to cover our ignorance or our inability to give a reason for its production, and we are therefore just as much at a loss in the one case as in the other to account for the change that has taken place. Although the sport from the sporting seedling may not be such a radical sport from the original as the variegate from the green plant, still it is so only in a less degree.

I quite agree with the doctor that much may be gained by comparing notes, and at some future period, as I observe changes taking place, it will afford me much pleasure to communicate them. W.

"Did any of you ever see an elephant's skin?" asked the master of an infant school in a fast neighbourhood. "I have!" shouted a six-year-old at the foot of the class. "Where?" inquired the old man, amused by his earnestness. "On an elephant," was the reply.

Calendar.

WORK FOR WEEK COMMENCING DECEMBER 28.

Kitchen Garden and Frame Ground.

KITCHEN GARDEN.—Make plantations of rhubarb, sea-kale, asparagus, and horse-radish. Roots of dandelion, packed together in leaf-mould and put into gentle heat, will furnish a delicate salad in five or six weeks. Paskall's sea-kale pots are best for the purpose. Keep dung and all soluble matters under cover. Turn over manures, and put aside, in heaps to be frozen, rotted leaves, and other materials suitable for potting, and when well sweetened and pulverized remove to bins in the potting shed to keep dry for use. Get sticks and stakes tied up in bundles ready for use; wheel turf and weeds to the muck-pit; get pots washed and sorted over, and crocks sifted into sizes for the potting-bench. This is a good time to make new drains, improve watercourses, and plant edges. Sow early peas and beans on warm dry slopes; broccoli to be heeled over with their heads to the north.

ASPARAGUS.—See that the soil of the forcing-beds is sufficiently moist. A heat of 55° to 60° will be sufficient, but it must not decline below 55°. Straw hurdles are of great service to prevent a cooling of the bed during severe frost and north-east winds.

RHUBARB AND SEAKALE PUT INTO FORCE.—We object to the usual plan of blanching rhubarb as spoiling it; unless it is acid it is worthless, and the blanching system as followed for the markets only produces a mass of vegetable pulp without beauty or flavour.

PEAS AND BEANS.—Sow in boxes or on a bed in a frame, in case the open-ground sowings are all eaten up, when these will be useful to transplant. The best plan is to sow the seeds on turf-sods, laid grass-side downwards; the turf should be cut about four inches wide, and the seeds sown along the centre, and the whole regularly laid out to form a bed in a cool frame. The process of transplanting consists in removing the sods with the plants into the prepared trenches. As the plants are apt to push through the turf, it is best to lay the sods on a hard surface, so that when lifted there will be no damage to the roots.

GROUND WORK.—Take advantage of open weather to push on planting and ridge up vacant ground to the frost. During frost is a good time to empty muck-pits and wheel out manures; and if the ground is not too hard frozen, turn over the plots that are already ridged to expose a new surface to the frost. When earth-work of all kinds is at a stand-still through severe weather, some good jobs may be found in repairing fences, clearing up litter in the rubbish yard, collecting rough material for paths and drains, and burning weeds and refuse.

Flower Garden.

FLOWER GARDEN.—Bulbs ought to be all planted by this time; but if any remain out of the ground, get them in without delay. Take up tea roses that are in exposed situations, and lay them in by the heels in a shed out of reach of frost. Cut down fuchsias that are to remain out all the winter, and cover their roots with litter or coal-ashes. Pansies, pinks, and other choice things in open beds should have a little light litter sprinkled over them in frosty weather, or be protected with canvas or hoops. Tulips protect in the same way. Look over plants in frames, and take off dead leaves, and keep the plants moderately dry.

BULBS not yet planted must be got in, and as they are unusually fine this season, purchases may yet be made. We always advise early purchasing and early planting; but if we would ever excuse delay it is now, the stock being in such prime condition that the bloom is sure to be satisfactory, though the after-growth may be weak through their remaining out of the ground too long.

CARNATIONS AND PICOTEES.—The young stocks look amazingly well this season. They require plenty of air and very moderate watering, and to be kept clean.

ROSES should now be heavily mulched with half-rotten dung. If the dung is quite green and rank, it will do as well, but thoroughly rotten dung is almost useless as a mulch for roses—in fact, a waste of valuable material. Roses may be planted now during dry weather; the ground to be in good heart, deeply trenched, and well manured. On loamy land broken up from grass roses do better than in ordinary garden soil, and those who grow for show should either use turf liberally or break up meadow ground for their best plants. Get in briars quickly before the best are gone. Manettis layered during summer may now be divided and planted out in rows for budding next season.

EVERGREEN SHRUBS planted now must be heavily mulched with dung to keep frost from their roots.

AURICULAS.—Remove the old decayed leaves, but in doing so be careful not to injure the plants. The plants must never be dust-dry, let the weather be ever so severe. We mention this because during hard weather good collections are occasionally ruined, the growers forgetting how hardy the plant is, and how much its constitution is injured by drought. But beware of damp, and during frost avoid watering until a favourable change occurs, if possible.

CULTIVATION OF THE RANUNCULUS.—To bring the ranunculus to perfection requires generous cultivation; in a poor soil or a dry climate it languishes, and soon becomes degenerate; and at certain seasons it requires vigilant watchfulness, or all previous expense and labour may be lost. But it deserves all the attention that may be necessary; and as there need be no mystery about its cultivation, so every lover of high-class flowers may adopt it as a familiar friend. If you turn to some of the older writers, or question some of the older growers of this flower, you will learn that nothing is more difficult to grow than a fine ranunculus; failure is seen to be more frequent than success; and the whole of this is to be attributed to the quackery and epiricism of men incapable of reasoning on the commonest garden operations. The ranunculus is a tuber which throws out a bunch of fibres, that strike downwards into the soil; it is perennial, loves moderate moisture, and a firm loamy bottom; and as it blooms in the hottest and driest months of the year, it needs frequent watering and occasional top-dressing to prevent excessive evaporation. The proper soil is a rich mellow loam, the proper manure well-rotted cow or horse dung; recent manure ruins it; so do any exciting compounds of night-soil, blood, or chemical stimulants, or excessive quantities of manure of any kind, all of which have been recommended in bewildering numbers, and the proportions stated with ridiculous precision. If the soil of the garden is at all suitable, manure it well in pre-

ference to preparing composts; if it is not of a loamy and somewhat crumbly character, procure the top-spit of an old pasture—one in which buttercups abound is best—ridge this up, turn it occasionally for six months or more, and with this and well-rotted dung prepare your bed. A model ranunculus bed would be formed of loamy soil that had been ridged up and turned over once a month for a year. The old soil would then be taken out to a depth of fifteen inches, a layer of rotten cow-manure two inches thick would then be placed in it, the old-sweetened soil would then be worked up well with half its quantity of decayed stable and cow manure, and with this it would be filled up, and then edged either with some neat and low-growing edging-plant, or with edging tiles, which would have the effect of an elegant stone moulding, with the advantage of being easily removed in altering or breaking up the bed. Arrangements would then be made, by means of hazel hoops and rods, or a properly constructed piece of light iron-work, for the reception of a tarpaulin or canvas, to exclude late frosts, heavy rains, or excessive sunbinc, during the blooming of the plants. Without precisely such arrangements, an amateur desirous of a gay bed of ranunculuses, but not aiming at the production of show flowers, might make sure of a good display by properly planting them in a well-manured loam in a *firm state*, and if prepared three months before planting, all the better. The roots of the ranunculus always work deep, hence a shallow soil is quite unsuitable. A depth of three feet is none too much, and if the lower spit is a sound loam the roots will reach it, and frequent watering will be less necessary. In a very heavy soil a little sand may be added with advantage, but a very slight admixture will be enough. It is getting customary now, as we remarked in this place a short time since, to plant the ranunculus in February; November used to be the month, and, in situations not subject to severe spring frosts, November and December may still be considered the best times for planting. Not that the flowers are finer,—they are simply earlier; and for this gain there is occasionally a risk of losses through frost. The bed ought to be prepared a full month at least before planting, to give it time to settle and become firm, for failure is certain if the soil lies light and spongy. For February planting, the bed ought to be ready early in January, and the best time for planting is between the 1st and 20th of February, the precise day or week being determined by the weather. There has been a good deal of discussion as to the proper planting season, but it is now pretty generally agreed that autumn planting is attended with risk, for which early blooming is the only compensation, and that the first twenty days of February are the safest for collections of any value. In cold, wet, and very tenacious soils, or in exposed situations, it would even be better to defer planting to the first week in March; and planting may be the more safely deferred with the ranunculus than with most other tubers, for they retain their vitality out of the ground two or three years, and, if kept cool and dry, suffer but little exhaustion by delay. To plant a bed of ranunculuses is rather a delicate affair. It should be left to no subordinate who is not thoroughly capable of delicate gardening manipulations. It is a bit of fancy work for the amateur himself, and one in which he will take pride and pleasure. First of all, judge if the soil is in a proper condition. It ought to crumble when handled, and scarcely soil the fingers. If pasty and adherent, the planting had better be delayed till a fine day has dried it a little, for unless the soil can be banded freely, the planting will turn out a clumsy affair. There is more than one way of planting ranunculuses. Some growers mark off the bed, and then just stick the claws of the tubers into the soil, and cover the whole with sand; others dibble them in, in the way that beans are sown by farmers; but the best plan is to drill them. Choose a fine day; have your tubers sorted as you mean to plant them, and you zinc or wooden talleis ready. You have already at the fireside planned how the colours and sorts are to be arranged, and have entered in your note-book all the necessary heads, so that when you begin planting you will have to work only and not to consider. First rake the soil so as to give the bed a gentle convexity; then put down the line for the first row; and with a small pointed hoe, or the corner of a common one, draw the drill exactly two inches deep. The orthodox depth is an inch and a half, but I prefer, and therefore recommend, a trifle deeper, on the principle of giving the root free work before the foliage appears, as well as to escape as much as possible the effects of the very late frosts to which we have been subject for some years past. Into the drill sprinkle a very little fine sand, then proceed according to your book, and plant the first row of tubers, inserting the proper label *at once*, not trusting to memory a single jot. Each tuber must be gently pressed into the soil to about half the length of the claws, care being taken that none of the claws are broken in the process. The drills may be five inches apart, and the roots four inches apart in the drills, though some growers prefer six or even eight inches distance every way. The first mode will not be injuriously close, and it forms a very rich bed. When the drills are filled and talleied, sprinkle a little sand over the tubers, and then neatly rake down the soil over them, and dress up the bed as you intend it to remain. It may be as well to state as a last word on this point, that if the roots are planted too deep they will not flower, for instead of throwing up the flowers they will exhaust their energies in forming new tubers near the surface. Be careful, therefore, never to make the drill more than two inches deep. As soon as the plants begin to push through, the bed should be carefully trodden over between the rows, firmness of the soil being the prime element of success in the general cultivation. If the weather is dry, they may be watered night and morning, and if the soil has not been so liberally manured as it ought, weak manure water may be used. The ranunculus likes a moist and generous soil, but nevertheless it is a mistaken notion to water it either frequently or copiously. Artificial watering never does as much good as is expected of it, and if it can be dispensed with it will be better for the plants. It is a good plan to mulch the bed with moss or old tan, or even ancient and well-sweetened manure, placing the dressing neatly along the rows. Such a procedure will frequently obviate the necessity for watering, and carry the plants through till the rain falls. This is a flower which rarely disappoints us, if it is properly treated. It needs a quiet sort of culture. Excessive drought, moisture, manure, and stimulating nostrums of all kinds, are inimical to success. The tubers should never be placed in immediate contact with manure; they should never be planted deeper than two inches; and should be arranged with the nicest care. Then for two whole summer months you will have a glowing carpet of colour, in which the brightest dyes will blend and mingle to form the softest, most harmonious, and boldest contrasts. The following list comprises the best sixty varieties of show ranunculuses known: Costar's Apollo, Crimson Apollo, Auriga, Ann Hathaway, Alexis, Balcon, Beritola, Com. Napier, Coronation, Cedo Nulli, Campardown, Chevlier, Delectus, Delight, Dr. Darwin, Dr. Horner, Edgar, Eliza, Eva, Exhibitor, Eupatoria, Fairy, Postus, Grand Prior, Gover, Goldfinder, Herald, Henning, Horatio, Humboldt, Indicator, Jenny Meldrum, Kilgour's Princess, Liffey, Lord Gough, La Téméraire,

Lord Berners, Marquis of Hereford, Miss Forbes, Melanthon, Meekness, Miriam, Mustapha, Mackenzie, Mary Howitt, Miss Gair, Model of Perfection, Mélange, Melpomene, Miranda, Mrs. Travers, Naxara, Oceana, Orange Brabançon, Oeil Noir, Orissa, Playfair, Petrel, Preceptor, Pertinax.

Fruit Garden and Orchard House.

FRUIT GARDEN.—Dig round old fruit-trees, and lay down a layer of old dung six inches thick, in a ring, three feet round the stem of each, and the size of the fruit will be improved next season. Trees that are sufficiently luxuriant should not have manure. Root-prune any trees that grow too luxuriantly to bear well. Give protection to any tender fruit-trees, and lay boards in a slope over vine borders to shelter them from excessively cold rains. Unmail from the walls the younger shoots of tender wall-trees to prevent premature breaking. Let nothing lie in by the heels an hour longer than can be helped. Bush fruits properly taken up and properly planted ought not to miss the move in the slightest degree, but you are sure to lose a whole season if they lie about waiting to be planted. Strawberry beds may be made this month, but it is not a good time to plant strawberries.

Bush fruits should be planted, potted, pruned, and manured. Burn the prunings, and if the ashes are not wanted for any particular purpose throw them round the roots of trees; they are powerfully fertilizing. Gooseberries and currants may be lightly forked between to mix the manure with the soil, but raspberries should have three or four inches of dung, not very rotten, laid over the piece, and the soil between them should not be dug at all. Orchard-house trees may be pruned at once, and washed with a solution of eight ounces of Gishurst's Compound to a gallon of soft water.

APPLE AND PEAR TREES infested with moss or vermin may be much benefited by being painted all over with a mixture of Gishurst's Compound and clay, or a mixture of lime, soot, and clay. If the painting is entrusted to a boy, take care that he applies the brush by an upward movement; if allowed to brush downwards, many spurs will probably be destroyed.

Greenhouse and Conservatory.

GREENHOUSE.—Chrysanthemums will keep the houses gay till after Christmas, when the first lot of forced shrubs, especially azaleas, will come in to take their place. In the conservatory, whatever flowers are at command may be made the most of by judiciously intermixing with them good plants of Yucca, Acacia lophantha, Camellias, and others possessing characteristic foliage. Hard-wooded plants in the greenhouse must have as much air as the weather will allow, and as little water as possible, as we may soon expect severe frosts. The thermometer should not descend below 38°. Soft-wooded plants will be subject to mildew if the house is at all damp, and must have fire-heat during foggy as well as during frosty weather. Shift any specimen plants that are in need of increased root-room. Peaches to fruit early must be frequently syringed, and have as little fire-heat as possible, but the heat may be allowed to rise, with plenty of ventilation, during sunshine. Ericas must have air at every opportunity, and, if forced with other flowering shrubs, must have the coolest place in the forcing pit, and be very gently stimulated. Greenhouse temperature, 40° to 45°.

CONSERVATORY.—Let nothing suffer now for want of fire-heat. Forced bulbs will require warm positions, but Heaths, Epacris, and other hard-wooded plants may be at the cool end. For succession now, Mignonette, Primulas, Violets, Lily of the Valley, *Luculia gratissima*, Poinsettias, Euphorbias, and *Justicias* are particularly valuable. Keep the atmosphere pretty dry, to prolong the bloom of Camellias, Azaleas, &c. Average temperature 45° by night, and 55° to 65° by day.

PELARGONIUMS to be kept as much as possible without fire, but to dry the house it may be useful occasionally. The fancies need warmth the most. Specimens may be tied out, and late-struck plants be shifted on. Give water with caution.

BEDDING PLANTS should be looked over occasionally, and the pits and frames emptied and filled again to clear away all dead leaves and ensure a good airing. Amateurs have many losses through lack of attention to this work, and mildew makes havoc unseemly while there appears to be nothing the matter. Short of actual frost, the more air the better, and if water is wanted give a good soaking on a fine morning when the barometer is high and steady, so that the balls may get a little dry again before change of weather to wet or frost.

VERMIN.—Now that gardeners have a little breathing time is a good opportunity of cleaning frames, lights, and the under sides of stages, and other places where vermin harbour. In the stove there is often great need of such work when there is no time to do it.

CAMELIAS.—These to have similar treatment to that advised for Azaleas. The whole stock ought to have been disbudded long since; if neglected, do it now, for generally speaking the plants are loaded with more buds than they can expand properly. Plants coming into bloom to be assisted by sprinkling the borders, paths, and pipes occasionally, to allow a diffusion of vapour. There is no class of plants that more enjoy atmospheric moisture, but as the blooms expand they require a drier and cooler air.

CINERARIAS throwing up their flower stems to be put in an intermediate house for early flowers. The most backward to be repotted at once, so as to make fine specimens for a very late bloom. Keep the stock clean, use sulphur where mildew occurs, and fumigate for green-fly. Give particular care now to specimens for exhibition; remove small shoots, and peg down those that are best placed to produce a round and solid head of bloom.

Stove and Orchid House.

STOVE.—We suppose the cultivator to be able now to furnish the conservatory with showy specimens of *Euphorbia Jacquiniflora*, *Poinsettia pulcherrima*, *Gesnera zebrina*, *Begonias*, *Lucentias*, *Camellias*, &c., &c., from the stove. But there must be a succession, and one of the first things to consider now is how to make the stove available, not only for the preservation of its ordinary inmates, but to forward furnishing plants for other structures. *Phim-bago eupensis*, *Cytisuses*, *Azaleas*, and *Camellias* should therefore be introduced at the coolest end of the stove, if there is room for them; a few *Roses* may be forced with them, and many ornamental-foliaged subjects will be found useful if in a clean and healthy state. Mixed stove selections must now be kept rather cool, as growth is not desirable. Keep the atmosphere of the house sweet by giving air on fine days, and be careful to remove dead leaves, mosses, and liverworts in pots, and whatever impedes the circulation of air or engenders unwholesome vapours. All plants approaching a state of repose to have little or no water. Plants in active growth must be watered with caution; let them have enough, but see that they do not stand in pans with stagnant water about their roots, or in wet places in the midst of mildew. Temperature of stove, 60° by night, 60° by day, with a rise of 10° during sunshine.

ORCHID-HOUSE.—In collections where there are now only a few orchids

in a growing state, the forcing-pit may be turned to account to receive them, so as to allow of the cooling down of the orchid-house, and securing thereby a complete state of repose for the plants, which is scarcely possible if there happen to be a few fine specimens pushing into bloom, or in an active state of growth. It is at this time of year we see the full value of divisions which can be respectively devoted to orchids from different climates and requiring now different temperatures. Orchids at rest to be kept comparatively cool and dry; 50° by night and 60° by day will be sufficient. Variegated orchids must have very little water now, and if in a warm house will do better without than with bell-glasses; they are, indeed, generally kept too close. Rot and spot are diseases peculiar to this season, and are the result of too much moisture in the house or of drip from the glass.

Orchids that may be in bloom in December.—*Angraecum bilobum*, *eburneum*, *eburneum superbum*, *sosquipedale*; *Arpophyllum spicatum*; *Barkeria elegans* and *Skinneri*; *Bletia Shepherdii*; *Brassavola Digbyana*; *Burlingtonia amoena*; *Calanthe vestita rubra oculata*; *Cattleya maxima*; *Warscewiczii*; *Calogyne Gardneriana*, *media*; *Cymbidium giganteum*, *Mastersii*; *Cypripedium insigne*, *insigne Maulei*, *purpuratum*; *Dendrobium album*, *moniliforme*; *Dendrochilum glumaceum*; *Epidendrum vitellinum*; *Grammatophyllum speciosum*; *Laelia acuminata*, *albida*, *anceps*, *Maryanii*, *peduncularis*; *Leptotes bicolor*; *Lycaste Deppeii*, *Skinneri*, *Skinneri alba*; *Miltonia Karwinski*; *Odontoglossum maculatum*, *membranaceum*; *Oncidium Barkerii*, *bicallosum*, *Cavendishii*, *incurvum*, *unguiculatum*; *Phajus grandifolius*; *Schomburgkia crispata*; *Sophranites cernua*, *grandiflora*, *violacea*; *Zygopetalum brachypetalum*, *Mackayii*.

Forcing Pit.

FORCING.—Keep asparagus going for succession. Rhubarb, seakale, and French beans will soon be in request. Lay a few picked tubers of early potatoes on a warm flue to sprout for planting over dung-heat; and get a bed or two ready.

FORCED PEAS AND BEANS.—Tom Thumb is the best of all peas for forcing; sown now and grown in pots, in the same house with French beans, it will give a good return. Those who force for Covent Garden sow in October and November. This pea is of dwarf branching habit, and of very little use for outdoor work, being tender in constitution.

VINES breaking to have a gradual rise of temperature, beginning at an average of 55°, with a rise of 10° during sunshine. As the vines acquire a vigorous growth, raise the heat so as to average 65° by day and 60° by night when they come into bloom. Too sudden a rise will make long joints and weakly growth, independent of the injury to the crop. A warm dry border will do as much as the best management of the temperature of the house.

CUCUMBERS.—Bearing plants will require occasional watering with liquid manure, and as much light as possible to keep them in health. Remove male blossoms as fast as they appear. Keep the atmosphere moist; temperature, 60° by night, 70° to 75° by day, 80° with sunshine. Sow singly in pots for succession plants; we can particularly recommend for present sowing Carter's Champion, Cuthill's Black Spine, Highland Mary, and Telegraph.

MELONS for a first crop to be sown at once. Sow them singly; it is no gain in the end to have to divide them when several seeds are sown in one pot; it is too great a check.

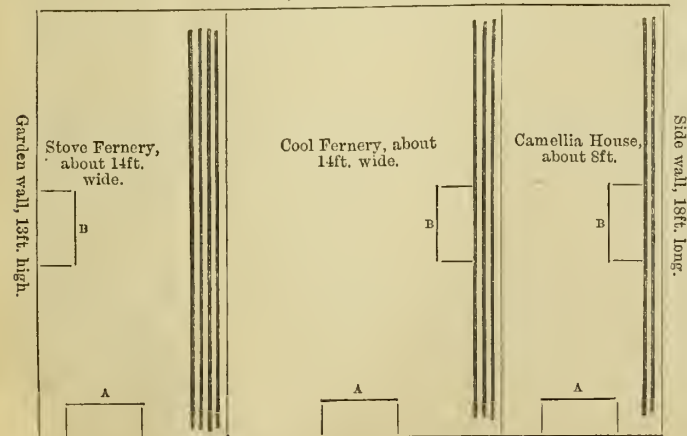
Correspondence.

PLANT-HOUSES, CONSTRUCTION OF.—Having a corner, of which I enclose a plan, with the dimensions and purpose I should wish to carry out marked thereon, I shall feel greatly obliged by your informing me whether it would be better for my object to make the front of glass or brick. The roof is intended to be a span, the back rafter, about 8 feet long and about 13 feet high at the apex, of rough plate-glass. Would not this be the best, proper shading being difficult to accomplish? The ferneries are intended to contain rockwork. I should like also to know what quantity of 3 or 4 inch hot-water piping would be required for each, and the best place for laying it, particularly in the stove, as the other parts would require but little heat.

B.

[So far as we can understand your case from the plan and description given, it appears that you propose to have one span-roof the whole length, to be divided into three compartments; and you ask what quantity of piping would be required for stove-ferns and the other two cool houses, and where it would be best to place them all. These questions we cannot answer definitely, as you do not show where you will have the entrance to either house, nor give us the position of the boiler, if you already have one, or if not, where you intend to place it; nor do you give any description how you will arrange the interior of the two ferneries. If we knew where you intended to enter each house, and the position of your boiler, we should have no difficulty in giving you the advice you require; but in the absence of this need-

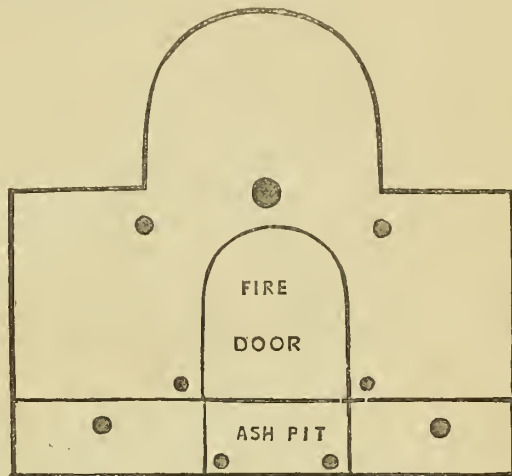
A HOUSE 25 FEET HIGH. Back wall, 37ft. long, 13ft. high,



Front at present open, faces due south-west.

In information we can only suggest what appears to us, at this distance, as the most desirable position. Assuming that you will enter each house separately from the front or south-west aspect, at A A A on the plan, we have shown the number of pipes required in each case, and, as will be seen, the position of each is the same. Considering the width of the houses, and the purposes for which they are required, it would add to the room considerably if the pipes occupied a chamber just under the floor of the house, with an iron grating over them to let out the heat; the space over the chamber with an additional width will serve for the walk; 4-inch pipes would be the best. As to rough plate-glass doing away with the necessity of shading, my experience of it in a very large conservatory would lead me to choose the ordinary glass, and to fix inside the roof a shading of tiffany of a rather stout texture. If this is fixed to the roof on the first outburst of summer weather, and taken down again on the approach of autumn, it would answer every purpose, and with care last a long while, and its appearance in houses filled with such subjects as you propose gives to those who are inspecting them a sort of security against heat, and actually makes the houses look cooler than they really are in the heat of summer. A brick wall, 3 feet above the ground level, and the remaining part glass, would be the best for the front, allowing for the doorways. Having answered your questions in the best way we can from the details given, you will allow us to ask you how you think you will like the interior of the houses, if built as you suggest, after they are finished. Our idea is that you will be disappointed with them, and therefore offer the following suggestions for your consideration. Would it not be best to divide the whole into two spans, running north and south, or nearly so, with a division in one span to form the cool houses, the other to be used as a stove fernery? or, if you like it better, let the largest be the cool fernery, and one of the divided ends for the stove. We like the appearance of the span as you propose from the outside, but we feel sure we should dislike the appearance of the hip from the inside, unless the houses had a stage in the centre, and could be entered at B, so as to come in under the centre of the span.]

STEWART AND SMITH'S FLANGE STOVE.—Having seen several inquiries about stoves for heating plant-houses in the GARDENER'S MAGAZINE, I send you a very rough sketch of one that we have had here for two or three years. It is the best stove that I have ever seen in more than thirty years' practice. We have it in a conservatory of the Gothic style; it is about 34 ft. by 13 ft., with three roofs, a high centre one, and one lower on each side.



Owing to the centre of the house opening into the middle of the front hall, we were obliged to place the stove at the west end; if it could have been placed in the centre, half the firing would have heated it; as it is, it consumes about one bushel of coke in twenty-four hours—such weather as we have had lately—to keep the house at 50° by day and 40° by night. The stove consists of about twenty pieces bolted together. Ours was put together by a carpenter, and all the bolts were finished with red lead. It is about 20 in. in breadth each way, and 24 in. high.

J. H.

GARDEN SEEDS.—Unless there is a great alteration in the sending out of seeds, gardeners will never know what they have sent them. For instance, a gardener sees some kind of vegetable strongly recommended by yourself or some correspondent, and writes for it with his other seeds, and the parties send some seed with the name on it that he sent for; but nine times out of ten he finds it anything but what he sent for. Now, why don't seedsmen either say they have not got it, or don't know where to get it, and not send some spurious article in its place? I was served thus by the highly spoken of Northumberland white celery in 1866; and a gentleman near here got some celery this year that was to be the finest grown, and grew the whole of his crop from it, and has not a stick fit for the table. How provoking, after all the labour, to find it good for nothing at all! Then, again, as regards Snow's broccoli, as your excellent correspondent, Mr. Clarke, says, how difficult to get it true! I had some called Snow's in 1866 with the celery above-named, and instead of its being a nice dwarf kind like Snow's, it grew from 2ft. to 3ft. high, and never headed at all, but was cut down with the frost like a cauliflower. Then, again, the cauliflower, how difficult to obtain it true to its kind! Also that old, but one of the very best lettuces, the brown Bath black-seeded Cos; if you write for it you most likely (at least I have always found it so) get a black seed, and when you have grown it, there is not one in ten, and perhaps none, of the true kind; but as soon as it is full grown, and you think of tying it up for hearing, it is running away, so you have none for the table after three months' work, sowing, planting, &c.

Toddington.

JOSEPH HUNT

Why is a woman mending her stockings deformed? Because her hands are where her feet belong.

MEASLES AND CUCUMBERS.—A lady who had two children sick with measles wrote to a friend for the best remedy. The friend had just received a note from another lady, inquiring the way to pickle cucumbers. In the confusion, the lady who inquired about the pickles received the remedy for the measles, and the anxious mother of the sick children with horror read the following: "Scald them three or four times in very hot vinegar and sprinkle them with salt, and in a very few days they will be cured."

Replies to Queries.

Carnations, Picotees, and Pinks.—Constant Reader.—It is our rule not to recommend dealers, and you must therefore discover for yourself, where to buy what you want. The following collection comprises the cream of the several classes: **CARNATIONS:** *Scarlet Flakes:* Christopher Sly (May), fine; Sir H. Havelock (Puxley), Rising Sun (Kirtland), Mrs. Holland (Hardman)†, Illuminator (Puxley), John Bayley (Dodwell)†*.—*Purple Flakes:* Earl of Stamford (Elliott), Squire Mynell (Brabbin), Mayor of Nottingham (Taylor)†*, Premier (Millwood)†, Florence Nightingale (Sealy), No. 10 (Kirtland), No. 3 (Kirtland).—*Rose Flakes:* Lovely Ann (Eley), Lord Belper (Eley), Poor Sam (May), Rose of Castile (Heady)†*, Alice (Kirtland), Mr. Martin (Elkington).—*Scarlet Bizarres:* Admiral Curzon (Easom), Dreadnought (Daniels), William Pitt (Puxley), Captain Thompson (Puxley)†, Sir J. Paxton (Eley)†*, Challenger (Puxley).—*Crimson Bizarres:* Tenby Rival (Puxley)†, Hope (Puxley), Monarch (Puxley), Misnomer (Puxley), Phidias (Puxley), No. 50 (Kirtland)†*.—*Pink and Purple Bizarres:* Falconbridge (May)†*, Shakspeare (May), Captivation (Taylor)†, John O'Groat's (May), Sarah Payne (Ward), William Catleugh (Puxley).—**PICOTEES**—*Heavy-edged Red:* Ne Plus Ultra (Heady)*, Mrs. Norman (Norman), Favorita (Kirtland), Countess of Wilton (Kirtland), Mr. Lachner (Turner), Exhibition (Elkington).—*Light-edged Red:* Engenie (Turner), Mrs. Reynolds Hole (Turner), Miss Holbeck (Kirtland)*, Ada Mary (Smith), Duke of Wellington (Turner), Lanretta (Smith).—*Heavy-edged Purple:* Lord Nelson (Norman), Rival Purple (Heady)*, John Linton (Heady), Duke of Buckingham (Elkington), Mr. May (Turner), Countess (Fellows).—*Light-edged Purple:* National (Kirtland), Amy Robsart (Dodwell), Princess of Wales, ex. ex. (Kirtland); Eliza (Payne), Rev. G. Jeans (Kirtland)*, Neah Robiusion (Kirtland).—*Light-edged Rose:* Rosy Circle (Payne), Bertha (Warris), Lucy (Taylor), Mrs. Taylor (Taylor)*, Mrs. Sewell (Kirtland), Rev. H. Matthews (Kirtland).—*Heavy-edged Rose:* Flower of the Day (Norman)*, Elise (Kirtland), Princess Alice (Kirtland), Miss Meeking (Kirtland), Leua (Kirtland).—Those marked with asterisks are the best six in each class; those with daggers the best twelve.

Gloxinias.—New Beginner may keep his gloxinias wherever they will be dry, and in a temperature averaging 40° to 50°. They may be started from January to March in a moist heat of 70°, whether in a propagating house or on a dung-bed is no matter. Hotbed culture is the favourite method with many of the old-school of cultivators of this flower.

Camellia Propagation.—New Beginner.—The safest modes are by inarching and grafting. About the end of March is the best time for inarching; the stocks employed are seedlings of single flowering varieties; they are slightly started into growth before being inarched upon, and after the operation is performed growth is promoted by a steady moist heat. Grafting may be done now as well as any time in the year, and onwards to the end of February. This method makes shorter legged plants than by inarching, as the stocks can be cut low down. If the grafts are put on in autumn or winter, it is best to keep the grafted plants in a cool-pit, giving very little or no air at all until growth commences, and then a little heat will assist them greatly. But if the grafting is deferred till late in spring, it is advisable to place them in a gentle heat immediately afterwards, that the junction may be promoted by a free circulation of the sap. Camellias may be struck upon their own roots. The proper time to make the cuttings is when the new wood is half ripe, say about the middle of June. The cutting pots should be filled with a mixture of peat and sand equal parts, with an inch of pure sand on the top. The cuttings ought to average four inches long, and be put in close together, and be covered with bell-glasses. A spent hotbed or cold frame is better than any hotter place for them. Propagation by cuttings of single varieties is practised for raising stocks for grafting the double varieties on, though seedling stocks are to be preferred. But the double-flowering varieties are rarely multiplied in this way, for on their own roots they do not usually thrive so well as when grafted.

E. S.—Your variety of *Scolopendrium* is singularly bold and handsome. Secure the plant by all means, and as soon as possible divide it, and when you have half a dozen plants, and the forking and tasseling continue constant, will be time enough for determining upon a name for it. It sometimes happens that a year's cultivation of a sport like this resolves it back to the normal form, and, of course, there is an end of all interest in the matter.

June.—The *Gardener's Magazine* is registered for transmission abroad, but there is no stamped edition published. The weight of two numbers, with wrapper packed for posting, is under four ounces, and two may thus be forwarded to any part of the United Kingdom for one penny.

A. C.—We have frequently considered the matter you refer to, and hope shortly to accomplish the end desired. "Country Life" is published at 10, Bolt Court, Fleet Street, London, E.C.

J. H., Tuddington.—We have no recollection of the notes you refer to. If you can make amusement of it, send what you wish to say on the subjects you name.

Plants for a Miniature Aquarium.—J. L. W.—*Hydrocharis morsus ranae*, *Riccia fluitans*, *Lemna* of several kinds, common *Nitella* and *Callitriche aquatilis*. You may extend the list by referring to Hibberd's "Book of the Aquarium." The last two will require to be fixed at the bottom amongst pebbles, the others will float.

OphioGLOSSUM lusitanicum.—It will be seen by advertisement in this week's issue that Mr. G. Wolsey, of Guernsey, will supply six plants of the "adder's tongue fern" for 12 penny stamps. Some time last year Mr. Wolsey made a similar offer, and many of our readers benefited by it. Mr. Wolsey states that this curious fern may be grown with others under glass. It should be watered all through its dormant season at the same time as the others. It becomes much handsomer under good cultivation than when growing wild.

Slugs and Worms.—C. F. G., Birmingham, has a small garden in an elevated spot, which is "absolutely full" of slugs and worms, and he wishes to know how to get rid of them. Assiduous attention to a few definite modes of destruction will accomplish all that C. F. G. desires. At this time of year there is not much to be done, but in mild weather slugs will be found in plenty, feeding on any scraps of decayed vegetation. As spring returns they will become very active, and then a regular system of killing should be adopted. Now there is no system so safe and certain as sprinkling fresh lime in powder wherever either snails or slugs abound. In the course of a few days the lime loses its virtue, and then becomes a fertilizer, so that to give a sprinkle once a week all through the spring will be to kill the slugs wholesale, and benefit the soil at the same time. If we had such a case to deal with, we should sow great quantities of lettuce-seeds in spring, and keep

the beds regularly sprinkled with lime; the lettuces will attract the slugs from all parts, and the lime will kill them. Nothing could be more simple. When the summer is advancing, little heaps of refuse vegetables will make good traps for slugs. Let the heaps lie for a week undisturbed, and the slugs will collect in them from all quarters; then turn them over and sprinkle with fresh lime, and again they will be destroyed wholesale. As for the worms, frequent tilling will do them sufficient mischief.

BIBBERGIA splendens.—No Name.—This is essentially a stove plant, requiring a temperature of 65° to 80° in summer, and 55° to 65° in winter. The proper soil is one consisting of equal parts loam, leaf-mould, chippy cow-dung, and sand. When growing freely, liberal allowances of water are necessary, but at other times the supplies should be rather sparing.

Removable Greenhouse.—I should be much obliged if any of your readers could give me some information on the following matter. I am desirous of erecting a small greenhouse sufficient to keep alive during the winter cuttings of geraniums, verbenas, and such ordinary bedding plants. As, however, I am holding a curacy which I may vacate at any moment, I am anxious to have my greenhouse removable. How can I best accomplish this? All the so-called removable greenhouses I have seen require a certain amount of brickwork. Does not this render you liable to have your house claimed as a fixture?

W. J. F.
[The only form of house obtainable in a ready manner which admits of removal is that known as Sir Joseph Paxton's patent. This is placed on brick or concrete piers, but there is no question of its legal removability, the house resting on but not being fixed to the piers. Any skilful constructor of plant-houses can, however, design a house which shall be as firm as a rock and yet admit of removal without difficulty.]

India-Rubber Tree.—A correspondent writes thus: Why is an India-rubber plant like a terrier? Because the smaller the more valuable. Ex.: My friend having a plant which he bought young at 2s. 6d., and kept till it is 5 ft. high, wished to exchange it for shorter plants. Seeing one in a seedman's window he asked the price, and was told 7s. 6d. He naturally supposed his fine, straight, well-grown, and vigorous specimen to be worth at least four small ones, but was informed that it was worth nothing!

[This is nothing new or surprising. When an India-rubber tree has been cut down, the after growth is never so elegant as the clean, straight, single stem of a plant that has never known the knife; and for a window tree a moderate-sized specimen is to be preferred to an unwieldy giant. In ordinary cases the only good purpose to which a large specimen can be applied is to furnish cuttings for propagating. In exemplification of the fitness of *Ficus elastica* for parlour culture, we could name a clergyman who has grown several in his drawing room, and when they became too large has presented them to the Crystal Palace.]

CATALOGUES.

SMITH AND SIMONS, GLASGOW. *Catalogue of Gladioli, 1867-68.*—A beautifully printed alphabetical list of all the best named varieties in the market. Lists of liliams and kitchen garden seeds for early sowing are added.—*Catalogue of Roscs.* A full descriptive list, with letters attached to the names to indicate which are best for exhibition, for town gardens, &c., &c.

JAMES BACKHOUSE AND SONS, YORK.—*Hardy Trees and Shrubs, including Conifers.* This catalogue is arranged on a new plan, separate sections being devoted to ornamental trees, to shrubs thriving in common ground and shrubs thriving in peat earth: in each section the genera and species are arranged alphabetically. There are separate lists of rhododendrons and climbing shrubs. It is admirable in every respect except its shape, which is a heterogeneous square, like "Notes and Queries; a form unsuited for binding with other catalogues.

Othello was lately performed at Hayti by a company of negro actors, and the part of *Othello* was taken by a black man who painted his face white.

"What brought you to prison, my coloured friend?" "Two constables' sah." "Yes, but I mean, had intemperance anything to do with it?" "Yes, sah, dey was bofe of 'em drunk."

Diogenes being asked why it was that philosophers sought the society of the rich much more than the latter sought theirs, replied, "Because philosophers know what they want, but the rich do not."

A little girl of three years was saying her prayers, not long since, when her little brother, about four years old, came slyly behind and pulled her hair. Without moving her head she paused and said: "Please, Lord, excuse me a minute while I kick Herby."

Sir Philip Francis (the author of *Junius*, according to Lord Macaulay) says "The most dangerous of men is an active fool. There is not stuff enough in a fool to make an honest man. It is possible to cure a fool of a folly, but you cannot cure him of being a fool."

A witness spoke of a particular person as having seen him "partially clad." "Was he not quite nude?" asked the examining counsel. "No, sir," replied the witness; "he always wore a pair of spectacles."

BUFFALOES STOPPING A TRAIN.—Recently on the Pacific Railway, in Kansas, between Ellsworth and Hayes, an exciting encounter took place between a herd of buffaloes and a passenger train. For three miles the buffaloes pushed along parallel with the train. Many shots were fired, but nothing stopped the tide of the stampeded beasts. Finally they swept across the track, ahead of the locomotive, fairly worsting the iron horse by bringing him to a halt.

STRENGTH OF CONCRETE WALLS.—Determined to see for myself what had been accomplished with concrete, I visited the concrete houses at Gravesend; and, fortunately for my conviction, I arrived at the time of the examination by the committee of the Metropolitan Board. I saw a 9-inch concrete wall battered with a 14lb. sledge hammer. Mr. Vulliamy, the architect of the Board, said that with about three such blows a hole would have been made through a 14-inch brick wall. I cannot say what number of blows were inflicted, but certainly the wall was struck vigorously, the only perceptible effect being a slight crushing of the stones on the surface of the concrete on the side hammered. Mr. Vulliamy tested the wall on the other side with a straight-edge, and declared that not the slightest effect was produced.—*Builder.*

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